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97th Congress }
1st Session }

JOINT COMMITTEE PRINT

EAST EUROPEAN ECONOMIC ASSESSMENT

Part 2—Regional Assessments

A COMPENDIUM OF PAPERS

SUBMITTED TO THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES



JULY 10, 1981

Printed for the use of the Joint Economic Committee

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LETTERS OF TRANSMITTAL

JULY 7, 1981.

To the Members of the Joint Economic Committee:

Transmitted herewith for the use of the Joint Economic Committee, the Congress, and the interested public is a compilation of papers assessing economic conditions in East Europe entitled "East European Economic Assessment, Part 2—Regional Assessments." This volume deals with questions concerning energy, agriculture, the transfer of technology, foreign indebtedness, defense, and other important issues.

We wish to express our gratitude to the Congressional Research Service of the Library of Congress for making available the services of John P. Hardt, who helped plan the scope of the research and coordinated and edited the contributions. He also wrote the lead essay in the compilation. Dr. Hardt was assisted by Kate T. Tomlinson of the Library staff. The project was supervised for the committee by Richard F. Kaufman.

It should be understood that the views contained in this study are not necessarily those of the Joint Economic Committee nor of individual members.

Sincerely,

HENRY S. REUSS,
Chairman, Joint Economic Committee.

JULY 2, 1981.

HON. HENRY S. REUSS,
*Chairman, Joint Economic Committee,
Congress of the United States, Washington, D.C.*

DEAR MR. CHAIRMAN: Transmitted herewith is a volume of papers on the economies of the countries of Eastern Europe entitled "East European Economic Assessment, Part 2—Regional Assessments." The volume contains papers written by scholars and specialists who were invited to contribute because of their expertise in East European affairs. The authors come from universities, private research organizations, and the Federal Government.

Of course, the views expressed in the papers are those of the individual authors and do not necessarily represent the views of their governmental or nongovernmental organizations or individual members of the Joint Economic Committee.

Sincerely,

RICHARD F. KAUFMAN,
Assistant Director, Joint Economic Committee.

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CHAIRMAN'S OVERVIEW

East European economic relations with the United States have taken on a central role in our political-economic relations. Economic performance is the critical area for both the East European leaders and that populace. In East Europe economic policy and performance provides both the bases for the greatest political maneuver room and leadership accountability. Success in economic performance may well turn on U.S. and Western policy toward the regions and its various country members in credit, technology export, and grain sales policy. Failure of economic policy may mean at least political instability, possibly, in some East European countries, open revolt.

For the United States and the Western Industrial Nations, East Europe is currently a substantial and potentially an even more important, expanding market for equipment, grain sales, and other products. In need of new markets and balance-of-trade surpluses, American commercial interests find markets in East Europe are promising, if their economies perform reasonably well. Reasonable economic performance in East Europe, which cannot be easily assured, is in our interest, as well as theirs.

We must be better aware of short-term or immediate crises that may arise in East Europe to better prepare ourselves for legislative and policy action. Many of these crises will have an economic base. It is important that the Congress, as well as the Executive, become familiar with the political problems and likely policy options for dealing with them. We should also be aware of the longer term issues that join and divide U.S.-East European interests. These cannot be well defined at this time, but some short-term issues are clear and may be enumerated.

CRISES AND ECONOMIC OPPORTUNITIES IN EAST EUROPE

Political crises for East Europe regimes and opportunities for improvement are centered on economic performance :

EAST EUROPE POST-AFGHANISTAN AND ISSUES RELATED TO ECONOMIC SANCTIONS

No East European nation joined the Soviet Union in sending troops to Afghanistan. Sanctions by the United States and other nations were not applied to any of the smaller East European nations. With the precarious and vulnerable economic conditions in East Europe restrictions on technology sales, credit, grain, or energy would have had serious, in some cases, catastrophic, impact on the economic performance of these countries.

VIII

ENERGY SHORTFALLS IN EAST EUROPE AND POTENTIAL IMPACT ON GLOBAL ENERGY BALANCE

East Europe has become an energy hostage to the Soviet Union for oil and natural gas supplies in recent years. In spite of serious efforts, economic and energy growth—especially involving hydrocarbon supply—are closely linked. Leveling off in Soviet supply may force East Europe further onto the world market with very limited prospects for financing their needs.

IMPACTS OF GLOBAL AND DOMESTIC INFLATION AND RECESSION ON EAST EUROPE

Recent imports of technology and energy financed by hard-currency payments have spurred economic modernization and improved living conditions in the last decade. However, rising prices for imports and recession-induced diminution in markets for exports have generated a rising debt burden. Likewise, rising domestic expectations and critical foreign demands for quality goods have fostered a new East European phenomenon—inflation.

EASTERN AGRICULTURAL MARKETS AND U.S. GRAIN TRADE

Historically a grain exporting area, East Europe has become a “permanent” grain-deficit region. The increasing need for feedgrain for livestock reinforces the demand generated in low bread-grain productivity. East Europe in average weather years has become a larger buyer than the Soviet Union from the United States. It is not inaccurately perceived in the American heartland that when the Soviets are in the world market for grain the American farmer makes a profit.

DEFENSE BURDEN AND WARSAW PACT MILITARY COMMITMENTS OF EAST EUROPE

The relative burden of defense is greater on the smaller nations of the Warsaw Pact than the European members of NATO. Particularly onerous is the diversion of resources from investment needed for modernization. Little wonder that the Warsaw Pact members that share neither the authority or benefits from external use of military power have an active interest in arms control between the United States and the U.S.S.R. Recurrent requirements for East Europeans to participate in non-European ventures of the Soviet Union tend to create tension and disputes.

COMMISSION ON SECURITY AND COOPERATION IN EUROPE (CSCE) MEETING IN NOVEMBER 1980, AND EAST EUROPEAN RELATIONS WITH THE WEST, ESPECIALLY ECONOMIC RELATIONS IN “BASKET TWO” OF HELSINKI FINAL ACT

The United States and Western nations initiatives in the “Basket Two” area may find their greatest response in East Europe. With little chance to influence security, human rights or political affairs, East

Europe gravitates toward some accommodation in economic and business relations with the West. The recent Hungarian Trade Agreement with the United States illustrates this economic flexibility in East European policy.

BROADER PERSPECTUS

The United States has long been intent in improving the lot of the people and increasing the sovereignty of the smaller nations of East Europe, even in the shadow of their dominant Eastern partner. Political "rollbacks" of the 1950's, military pressure on critical Western positions, such as West Berlin, and ever attendant objectives of greater independence, pluralism, and human rights in East Europe have shown little success for U.S. policy and generated considerable frustration. Western surrogates for a free press via Voice of America, Radio Liberty, and Radio Free Europe have all played important and positive roles. Recently, however, with economic interdependence, modernization, and consumerism dominating the policy of the East European countries, West Europe and the United States have found a newly effective source of influence. Moreover, for the most part East Europe has become a good and promising market for the West.

Under the umbrella of increasing Soviet commercial relations with the West, East European nations have opened their economies to Western imports. Economic interdependence involving Polish coal exports and American grain imports, cooperative ventures, such as production of International Harvester equipment in Poland for use there and sale on the world market have tied the economies closer together and made them somewhat interdependent.

As East European leaders and planners commit their economies to qualitative improvement, modernization becomes increasingly synonymous with emulating Western technology and management. As some economies, such as Hungary, open increasing number of sections to world market competition, they develop economic mechanisms more compatible with Western free enterprise economies and more able to compete with exports and pay for useful imports.

Rising consumer incentives designed to promote productivity and respond to the rising expectation of the citizen—consumerism in East Europe—also tends to emulate Western standards and economic mechanisms. All the countries in East Europe have become very responsive to an iron law of rising consumer requirements. Some face not only discontent, but strikes and violence if minimum expectations are not met.

We can share with these countries the goals of economic interdependence, modernization, and consumerism. We find not only political substance in the degree of pluralism, responsiveness to the citizenry that this implies, but also the pressure to divert resources away from the military burdens of the Warsaw Pact. We would hope that these pressures would be more effective in the future than they have been in the past. Likewise, we welcome the expanding markets, especially in Poland, Yugoslavia, Romania, and Hungary where we have trade agreements or long-standing normal commercial relations. We look to the day when the conditions of our Trade Act would be met by the other nations and we might proceed toward normalized trade.

In 1969 the Joint Economic Committee released its first volume on Eastern Europe, *Economic Developments in Countries of Eastern Europe*. In 1974, *Reorientation and Commercial Relations of the Economies of Eastern Europe* was released by the Committee. Three years later, *East European Economies Post-Helsinki* was released. These volumes joined what has become a triannual series on the economies of the Soviet Union, Eastern Europe, and the People's Republic of China. This volume allows a continuum of assessments of the East European economies and is intended to provide objective analyses assessing current economic problems of the 1980's. These are intended to provide Congressional Members and staff with analysis needed for legislative and policy needs. Congressional delegations to the region have benefited from these analyses for fact-finding missions.

In the current compendium, specialists from governmental and academic institutions in the United States, the Federal Republic of Germany, the United Kingdom, France, and Canada have assessed East European economic policy, performance, and prospects for the future. Special attention is given to changes in East European priorities and economic institutions, especially as they relate to commercial relations with the West, the United States, and the Atlantic community. While the German Democratic (G.D.R.), Poland, Czechoslovakia, Hungary, Romania, and Bulgaria, the core of nations of CMEA, are the central focus of the compendium, attention is given to East Europe's non-members—Albania and Yugoslavia. The U.S.S.R. is dealt with only to provide a frame of reference for analyzing policy and performance.

EAST EUROPEAN ECONOMIES IN FLUX: AN ASSESSMENT

By John P. Hardt

The beginning of the 1980's is a vital time in East Europe's economic development. Crises in decisionmaking present not only opportunities for improvement but also intractable problems, seemingly beyond the control of East European leaders and planners. Increased economic interdependence, modernization, and consumerism have apparently become the imperatives of economic policy in most of East Europe.

Economic issues dominate the relations of the United States with the individual countries of East Europe. The U.S. Congress has become increasingly interested in developments within the East European region as a whole and in individual nations. Congressional initiatives in and actions on legislative and policy issues have ranged from economic normalization (i.e., approving trade agreements) to political relations such as the return of the Crown of St. Stephen to Budapest. These actions have involved many congressional members, committees and staff in travel to the region. Security and human rights questions may rank high in American councils, but Eastern flexibility in those areas is largely limited by Soviet policy control. As a result, economic issues in which the Eastern European countries have more flexibility, dominate their relations with the United States.

In 1980-81 some of the issues that may result in congressional and Federal concern, policy action, or even new legislation include the following:

Polish Debt Crisis and U.S. Government/Private Credit Policy.

East Europe Post-Afghanistan Issues Related to Economic Sanctions.

Energy Shortfalls in East Europe and Potential Impact on Global Energy Balance.

Eastern Agricultural Markets and U.S. Grain Trade.

Impact of Global and Domestic Inflation on East Europe.

Fragility of Romanian Independence and Continued Political-Economic Normalization with U.S.A.

Commission on Security and Cooperation in Europe (CSCE) Meeting in Madrid in 1980-81 and East European Relations With the West, Especially Economic Relations in "Basket Two" of Helsinki Final Act.

Defense Burden and the Warsaw Pact Military Commitments of East Europe.

Post-Tito Viability of Yugoslavia: Political Stability and Economic Growth.

Hungarian Experiment With "Market Socialism": Prospects of Economic Reform of Other Eastern Economies.

In coping with these policy problems, East European leaders must relate the imperatives of economic interdependence, modernization, and consumerism to each particular problem. This East European political process will provide both opportunities and obligations for U.S. policymakers.

Economic interdependence was recognized as a global imperative of growing importance by the European Commission on Security and Cooperation in Helsinki in August 1975, and reasserted at Belgrade in 1977 and Madrid in 1980-81. The Soviet Constitution of 1977 stressed the related need for economic interdependence among nations of the Council for Mutual Economic Cooperation (CMEA) in Eastern Europe. Interest on the part of the Soviet Union and Eastern Europe in East-West commercial relations is unabated. Indeed, fulfillment of CMEA national goals of modernization and improved living standards seems increasingly tied to economic relations with the Western industrial nations. For the West, Eastern Europe and the Soviet Union remain one of the larger untapped markets for its expanded economies.

The economic fortunes of the East European economies have already been significantly influenced by policies and developments outside their area. Soviet policy and performance have been a major independent variable in East European performances since World War II. Increasingly in recent years the policy and performance of the advanced Western economies and OPEC have had a consequential impact on East European economies. Increasing economic interdependence has not been an unmixed blessing, however. Whereas the region benefits from advanced technology and external economies (e.g., cheaper materials), the costs of interdependence appear to be mounting sharply for Eastern Europe in recent years.

In a time of global economic uncertainty and change, it is important for East European leaders and planners not only to correctly anticipate external developments and policies, but also to assess their implications for formulating their own plans. Unfortunately, these tasks have not been sufficiently well performed in Eastern Europe to arm leaders and planners to accommodate to foreign developments. For example, until 1973 most European countries adopted the cheap hydrocarbon policy of the Soviet Union and the OECD to their current sorrow. In the 1980's the process of increasing economic interdependence, while making necessary internal structural changes will be especially difficult, the margins for error small and the cost of mistakes very high indeed.

Domestic economic plans and pressures for change in Eastern Europe underpin the likelihood of more economic interdependence. "Extensive" has given way to "intensive" economic growth as the socialist economies unevenly proceed into a new, more qualitative transitional stage of economic development. *Modernization*, the raising of efficiency in production and quality of supply close to that of the advanced Western industrial economies, has become imperative to support needed trade and to provide an opportunity for sustaining economic growth. *Consumerism*, the use of improved material incentives to foster productivity increases and insure political stability, has likewise become a given in East Europe. Albania alone has rejected

the imperatives of interdependence and consumerism. In the years ahead there will be extremely difficult policy choices requiring controversial assessments of the politico-economic costs and benefits of the available options for attaining an acceptable rate of modernization and improvement for consumers.

Increasing interdependence, modernization, and consumerism—the imperatives of East European policy and plans—threaten rising costs in terms of satisfying other priorities in resource allocation (e.g., defense commitments), challenge the traditional organization of the economy and long held socialist principles, and contradict the former goal of independence from foreign economic influences.

In formulating economic policy East European planners and leaders are faced with what may seem to be insoluble dilemmas with respect to internal and external economic policy. Each of them involves not only decisions for the short-term but also hard choices relating current cost to future benefits, a type of decision especially vexing to policymakers everywhere.

Dilemma No. 1. To expand economic relations with the West and OPEC countries while meeting domestic and CMEA demands.

In order to increase the efficiency of production and raise the quality of output to the level of the Western market, increased importation of Western products and technology is necessary. In the eyes of many East Europeans the prospective benefits of Western "economic miracles" await East European economies from effective absorption of Western technology. Like Western technology, increases in oil deliveries from the OPEC countries needed to sustain domestic economic growth must be paid for with scarce "hard goods," i.e., goods commanding hard or convertible currency on the world market.

However, expanding hard currency trade poses difficulties. Eastern goods often are not competitive on world markets. Hence, the Eastern European countries are likely to place even greater emphasis on compensation (product "buy-backs") arrangements and countertrade requirements. Some payments to the West and OPEC may be deferred, albeit at high long-term costs, by accepting high levels of commercial and governmental credit and heavier debt burdens. In order to reduce the Western debt burden to manageable portions, to husband scarce "hard" goods for domestic and Eastern markets and to reduce exposure to economic disturbances from political leverage by the West, commercial relations with the industrially advanced Western economies and OPEC should be held down. But to satisfy the imperatives of interdependence, modernization, and consumerism indicates the opposite. Somehow the East European countries must accommodate these costs.

Dilemma No. 2. To increase intra-CMEA hard goods trade and joint participation in Soviet resource development projects by smaller East European nations necessary in order to pay for hydrocarbons and other scarce materials from the U.S.S.R. while meeting domestic, Western, and OPEC economic requirements.

Oil, natural gas, and other scarce material and industrial requirements are expanding, creating critical import needs from the U.S.S.R. which are both expanding and critical in the drive for growth and efficiency. Both Soviet price increases and more frequent require-

ments to provide "hard" goods in payment raise the cost and burden of this form of intra-CMEA trade.

Such costs increasingly generate pressures in East European capitals to reduce the claim of imported energy on domestic growth generating activities and limit involvement in joint projects for the development of materials supplied primarily from the U.S.S.R. such as the CMEA-wide Orenburg natural gas pipeline project. Likewise, the defense and economic cooperation claims of Warsaw Pact and CMEA must be met to support Eastern solidarity. Pressures to support Warsaw defense requirements and Soviet foreign policy positions tend to impose high costs and burdens on domestic economic planning in the smaller East European nations. These broader costs may be an important part of intra-CMEA trade.

Onerous as the cost of some aspects of economic relations between the Soviet Union and the other CMEA countries may be, critical aspects such as energy exchanges are imperative for East European economic growth.

Dilemma No. 3. To provide higher quality resources in greater quantity for domestic investment to stimulate needed growth while meeting pressing current export commitments to the Soviet Union, OPEC, Western countries and contributions to the Warsaw Pact.

In order to increase the rate and quality of domestic economic growth, higher priority is needed for investment, especially for bringing on stream modern plant and facilities which can generate hard goods output for sale on the world market, and for meeting commitments at home and throughout CMEA. Future growth depends largely on current investment and the efficient use of production capacity.

Current commitments often entail giving priority to programs that compete with domestic investment. These include increasing domestic consumption as incentives for workers and managers; maintaining agreed to intra-CMEA relations including acceptable relations with the Soviet Union; meeting Western repayment commitments by exporting scarce hard goods; and limiting imports of Western investment goods for the sake of balancing foreign trade accounts in order to improve the East European countries' credit worthiness. Warsaw Pact defense claims, likewise, preempt scarce, high quality production facilities and skilled manpower. As pressing as these current claims on allocations of resources are, it is imperative that the rate of high quality investment be maintained and increased to stimulate economic growth needed for modernization and future consumer satisfaction.

Dilemma No. 4. To reform planning and management institutions and practices to stimulate productivity and quality of output while retaining traditional socialist institutions, principles, and practices perceived as essential.

In order to increase incentives to managers, workers and peasants to raise production, changes in the organization and staffs of planning, production, and trading organizations have been made. They are intended to increase competition, improve efficiency and eliminate "unproductive" activities. Consciously, if not explicitly, such changes are designed to incorporate the effective and necessary conditions of a well functioning market, while retaining the fundamentally socialist characteristics of the East European economic systems.

Reform or reorganization in planning, management and incentives, and which differentiate rewards according to productivity, tend to threaten some of the socialist institutions basic to the traditional approach to economic development in East Europe—domestic party involvement in the economy, job security and egalitarian wage payments. Increasing the role of the technical professional threatens the traditional role of the Party apparatus. Modernization of enterprises and economic sectors leads to reassignment or removal of some old professionals and reassignment of the labor force without the certainty of comparable re-employment. Differentiation in payments leads to inequality in material benefits and a possibility that some managers, workers, and peasants may suffer decreases in real income. Openness to the global economy may foster competition but also exposes the East European economies to the adverse consequences of Western recession and inflation. Notwithstanding all these costs, the European policies of modernization and consumerism make reform of their economic planning and management crucial.

Each of these dilemmas represents predicaments that have been faced in the past. However, in recent years sharply rising energy costs, global stagflation and other domestic and external events have led to a paradoxical result: East European planners are often compelled to follow growth-retarding policies, such as reducing energy imports for balance of payments reasons. Instead of expanding exports, import-reducing policies have been adopted, impairing the effect of investment programs in order to reduce debts with Western banks to acceptable levels. The cost and uncertainties of intensive economic development have become sharply more apparent to the Eastern European leaders and planners, while Western inflation and recession have made global relations uncertain and costly.

Looking to the 1980's, as the East European economies become more committed to economic growth with efficiency and to consumer satisfaction more in line with Western levels, they will become increasingly unable to provide for the necessary import requirements to fulfill their growth plans. While recent economic performance in many of the nations of Eastern Europe, including Yugoslavia and Albania, may be assessed as ranging from adequate to excellent by international standards, the leaders and populace alike, generally seem to view economic performance as insufficient to meet major policy needs or as inadequate to fill strongly felt popular needs. For example, even a 4 percent annual growth in GNP is not enough if a minimum of 5 or 6 percent is officially planned or popularly desired. Poland is notable among the exceptions to the generally favorable growth record in East Europe. Former Polish Party leader Gierek was outspokenly and justifiably critical of his country's negative economic performance. It is understandable that leaders pay particular attention to economic performance. Indeed it is no exaggeration to say that the tenure and effectiveness in office of most of the Eastern party leaders depend, in large part, on the satisfactory performance of their economies. Circumscribed by Soviet tutelage as the power of the East European leaderships is in military, political, and ideological matters, economic policy remains the area of greatest indigenous autonomy and responsibility. This is all the more reason why the East European leaders are held to special account for economic performance.

Although the Soviets may have less control over economic issues than over other matters, the policies of the Eastern giant have a profound effect on the East European economies. Eastern Europe's economic dependence on the U.S.S.R. has been underlined whenever the Soviets raise oil prices to Eastern Europe and tightened their allocations. This onerous materials price burden added to the ever present defense claims, makes the influence of Soviet policy on East Europe appear generally unfavorable. To put this well recognized burden in perspective, it is fair to note that the Soviet Union is still accepting East European goods in trade that can not be easily marketed elsewhere, especially in the West. The Soviet Union may thus receive more blame for unfavorable terms of trade than merited.

Unfavorable as Western inflation, trade restrictions, recession and the burdens of servicing the debt owed to the West have been for the critical development of East-West interdependence, modernization, and consumerism, the industrial West still appears to be the major source of economic good news in East Europe. Western exports of technology and supplies bear promise for necessary Eastern economic modernization and consumer improvement. Small as Western trade may be, it often appears to represent the critical margin for economic success.

In 1969 the Joint Economic Committee released its first volume on Eastern Europe, *Economic Developments in Countries of Eastern Europe*. In 1974, *Reorientation and Commercial Relations of the Economies of Eastern Europe* was published by the Committee. Three years later, in 1977, *East European Economies Post-Helsinki* was released. These volumes joined what has become a triannual series on the economies of the Soviet Union, Eastern Europe and the People's Republic of China. This two-part assessment supports a continuum of assessments of the East European economies and is intended to provide definitive analyses for assessing the current economic situation and for providing insights into the problems of the 1980's.

In the current compendia, specialists from governmental and academic institutions in the United States, the Federal Republic of Germany, the United Kingdom, France, and Canada have assessed East European economic policy, performance, and prospects. Special attention is given to changes in East European priorities and economic institutions, especially as they relate to commercial relations with the West, the United States and the Atlantic community. While the German Democratic (G.D.R.), Poland, Czechoslovakia, Hungary, Romania, and Bulgaria, the core East European nations of CMEA, are the central focus of the compendium, attention is also given to East Europe's nonmembers—Albania, and Yugoslavia. The U.S.S.R. is dealt with only to provide a frame of reference for analyzing policy and performance.

The chapters are grouped into four sections: Policy and Performance, Energy Performance and Prospects, Agricultural Performance and the Grain Trade, and Foreign Economic Relations. Issuing a companion volume on individual countries¹ is a change from the format of the earlier volumes. A special effort in the individual country studies was made to solicit comparable assessments of the recent eco-

¹ *East European Economic Assessment: Part 1. Country Studies.*

conomic performance of the non-CMEA countries—Yugoslavia and Albania.

The authors have provided their own summaries and the reader may wish to make up his or her own mind on differences in professional viewpoints. The following are some of the major questions raised by the papers with an indication of answers and where in the volume the relevant analysis may be found.

1. What has been the general policy and performance of the East European economies in the 1970's? What vulnerabilities are now apparent that will influence future East European performance?

During the 1970's, the Eastern European countries have continued their post-war industrialization drives at a rapid pace. Fundamentally, two patterns of industrialization may be followed by any country: Import substitution industrialization and export promotion industrialization. The eight East European countries have followed essentially the former path to economic transformation.

Import substitution industrialization relies on a protected domestic (or regional) market to generate demand for industrial products, which can facilitate achieving a rapid increase in output over a certain period. Rapid expansion of industrial production, however, requires increased supplies of energy, raw materials, semi-manufacturers, and machinery, which must be obtained increasingly through imports. But under such policies, many industries are protected from domestic and international competition; thus manufacturing products which are competitive on world markets is difficult. Sooner or later, the country will face a balance of payments constraint on the continued rapid growth of its economy. The timing and severity of this constraint will depend on (1) the availability of raw materials and agricultural products from domestic (or from protected regional) sources to supply the growing industrial sector and to generate foreign exchange, and (2) the availability of external financing to bridge the foreign exchange gap.

In contrast, export promotion industrialization can typically proceed without severe foreign exchange constraints; industrialization can thus become more a self-sustaining process. It, however, tends to be more difficult to initiate than import substitution, for political and economic reasons. For example, industrialization by export promotion typically requires policies that make explicit a considerable degree of reliance on domestic and external market forces. . . .

The Eastern European countries have been able to pursue . . . [import substitution] policies much longer than comparable market-type economies because up to now they have been able to rely—temporarily—on three special support mechanisms: (1) a highly centralized political system geared to resource mobilization and suppression of dissent; (2) the U.S.S.R. as a supplier of energy and raw materials and a market for manufacturers; and (3) access to a large Western credits in recent years. . . .

The common denominator in all five of the key vulnerabilities to which the Eastern European countries are exposed—growing dependence on energy and raw material imports, on imported grain and other agricultural products, on Western technology, on markets in industrialized countries, and on Western credits—is their need for hard currency. The root cause of this vulnerability is their deficient earning of hard currency via manufacturers exports, which in turn is a consequence of import substitution industrialization policies, traditional central planning, and the protected nature of the CMEA markets. (Marer, pp. 74, 75-76, and 79.)

2. Did the invasion of Afghanistan by Soviet forces and the resultant trade sanctions and Olympic boycott affect East European policies? Is economic performance likely to lead to political or economic crises in any East European country in the near term?

The invasion of Afghanistan by Soviet forces (December 27, 1979) had a traumatic impact on the authorities in Eastern Europe, many of whom have committed sizable resources, developed long-term planning and undertaken, in some instances, massive financial obligations on the assumption that their economic and political relations with the West will continue to expand in the foreseeable future. Overnight this assumption has become questionable due to events beyond their control. The unthinkable—a rejection of detente and return to cold war

mentality—became a distinct possibility as Moscow invaded a nonaligned state far from East European borders, and the world, in an overwhelming U.N. General Assembly vote, condemned its action. [Matusek, p. 96.]

The overriding purpose of Romania's foreign policy can be succinctly summarized in one phrase: National autonomy. Autonomy, always a relative concept refers in the first instance to a political capacity: "The ability to frame and carry out objectives . . . which may diverge widely from those of other countries." By logical extension, autonomy also refers to an economic capability to pursue planned development without requisite reliance upon the resources of any single partner. Ultimately, the successful maintenance of autonomy in international relations necessitates a military capacity as well: The ability to raise the cost of the use of force beyond adversary acceptability. [Laux, p. 107.]

They are all more exposed to movements in international trade and finance than their larger ally but partly sheltered (compared to their Western counterparts) by cooperation within the Council of Mutual Economic Assistance. . . .

The most decisive element in shaping the future is seen in the direction taken by the leading trading countries during a period of slow growth and other difficulties in the years ahead. The possibilities range from much improved cooperation to the collapse of past arrangements and a period of sharp rivalry and nationalism leading to bilateralism. In each case the eastern countries are likely to be significantly affected though they will not have much influence on the basic determinants of what happens. [Diebold, p. 434.]

Major international economic disturbances during the first half of the 1970's influenced internal economic conditions and policy tradeoffs in countries throughout the world. The sensitivity of individual countries to these disturbances varied as a consequence of differences in their domestic economic and political situation, their involvement in international commodity and factor markets, and their ability to introduce consistent and effective policy responses. Although the economies of Eastern Europe played only a very small role in the sequence of events leading to the world economic crisis of the 1970's, they could not remain isolated from the worldwide effects of this crisis. . . .

We will show that the traditional view that centrally planned economies were relatively isolated from world markets and had economic systems capable of insulating them completely from external shocks is much too simplistic. On the other hand, the alternative extreme view that world market disturbances are the dominant factor shaping recent economic developments in Eastern Europe is just as inadequate an explanation. [Neuberger, Portes, and Tyson, pp. 128 and 129.]

East European foreign trade statistics were compiled and systematized to present ordered information for the recent past. Still, problems remain in presenting and analyzing East European foreign trade statistics comparable to statistics reported by other trading countries in the West:

Because of the overvaluation of the ruble vis-a-vis the dollar in the official Soviet foreign trade statistics, no attempt is made here to aggregate the Soviet trade with four major trade regions and present a "world total" for each commodity trade. The reader should be aware that 1 (accounting) SDRs worth of commodities in Soviet trade with the CMEA Six or with the CPEs is not equivalent in value to 1 SDRs worth of commodities in Soviet trade with the MDCs and the LDCs. Any attempt to aggregate unadjusted trade flows across different regions amounts to "adding up potatoes and oranges, pound for pound" and will result in the calculation of world aggregates of dubious economic meaning. [Vinous, "Soviet and East European Trade . . .," p. 689.]

3. *Can CMEA integration be compared with economic integration in Western Europe? What is the current status and future prospects for improved economic integration in Eastern Europe? Do joint projects, such as the Orenburg natural gas line, represent significant steps toward regional integration? What role, if any, does Western technology and credit play in CMEA integration?*

It is our impression that, once again, the CMEA has reached an impasse. No significant initiatives appear to have been taken in recent years to conduct

intra-CMEA economic relations more efficiently. Coordination of national plans and joint planning focus on the last stage of production for key commodities, without much attention to the interconnectedness of production with other branches. While there are a number of highly visible CMEA mining and transport projects, these undertakings can be justified for the most part on the basis of resource endowment or engineering capacities. Even on these projects there is much dispute between the host and the investing countries about who is contributing how much and how equitable are the repayment arrangements. . . .

The fundamental *difference* between market-oriented and centrally planned economic integration can be found in the institutions facilitating or hindering integration. In Western economies, in spite of the expansion of the public sector and other deviations from perfect competition, the bulk of international commerce is conducted by private enterprise, seeking profit opportunities wherever it can find them. Hence, a reduction or elimination of barriers to the movement of goods, factors of production, and money across national boundaries goes a long way toward integration. By contrast, once the market is replaced by central planning, all movement of goods and factors within the region (as transactions with outsiders) requires an explicit action by the governments involved. The integration of CPEs demands, therefore, more overt management and thus a more elaborate bureaucratic structure. [Marer and Montias, pp. 170 and 172.]

Orenburg was not only the largest regional project, but the most innovative in format. It apportioned to participating East European countries full responsibilities for the construction on Soviet territory of sections of the 2677-kilometer Soyuz (Alliance) natural gas pipeline. The original project format in fact proved overly ambitious; and subsequent modification of the responsibilities of four of the five East European countries participating in the construction of the pipeline was required. As a result, the U.S.S.R. ended up by building (but not financing) about two-thirds of the pipeline.

In return for their contributions of equipment, materials, labor and credits to the Orenburg project, the five principal East European participants are each guaranteed annual supplies of 2.8 billion cubic meters of gas over a period of 20 years. . . .

One of the new features of joint projects in the 1970's was the degree to which they were designed to incorporate Western inputs. Western equipment, technology and credits have played a key role in the success of these projects, serving to alleviate some of the traditional obstacles to intra-CMEA cooperation. East-West relations have thus contributed importantly to the pursuit of the regional goals cited above.

In sum, joint projects contributed little to the improvement of the institutional mechanism of CMEA integration or to the advancement of the regional goal of multilateral specialization. Joint projects did serve as a cruder form of integration, extended East European dependence on Soviet energy and raw materials, and increased the orientation of East European industries to Soviet capital requirements [Hannigan and McMillan, pp. 261 and 290.]

4. Has the rate and structure of economic performance in Eastern Europe conformed to plans, expectations, and needs? Has the onerous defense burden been at all reduced? What are the future prospects for growth?

Our estimates, necessarily rough, of dollar levels of East European GNPs put the per capita average for the area at about 37 percent of the United States level in 1978, with a range from about 50 percent of the U.S. level for the GDR and Czechoslovakia down to about 30 percent for Bulgaria.

Measures of growth of GNP show a slackening of rates of growth in recent years in the three countries that have been growing most rapidly (Romania with a growth of 128 percent over 1965-1970, followed by Bulgaria, 85 percent, and Poland, 75 percent), as well as in the three more mature countries (with growths of 51-53 percent over 1965-1979). [Alton, p. 349.]

The military effort of the six East European countries covered in this study is indeed substantial: their number of regular active, well disciplined forces amounts to more than one-half of that of the United States. Even in terms of the narrowly defined official defense budgets, the military expenditures of the six East European countries as a group amount to about one-fifth of the total defense outlays of the United States in terms of U.S. dollars. [Alton, Lazarcik, Bass, and Znayenko, p. 430.]

5. Will energy supplies be a constraint on growth? If there is a gap, i.e., demand exceeding supply, in East European countries, how will the deficit be accommodated?

The confluence of effects resulting from tighter energy supplies and limits on hard currency trade are likely to make the 1980's a decade of economic retrenchment for all of the countries of Eastern Europe. Our projections suggest that economic growth between 1980 and 1985 will average barely half the rate of the 1970's. Though myriad factors contribute to the slowdown, projected energy shortages will constrain economic growth in all of the East European countries. In most countries, energy shortages are likely to account for half or more of the decrease in economic growth. Hard currency trade will provide little, if any, relief from imports of Western oil. In several countries—Czechoslovakia in particular—per capita growth may be little more than zero, and living standards could actually stagnate.

All countries except Poland and Romania rely heavily on Soviet oil deliveries to support their consumption of petroleum products. Our calculations indicate that a fifty percent reduction in those deliveries between 1980 and 1985 would drive the average annual rate of growth over that period to one percent or less in Hungary, Czechoslovakia and the GDR. Alternative policies for allocating reduced Soviet oil exports might reduce somewhat the growth losses incurred by these countries, but the overall prospects would be stark indeed. [Watson, p. 478.]

Are the Eastern Europeans engaged in a Sisyphean endeavor to close their energy gaps? Indeed, all options available to this end—increased importation of energy from the U.S.S.R. and/or from the international market, better conservation of existing energy reserves, and the expanded production of indigenous sources of energy—engender painful policy dilemmas, entail obvious costs, and provide no panacea for the resolution of the region's energy problems. [Kramer, p. 475.]

What are the likely consequences of the predicted trend in Soviet exports of oil and Eastern European imports of oil on the patterns of their foreign trade? In the case of the U.S.S.R., the two questions of the greatest interest are how the projected trend in Soviet oil exports would affect its imports from the CMEA Six and its trade behavior with the MDCs. Clearly, the expected rapid increase in prices of Soviet oil will greatly increase the Soviet export revenue earned in Eastern Europe, which will most probably be spent on imports of Eastern European machinery and industrial consumer goods. This is already apparent in the U.S.S.R. trade results for year 1978; in 1978 Soviet imports of Eastern European machinery and equipment increased by an unprecedented 40 percent relative to 1977 (about 35 percent in real terms). [Vaňous "East European and Soviet Fuel Trade," p. 559.]

... [D]uring the 1970's trade with OPEC has proven a viable means for the East European countries to supplement their energy supplies without having to draw down scarce hard currency reserves. It is questionable, however, whether East Europe can continue to rely on this strategy. Two very preliminary projections of potential 1985 East European oil imports from OPEC ... illustrate the problems now facing most East European countries. According to the first quite modest projection, East Europe (excluding Romania) would be paying almost \$3.4 billion more for OPEC oil in 1985 than in 1978. The second projection foresees almost \$6.8 billion more in oil costs by 1985. If East European exports to OPEC grow at a rate close to a number of recently published plan figures for foreign trade expansion (around 10 percent per annum), trade deficits of \$600 million to \$4 billion would be incurred with OPEC by 1985, depending on which of the two projections obtain. [Oechsler and Martens, pp. 532 and 533.]

6. How has economic modernization in export-oriented computers fared?

The East European computer industries in the early 1970's were small, technologically backward and little able to satisfy domestic demands. Yet by 1978 most of these countries were producing and exchanging advanced computer equipment that was vastly superior to earlier hardware though still not up to Western standards.

During 1972-78 Eastern Europe imported nearly \$639 million worth of computer equipment from the West. Expressed in dollar terms computer systems

accounted for 56 percent of the total, followed by peripheral equipment (26 percent), spare parts (10 percent), and technology (8 percent). The largest importers were Czechoslovakia and Poland, together accounting for 60 percent of the total. The largest supplier of equipment over the period was the United States (41 percent) followed by West Germany (25 percent) and the United Kingdom (19 percent). . . .

Imports of computers and related equipment may be expected to decline in the future owing to the competing demand on hard currency and the growing capabilities of Eastern Europe to satisfy its own needs. On the other hand, technology imports probably will continue to grow over the next few years. This is because growing Soviet capabilities presage a decline in Soviet purchases of East European computer equipment. With their current reliance on sales to the U.S.S.R. to spur growth and the foreseeable loss of this market, Eastern Europe will be forced to look to the West to sell computer equipment. Currently, East European products cannot compete in Western markets, and newer manufacturing and design technology will be needed on a broad front if these countries are to compete successfully. Even with newer technology, however, East European computer products will continue to lag Western state-of-the-art. In that event, Eastern Europe will face the dilemma of whether to continue pouring funds into an industry with diminishing prospects for exports. [Tasky, pp. 296 and 297.]

7. What has been the scope of new flexible or inflationary price policy?

Five of the six countries of Eastern Europe officially raised prices of consumer goods and services sold in the state sector in 1979. Hungary and Bulgaria sharply increased prices for a broad range of items including many mass consumption goods and services, causing a steep rise in the overall price level. The higher prices in Romania and Czechoslovakia affected a smaller array of goods, but the resulting increase in the cost of living, although more moderate than in Hungary and Bulgaria, was still substantial. In Poland, while the regime officially announced price increases on only a few items—with negligible impact on the general consumer price level—it indirectly also took a variety of steps to raise consumer prices in the state sector in 1979. Only the GDR failed to officially boost consumer prices at all. There, too, however, the regime moved to raise some prices in state retail outlets without publicizing its actions. Furthermore, there have been indications that the GDR may soon openly raise some consumer prices. . . .

[T]he need to narrow balance of payments deficits to preserve credit worthiness will require a decrease in the share of output allocated to domestic use, including personal consumption. Under these circumstances, consumer demand must be kept under a particularly tight rein. [Kohn, pp. 328 and 329.]

8. How have demographic trends and manpower supply affected economic policy and performance?

The population of the eight countries of Eastern Europe increased by 23.9 million between 1950 and 1975. This represents an average annual growth rate of 0.8 percent. . . .

According to the projections presented in this report, the population of Eastern Europe is expected to number between 145 million and 156 million by the year 2000. . . .

The growth rates for most of the eight countries were low to moderate (i.e., 0.5 to 1.3 percent) during the 1950-75 period. Albania and the German Democratic Republic were the exceptions. Albania's average annual rate of 2.7 percent was more than double that of any of the other countries. The higher rate for Albania was due to a much higher birth rate. Even though fertility has declined in Albania during the last 25 years it is still considerably higher than in the other countries. The German Democratic Republic was the only country among the eight to have a smaller population in 1975 than in 1950—due primarily to emigration, which was enormous prior to the building of the Berlin Wall in 1961. . . .

The future population trends for the individual countries vary considerably depending on the assumed level of fertility and on the age-sex structure. Albania is expected to have by far the largest relative growth. The medium series projection for that country indicates an average annual growth rate of 2.0 percent between 1975 and 2000, compared to 0.8 percent for Poland and Yugoslavia, the countries with the next highest rates. [Baldwin, pp. 197 and 198.]

Thus, at the beginning of the 1970's, two countries, the G.D.R. and Czechoslovakia achieved high levels of economic participation of their population, practically exhausted labor reserves among non-working women of working age and could not rely any more on agriculture as a source of manpower for other sectors of their economies. The labor market in Hungary had very similar characteristics, though the labor shortage was not as acute, as in the two above mentioned countries. In Poland, Romania, and to a lesser degree, in Bulgaria there were still possibilities for increasing the level of economic activity of working-age women, and agriculture still was a reservoir of manpower for non-agricultural sectors.

Economic policies of the East European countries in the 1970's continued to reflect their respective labor market situations. Countries with tight labor force balances had to rely more on increasing labor productivity, while Poland's and Romania's economic policies were based on the availability of labor reserves. The labor market situation in Poland has changed during the past decade. During the period 1971-1975 Poland had the largest increase in the population of working age in her history. [Vais, p. 237.]

9. How has agricultural policy contributed to improved output? With increasing feed/livestock requirements what are the projected imports from the United States? Will agricultural performance, especially meat availability, again be a critical factor for Poland's leadership?

All the East European governments are putting increasingly stronger emphasis on increasing agricultural output and the productivity of land and labor. To effect this, they are channeling more resources into agriculture in the form of increased investment in machinery and equipment, land irrigation, better technology on farms, technical education, more flexibility and incentives to managers of farms and individual farmers, and pricing systems more responsive to changing scarcities, especially as shown in sharply increased prices paid to farmers, and increased fringe benefits. These incentive policies were followed especially in Hungary, Poland, Yugoslavia, and to a lesser degree in Romania and Bulgaria.

In comparison with the relatively poor agricultural year for most of the East European countries in 1979, the prospects for the remaining years of the current five year plans seem favorable... [However]... imports must be increased if the livestock production plan are to be met. Since most of the suppliers of these feeds are hard currency countries (USA, Canada, Australia, and South America), Eastern Europe is facing difficult choices in allocating their limited hard currency flows to finance increasing feed imports. [Lazarcik, pp. 627, 628, and 630.]

The East European (EE) economic programs designed to rapidly improve diets through increased animal product consumption during the last three plan periods have created a serious imbalance between livestock numbers and livestock product output on the one hand, and the ability of these countries to produce enough feedstuffs on the other. Despite the recognition that the growing dependency on imported feedstuffs has become a strategic and a financial burden, EE efforts to become self-sufficient have so far been ineffective....

It is no coincidence that grain, oilseeds, and livestock products are singled out for special attention within the feed-livestock economy. Over the past several years, EE has become a billion dollar market for U.S. grain, oilseeds, and oilseed meal to support its expanding livestock production. The United States also supplies livestock products such as cattle hides, tallows, and bull semen to EE, while serving as an increasingly important outlet for EE meat exports. Barring drastic unforeseen changes, the United States is likely to continue to be a major agricultural trading partner of EE in the 1980's. [Terharr and Vankai, pp. 563 and 564.]

10. If East-West trade normalization were sought, what legislative and institutional barriers to increased commercial relations might be removed or altered?

A less elusive goal—at least in theory—is normalization of commercial relations between the United States and East Europe through the elimination or mitigation of abnormalities. . . . those statutory or administrative measures applied by the United States to commercial relations with East European countries that do not encumber U.S. commerce with the non-Communist world.

Legislative action would clearly be required for the elimination of some important restrictions. The freedom-of-emigration requirement, blocking the extension of the *MFN status* to East European countries as well as their participation in the *programs of the Eximbank, the Commodity Credit Corporation and the Overseas Private Investment Corporation*, cannot be completely avoided without legislation. While it is possible for East European countries to be granted the trade benefits restricted by the freedom-of-emigration provision, this granting is contingent on their meeting certain requirements and conditions. This is not required of non-Communist countries. Although their status can be "normalized" within the existing law insofar as its practical effect is concerned, such normalization and its continuation are still tied to conditions which do not apply generally.

A similar situation, with additional conditions, exists in respect to the participation of East European countries in the U.S. *generalized system of preferences* and requires legislative normalizing action.

Legislative action would be required also to eliminate the *market disruption* provisions of sec. 406 of the Trade Act of 1974, the mandatory inclusion of *safeguards clauses* in bilateral trade agreements with Communist countries, and the alternative method of *foreign market value* of imports from "State-controlled-economy" countries in antidumping investigations.

Also mandatory—although waivable—and hence removable only by legislation is the ban on the participation of Communist countries in *Eximbank programs*. As mentioned earlier, this ban itself has not constituted an obstacle that could not be readily surmounted in practice through Presidential waiver action as authorized by the law itself. (The principal obstacle in this connection is the freedom-of-emigration requirement).

Legislative action would be needed for the elimination of the statutory ban on foreign assistance to Communist countries, which directly affected *OPIC operations* (restricted also by the freedom-of-emigration requirement). In contrast to the comparable Eximbank provision, however, the Presidential waiver procedure in the case of the OPIC ban is considerably more cumbersome and tied to less easily fulfilled conditions. It has been, therefore, thought more practical to remove the statutory obstacle by specific legislation, as in the case of Romania and Yugoslavia.

The system of *export controls* is based on legislation that authorizes rather than mandates Executive action in this area; such controls could, technically, be mitigated or perhaps even removed by Executive action alone. Significant changes in the system have, in fact, been taking place all along within the existing statutory guidelines. A totally free hand of the Executive is, however, significantly circumscribed in practice by the clearly stated congressional intent and—especially in the context of the Export Administration Act—by Congressional findings, declarations of policy and, implicitly, administrative directives which the Congress has inserted into the legislation. Thus, while marked changes in the administration and mechanics of the export control system are possible by Executive action alone, a total removal of controls applying specifically to East European countries would appear to go counter to the existing policy guidelines and would for practical purposes require Congressional sanction as well. A change in Congressional mood, expressed through new legislation, would almost inevitably be called for as a basis for the "normalization" of controls on direct U.S. exports to East European countries.

Third-country exports of articles of U.S. origin, or of articles containing U.S.-origin components or technical data, would probably fall within the same category. Exports from third countries over which the United States claims control—often faced with the respective foreign Government's serious annoyance at what they consider U.S. interference in an area of their sovereign competence—only because they are produced by an American-owned foreign subsidiary or shipped on a U.S.-flag carrier, can probably be released from U.S. control by Executive action without serious disregard of Congressional intent, since the occasions for exercising this control authority are generally quite infrequent and, in the case of shipping controls, virtually nonexistent.

It is obvious that—speaking practically—the prospects for substantial normalization of commercial relations with East European countries, regardless of how readily any normalizing action on the part of the United States can be taken in theory, essentially depend on changes in the internal and external political situation of East European countries as it affects or is perceived to affect the national security or foreign policy interests of the United States, namely, those

end-1979, net debt to the West had climbed to \$49.3 billion, compared with a level of \$18.7 billion at end-1975. Rising world market prices, slack demand in the West, and continued high grain imports have added greatly to the borrowing required to help fuel economic growth. Thus, Eastern Europe has met with only limited success in reducing its trade deficit with non-Communist countries and—because of rising interest payments—even less success in narrowing the current account imbalances.

The next few years will be difficult ones for the East Europeans. In order to keep new borrowing down, they will have to carefully monitor imports from the West while attempting to maximize exports. Since economic growth depends to an important degree on imports of Western goods, further curbs on imports will damage the economic health of the East European countries. Although all of the countries appear ready to accept at least some slowdown in economic growth, they will be hard pressed to hold down their imports from the West since Soviet deliveries of energy are expected to level off and supplies of other industrial materials will at best grow very little. At the same time, maintaining a modicum of growth in consumer welfare will be necessary in order to minimize consumer discontent. [Zoeter, pp. 718 and 719.]

These uncertainties in East-West relations come at a time of growing economic strains in western economies and financial markets due to recent oil price hikes and prospects of more to come. The adjustment to a rising OPEC surplus this time will be different from what has taken place since 1974. The manner in which recycling has been managed over the past six years constrains the adjustment options open to oil-importing countries, including those in Eastern Europe. Past adjustments, for example, filled U.S. and other international bank portfolios with loans to Eastern European and developing countries, thus increasing the overall risk level of their asset holdings. Such lending was desirable since it allowed countries to spread out the burden of adjustment over a number of years. These debts now limit the ability of the international banks to accommodate the current problems of recycling. As a result, most oil importing countries will be forced to adjust sooner than the would have liked. The experience of these years has also altered the perceptions of oil producers concerning prospects for inflation, economic growth, and foreign exchange rates. This has led to changes in the mechanism by which oil prices and production are set by OPEC. These developments are contributing to a major structural transition in the western economies that will likely stretch into the mid-eighties.

The confluence of these economic events and the new political uncertainties represents a unique stage in the relatively brief history of East-West commercial relations. A key question is how the Eastern European countries will be able to adjust to these new developments. [Brainard, pp. 754 and 755.]

In the 1980's, Eastern Europe faces an environment which would appear to be particularly difficult for economic reform and institutional change. The adverse movement in the terms of trade for the CMEA Six as well as the unprecedented rise in State debts to households and the West impose severe constraints on the political leadership. Significant investment programs for energy and energy conservation are necessary, a rising volume of exports is required to pay for imports and service debt, and the household sector may hold productivity hostage if improvements are not made in dietary standards, housing and the quality of consumer goods. However, we still expect significant reforms to occur in Eastern Europe during this decade, reforms which will require an expanded role for banking and finance.

The expanded role for banking expected in Eastern Europe may even spill over into investment decisions. Here, however, one must acknowledge the formidable barriers to property rights which are likely to persist during the decade. Centralization of property rights over capital goods and "ministerial commandism" will continue to limit the decentralization of investment choice and consequently the role of investment banking. Such problems continue to arise in the Yugoslav economy even after several decades of development in the property rights of enterprises workers and banks. [Green, p. 784].

In the East European case, the original decision of Western Banks in the 1960's and early 1970's to participate in lending was made without sophisticated economic analysis. At that time such analysis was found to be unnecessary, and given the lack of data, impossible. Nevertheless, in the last decade most banks as well as the East European countries have found the relationship profitable. Given the advanced stage of the relationship and the absence of international

institutions which would facilitate the transitions and complications in the relationship, country risk analysis has begun to play a very important role. For this relationship to remain highly desirable for both Western banks and East European countries, it is necessary for both parties to be aware of the need for bona fide cooperation in the resolution of all issues. The availability of basic information according to standard international practice is now more essential than ever before. [Eichler, p. 777.]

DATA AND STATISTICAL RELIABILITY

Economic statistics and other data required in analyses have been limited in scope, quality and quantity. The basic statistics required for conventional Western analyses have to be reconstructed and carefully evaluated from the limited data released by the respective countries. The national accounts and trade data are reconstructed in this volume by Thad P. Alton and Associates and Jan Vaňous, respectively. Published data from East European sources have characteristically been limited in scope and quantity in comparison with Western reporting standards.

More information is now being published on the economies of East Europe than in the past. An annual statistical handbook for the member countries of CMEA has appeared in recent years. Moreover, considerably more information is being provided through international media, such as the Economic Commission for Europe (ECE), bilateral government commissions, and private Western commercial and financial channels. However, even with some compliance by East European countries with the patterns of commercial and economic data disclosure agreed to in the Helsinki agreement, the data disclosed still falls far short of that commonly available among Western trading nations. In spite of the longer term trend toward more disclosure, in the last three years, since the last volume in this series, availability and quality of data released has been sharply reduced for some countries.

Shortfalls in national economic data make limited objective external assessments difficult albeit perhaps more necessary. Low quality and availability of commercial data limits trade and financing because the paucity of data raises the cost and risk for Western corporations dealing in Eastern markets. Especially important for governmental and commercial banking institutions is better information on the balance of payments, outstanding debts (especially in hard currency) and financial assets. Explicit requirements for these kinds of detailed data were not covered in the Helsinki agreements. However, Western commercial and banking interests have made progress in reconstructing the necessary data and publishing it. More reliable data is still needed to answer the legitimate credit worthiness questions raised by commercial and financial interests in the West:

- (1) What are current and future prospects for East-West marketing?
- (2) How much is owed to other creditors by debtor nations?
- (3) What are the debtor nations' other assets that might be available to service debts during shortfalls in export deliveries to the West?

In assessing economic performance in East Europe, there are partially irresolvable differences in methodology. Western concepts of national accounting require adjustment of data reported by the sta-

tistical agencies in East Europe. The methodology used in this compendium by Thad P. Alton and Associates builds on that of Maurice Ernst (in his studies of East European accounts) and Abram Bergson (in work on Soviet accounts). The necessity of estimating missing data and making subjective judgments precludes the development of a fully defined, objective set of accounts. However, the reconstruction by Thad P. Alton and Associates best parallels national accounts compiled by Western economists for the Western industrial nations. As the statistical reporting of the East European nations improves in coverage and comparability, more reliance may be placed on the primary source data. The methodology of estimating Eastern indebtedness used in this volume illustrates the progress achieved and differences that still remain. Joan Zoeter has some differences with other experts, as the reader may observe. Some authors use the figures which Lawrence Brainard developed at Chase Manhattan and Bankers Trust. More participation by Eastern bankers and economists would help to further improve the data and reduce the differences in opinion and methodology.

PROBLEMS AND PROSPECTS

The proliferation of claimants for East European goods and services runs well ahead of the ability to increase output to satisfy their demands. Modest economic growth in the face of rising expectations is not unique to East Europe. However, the options for improved performances are especially limited, and the mixture of costs and benefits, particularly complex.

The above may present too pessimistic a picture of East European economic prospects. Although the economies of East Europe are small, have insufficient raw materials and human resources, suffer from a technology lag compared with their Western neighbors, and must satisfy a revolution in rising expectations, they do have assets. Many of their current leaders and planners are pragmatic and flexible. Many of the Eastern economists, statisticians, bankers, and managers are ingenious and highly professional. Central or Eastern European states have long survived by persistence, ingenuity and determination in the presence of superior neighboring political and military powers. In spite of its precarious position between economic colossuses the Soviet Union in the East, with its raw material monopoly, and the Common Market, Japan and the United States in the industrial West, with their formidable technological leadership, East Europe may not only survive, but prosper.

POLICY AND PERFORMANCE

ECONOMIC PERFORMANCE AND PROSPECTS IN EASTERN EUROPE: ANALYTICAL SUMMARY AND INTERPRETATION OF FINDINGS

By Paul Marer*

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[NOTE.—References to contributions appearing in these two volumes are cited in the text by the author(s)' name only. If an author has more than one contribution, the citation also gives a number (e.g., [Vaňous-1] or [Vaňous-2]), which refers to the sequence in which contributions by the same author(s) appear in the volumes. References to other studies are cited by number only; the full reference is given under the corresponding entry in the bibliography.]

For the benefit of noneconomists and economists not specializing

in the East European economies, a reminder about certain uncommon abbreviations in the text:

CPE—Centrally Planned Economy.

CMEA—Council for Mutual Economic Assistance.

GDP—Gross Domestic Product.

NMP—Net Material Product.

NEM—New Economic Mechanism (Hungarian).

All of these entities or concepts are defined in the text.

I. INTRODUCTION

This essay summarizes and interprets the economic performance of the eight East European countries during the 1970's and analyzes their prospects for the 1980's. These eight countries—Bulgaria, Czechoslovakia, the German Democratic Republic (GDR), Hungary, Poland, Romania, Yugoslavia, and Albania—constitute a region of considerable importance to U.S. policymakers, to a large segment of American public, to U.S. agricultural, business, and banking interests, and to academic specialists on comparative economic and political systems.

The United States has a *security interest* in Eastern Europe, where two world wars started; a *humanitarian interest*, because the American people are concerned with human rights everywhere and because some 20 million Americans trace their ancestral homelands there, many with continuing family ties to the region; and a *political interest*, for example, whether U.S. relations with the region can remain unaffected in the wake of the Soviet occupation of Afghanistan and consequent worsening of West-U.S.S.R. relations. So far, U.S. policymakers have answered in the affirmative [Matusek].

In the centrally planned economies (CPE's) economic and political developments have particularly close links. For this reason, too, an objective assessment of the current economic situation and future economic prospects is important for the United States. However, an objective assessment of an East European country's economy based solely on official statistics is virtually impossible because these statistics use different definitions of many economic concepts than those of Western countries and are politicized in various ways and for various reasons. Although Eastern European countries differ widely in this regard, published primary data is generally scarce, and much information is published on a selective basis. For instance, only index numbers may be published whose derivation may not be documented and, in some countries, may not meet commonly accepted international standards. Therefore, an objective assessment such as is attempted here requires that use be made also of recalculated statistics on economic performance by Western specialists and by international organizations such as the World Bank and the United Nations.

This essay attempts to integrate, selectively, the contributions in these two volumes with other specialized literature. The effort to integrate was prompted by comments on the earlier volumes published in this same series, which pointed out that it is difficult for a member of Congress, his or her staff, and indeed any reader who is not a specialist in the Eastern European economies, to *distill and compare* the wealth of information presented on the eight countries in these two volumes' fifty contributions. For this reason, this essay includes many charts and graphs highlighting the trends and differences among the coun-

tries. For the same reason, several economic concepts are defined and features of the Eastern European economies that may be particularly interesting or novel are explained and interspersed in the text in small type (such as why and how a "second economy" functions or how in some countries the U.S. dollar has become, quite openly, the preferred means of payment in the consumer sector); these may be skipped by the reader without loss of continuity. Further elaboration of some of the more technical issues and documentation are provided in the appendix.

Much of the data in this essay is based on statistics found in the individual contributions. A special effort is made to describe the derivation of the statistical information, the conceptual and statistical problems of interpretation, the availability of alternative estimates and if so, why they differ.

Sometimes in summarizing others' writings it is difficult not to preempt the original contributions, particularly those by Thad Alton, who has devoted a lifetime to the reconstruction of East European economic statistics according to Western concepts and methods. His group's statistical computations represent the single largest body of independent assessment of the economies of this region, and this essay relies extensively on its work, presenting it side by side with official statistics. Additional information, greater detail, and more sophisticated interpretations may be found in the individual contributions summarized in this essay and carefully referenced throughout.

Perhaps not only members and staff of the Congress but also East European economists and policymakers will find the views and interpretations stimulating, prompting them to engage in a fuller, more focused dialogue with Western specialists on some issues. Also, we hope that students of centrally planned economies who read the contributions will be stimulated to learn more about the region.

Credit for any insights that the reader might gain from this essay is due to the many expert contributions in this volume and to the rapidly-growing body of East European and Western literature on the planned and worker-managed economies of Eastern Europe.

II. COMPARATIVE SIZE AND LEVEL OF ECONOMIC DEVELOPMENT

Two standard indicators of the comparative size of countries are their population and Gross National Product (GNP); the standard measure of economic development levels is per capita GNP or gross domestic product (GDP)¹ expressed in a common currency, usually U.S. dollars. This section presents graphically the most recently available statistical information on these standard indicators and discusses briefly some key estimation problems and alternative approaches to deal with them.

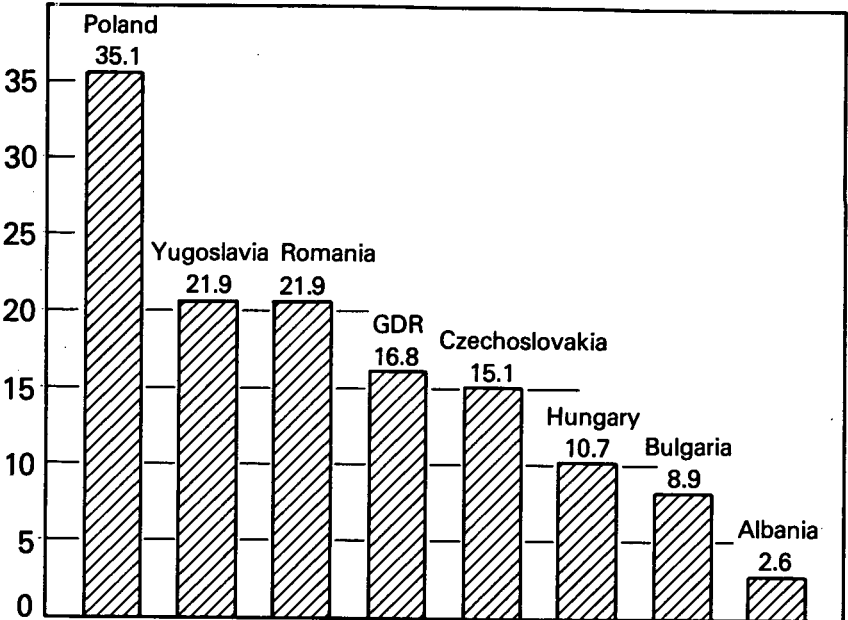
¹ GNP includes net factor income (such as income from foreign investments) received from abroad. GDP excludes it. For the centrally planned economies of Eastern Europe, GNP assumed to be the same as GDP.

A. Population

Chart 1 presents the populations of the eight East European countries as of mid-1978.

Chart 1. Population of East European Countries, Mid-1978

(MILLIONS)



Source: *World Bank Atlas*, 1979.

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The six European members of the Council of Mutual Economic Assistance (CMEA) combined (excluding Yugoslavia and Albania) have a total population of about 100 million; the eight East European countries, including Yugoslavia and Albania, almost 125 million. This latter total is in the range of the population of Indonesia, Brazil, or Japan. The total population of the East European countries compared to that of the U.S., the U.S.S.R., and Western Europe is shown below:

Country/region	1978 population (millions)	Population of East Europe as percent of country/region of comparison	
		EE-6	EE-8
United States.....	218	46	57
U.S.S.R.....	261	38	48
Continental Western Europe (excludes Turkey).....	287	35	44

Source: *World Bank Atlas*, 1979.

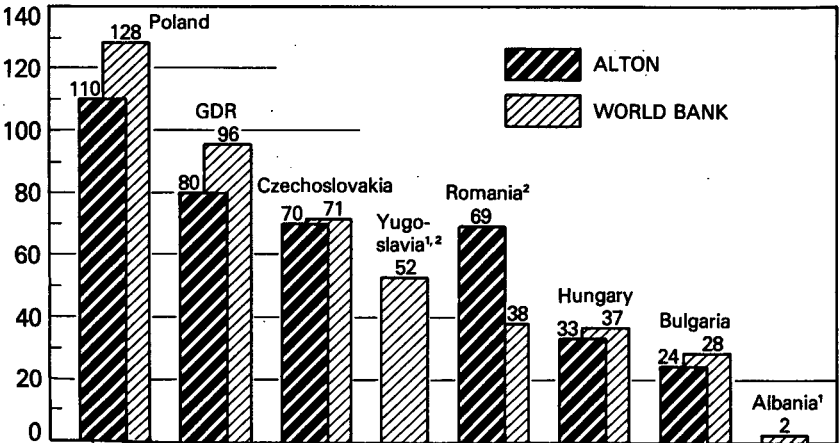
B. Total and Per Capita GNP Estimates

Estimates of the total dollar GNP of the individual Eastern European countries are shown in chart 2; per capita GNP in chart 3. GNP estimates for CPE's must rely on Western reconstructions because they use a different concept of national income—the so-called Net Material Product (NMP)—which is smaller than GNP because it excludes government, many services, and depreciation, and because GNP estimates in national currencies must be converted into dollars. Because CPE's do not have convertible currencies, finding appropriate exchange rates poses very difficult methodological problems.

Two estimates of the Eastern European countries' dollar GNP's are presented: those calculated by the Research Project on National Income in East Central Europe, headed by Thad P. Alton, for the CMEA-Six countries only (referred to here as the Alton estimates), and those published by the World Bank in Washington for all CPE's (referred to as the World Bank estimates). Neither source considers Yugoslavia a CPE, so GNP estimates for that country are calculated by the World Bank on the same basis as for market economies.

Chart 2. Estimates of Total GNP of East European Countries, 1978

(BILLIONS OF 1978 US DOLLARS)



¹Not estimated by Alton.

²World Bank estimates for Yugoslavia and Romania are not comparable with those it makes for the other East European countries (see text).

Sources: [Alton], Table 11: *World Bank Atlas*, 1979.

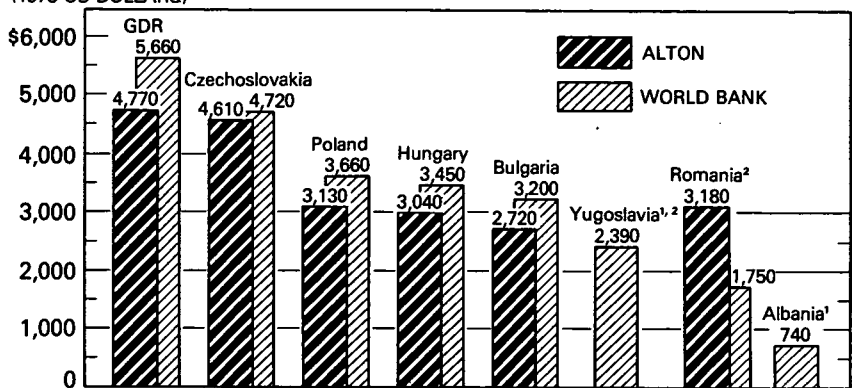
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Alton's estimates are based on his reconstruction of each country's GNP in local currency "from the bottom up," that is, from detailed physical output, consumption, employment, wage, and capital stock data, converted to U.S. dollars via the purchasing power of the currencies which he also estimates [Alton].

The World Bank's estimates are based on a relationship between the actual GNP and derived NMP calculated for a group of West European countries. The GNP/NMP relationship for Western Eu-

Chart 3. Estimates of Per Capita GNP of East European Countries, 1978

(1978 US DOLLARS)

¹Not estimated by Alton.²World Bank estimates for Yugoslavia and Romania are not comparable with those it makes for the other East European countries (see text).

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Sources: See Chart 2.

rope is used to transform each East European country's officially reported NMP to a GNP estimate in local currency converted to dollars in the case of six out of seven of the countries (Romania being the exception) via the official tourist exchange rates; in the case of Romania, the so-called *commercial rate* is used. Appendix A describes the Alton and World Bank methodologies in greater detail, indicates why the World Bank treats Romania differently than it does the other CPE's, presents the methodologies and main results of two additional GDP estimates for the area,² and compares in greater detail the main findings.

Chart 2, listing the countries in order of decreasing GNP (World Bank estimates) reveals that in 1978 the six countries that are members of the CMEA had a combined GNP in 1978 dollars of about \$400 billion; the eight countries of the region, including Yugoslavia and Albania, about \$450 billion. Taken as a single economic entity, the Eastern European countries' total GNP is of the same order of magnitude as that of France or the People's Republic of China (PRC) ([3], pp. 231-35).

The combined GNP of Eastern Europe relative to the GNP of the United States, the U.S.S.R., and Western Europe, respectively, is given below for 1978:

Country/region	1978 GNP (billion 1978 dollars)	EE as percent of country/ region of comparison	
		EE-6	EE-8
United States.....	2, 128	19	21
U.S.S.R.....	966	41	47
Continental Western Europe (excludes Turkey).....	2, 043	20	22

² The estimates based on the Janossy-Ehrlich "physical indicators" method by the Economic Commission for Europe (ECE) of the United Nations (UN) and the estimates based on the Kravis-Heston-Summers method, under the auspices of the UN-World Bank-University of Pennsylvania's International Comparisons Project.

Chart 3 presents alternative estimates of the per capita dollar GNP's of the East European countries, again in decreasing order (World Bank estimates). According to the chart, the eight East European countries may be separated into four income groups, with the GDR and Czechoslovakia in the top tier, Poland and Hungary in the second tier, Bulgaria, Yugoslavia, and Romania in the third, and Albania in the fourth. In Table 1, countries of the world are categorized by per capita income levels, showing where the East European countries rank, approximately, in the distribution of income per capita among the world's nations.

TABLE 1.—RANKING OF EAST EUROPEAN AND SELECTED WESTERN AND THIRD WORLD COUNTRIES BY ESTIMATED 1978 PER CAPITA GNP

Range of per capita GNP (in 1978 dollars):	Countries	
	East Europe	Rest of the world
Above \$7,500.....	None.....	United States, Canada, some OPEC countries, and a West European countries not listed below.
\$5,500 to \$7,500.....	None.....	Australia, Japan, Austria, Finland.
\$4,500 to \$5,500.....	German Democratic Republic, Czechoslovakia.	United Kingdom, New Zealand.
\$3,500 to \$4,500.....	None.....	Israel, Italy.
\$3,000 to \$3,500.....	Poland, Hungary.....	Spain, Ireland, Greece, Singapore.
\$2,400 to \$3,000.....	Bulgaria, Romania, Yugoslavia.	Venezuela, Hong Kong, Trinidad and Tobago, Puerto Rico.
\$1,500 to \$2,400.....	None.....	Argentina, Portugal, Iraq, Uruguay, Brazil, South Africa, Costa Rica.
\$740 to \$1,250.....	Albania.....	Turkey, Jamaica, Nicaragua, Syria, Ecuador, Colombia, Paraguay, Peru.

Source: East Europe: average of the estimates presented in chart 3; rest of the world: World Bank Atlas, 1979.

C. Measurement and Interpretation of Economic Statistics

The following brief discussion of statistical issues is prompted by two considerations: first, a need is perceived to respond, however tentatively, to questions certain to be raised by a reader about the dollar GNP statistics presented. Second, the emphasis at the beginning of this volume on the particularly vexing statistical problems regarding the measurement and analysis of the economic performance of the East European countries is intended to caution the reader about the many uncertainties and information gaps that remain but which may be obscured by the sheer volume of statistical information available from official East European sources and in this collection of studies.

1. Statisticians and economists in the West and at international organizations reporting and assessing the economic performance of CPE's must rely mainly on statistics published by the central statistical offices of these countries, supplemented by data cited in journal articles, newspapers, radio broadcasts, and other reports, always based on official statistics. While in some cases it is feasible to reorder the data according to standardized nomenclatures used in the West or to make some adjustments (e.g., to recalculate index numbers employing preferred methodologies), the accuracy of Western statistical estimates remains constrained by the accuracy of the official data published. To be sure, detailed physical output and consumption data published by the East European countries are less subject to definitional and index number problems, and therefore to possible manipulation, than official macroeconomic data.

2. Intertemporal comparisons, i.e., index numbers of growth of aggregate output, depend much on the weighting scheme used and on the accuracy of plan-fulfillment reports by primary units. Since plan-fulfillment reports are of enormous importance for managerial bonuses, incentives, and careers, the degree of the accuracy of reporting can vary from one period to the next, depending on economic and political conditions in the country.

3. A very important aspect of accuracy is whether a country releases statistical information on a selective basis and if so, what criteria guide the selection of what is published.

4. Statistical sophistication in the collection, systematization, aggregation, and presentation of economic information, and in the statistical detail made available in a given year in publicly available sources differs widely among the Eastern European countries. (This disparity explains much of the difference in the sophistication of economic analysis in the individual country studies in the companion volume). Two variables which probably explain much of the disparity among these countries are the level of economic development (through its influence on the statistical traditions of the country) and the politically-determined "openness" of the society.³

Albania fares the worst on both counts: there is little systematic, quantitative economic information of practical usefulness available from that country, and opportunities for a Western economist to check on the reasonableness, much less on the accuracy, of the data that occasionally do crop up from Albanian sources are scant. One gets the impression that Albanian officials quote statistics as much to support a political position as to inform their audience about economic developments in that country [Schnytzer]. Consequently, the estimates of Albanian economic performance, especially of the GNP growth rates presented in Chart 4, may contain a significant (almost certainly an upward) bias as compared with the other countries.

Romania fares better than Albania, although a great deal of basic statistical information remains unavailable for that country also. Some important statistical series are published only as index numbers of gross or net output, sometimes without much documentation on methods of sampling, weighting, or the introduction of new products. (To be sure, this problem is encountered to some degree in many Western and especially Third World countries also, although the problem is much more pervasive in some East European countries.) These are some of the reasons why Romania's performance indicators, especially its growth rates, may be upwardly biased as compared with those of other countries in the area.

Statistical information available for the *GDR* is also deficient. Here the main problem is unwillingness to publish some primary data and the tendency in recent years to reduce substantially the economic information and statistical detail in official yearbooks.

Czechoslovakia and Bulgaria are in an intermediate position as concerns the availability of published economic information and the documentation of statistical methodology.

Hungary, Yugoslavia and Poland publish the most comprehensive and best documented set of economic statistics in the region. Yugo-

³ But other factors may also be important in some cases. For example, Bulgaria, which scores poorly on both counts, has a relatively good record of publishing data.

slavia, for example, is the only country in the region that publishes detailed balance of payments statistics;⁴ it and Hungary report consumer price indices that measure meaningfully the rate of inflation in their countries [Kohn]. Poland is deficient in comprehensive balance of payments and consumer price index data but in many other respects the extent of its statistical output is good. Of course, certain types of economic information are also not publicly available in any of these countries.

5. A further difficulty hindering statistical comparability among these countries is the absence of statistical standardization. Although comprehensive CMEA statistical standards do exist (and presumably are used to adjust national data for CMEA purposes), the individual countries prefer to rely on and publish data according to their own methodology. Major differences remain in the definition of statistical concepts and in the methods of compiling and reporting statistics. To give just one example, the definition of the most basic Marxist national income concept—the NMP—is not identical for all CMEA countries [Alton].

In addition to the general difficulties enumerated, two sets of specific statistical problems are singularly important for comparing and interpreting dollar GNP estimates: the varying importance of the officially unmeasured “second economy,” and the influence of the exchange rate chosen to convert statistics in national currency units into U.S. dollars.

6. The “second economy” refers to activities not included in the “first economy,” that is, in the state of cooperative-regulated activity within the state and cooperative sectors. Thus, the “second economy” includes the non-regulated (legal and illegal) aspects of activity within the state and cooperative-sectors and all forms of private (legal, semi-legal, and illegal) economic activity. A portion of the “second economy’s” output is included in official statistics on output; another portion is unreported. The latter includes some portion of the output produced in the private agricultural sector (including on the garden-plots of workers employed outside agriculture), a significant share of privately-financed construction of residences, and a segment of the services of all kinds rendered privately by professionals, skilled workers, and retail establishments. The relative size of the “second economy” and the portion of its total output unrecorded in the official statistics of these countries differ greatly from country to country. Presumably, there is some relationship between the overall importance of the second economy and the relative importance of the unregistered part of such activity in each country’s NMP or GNP. The exclusion of a portion of output resulting from private economic activities understates our estimates of per capita GNP and the standard of living in these countries. If the relative importance of private-sector activities grows or diminishes rapidly during the period considered, estimated growth rates may also be biased. The informed consensus—opinion which, however, cannot be easily verified with statistics—is that such activities are exceedingly important in Hun-

⁴ Hungary publishes balance of payments information for convertible currency transactions only [38].

gary, of considerable importance in Yugoslavia and Poland, and of somewhat less but still significant importance in the other countries, with the possible exception of Albania. The presumed greatest importance of the "second economy" in Hungary, and therefore also of unregistered production, may explain in part the disparities between the levels of per capita GNP estimates in Chart 3 and other statistical indicators of comparable *levels* of economic development, such as per capita consumption of certain key products.⁵

THE "SECOND ECONOMY" IN EASTERN EUROPE

The economies of the Eastern European countries (except Yugoslavia), the Soviet Union, some Asian communist countries, and Cuba are called centrally planned economies (CPEs), a designation also used by international organizations, such as the UN and the World Bank. The terminology suggests that the means of production are predominantly state owned and economic activity planned by Party and government organs. Yet, in each CPE a portion of economic activity is not under the direct control of the planners but is pursued by individuals for private gain.

The "second economy" includes activities that are *legal in all countries*, such as cultivating a private plot (though who may be permitted to do so, the maximum size of the plot, and number of animals allowed vary greatly from country to country); *legal in some countries and illegal in others* (the selling on the farm market of agricultural products not produced by the seller's family); or *illegal in all countries* (use of materials, transportation, or labor obtained from the state sector for private gain, e.g., for constructing a private residence; or the giving and accepting of certain kinds of "tips" or "bribes" to provide preferential goods or better services in the state sector). Because no pejorative/negative connotation should be attached at least to legal second-economy activities, perhaps a better terminology would be "complementary private economy" or "secondary economy."

In judging the importance of the "second economy," an issue much more important than the laws and regulations governing the *legality* of certain private economic activities is the *degree of cooperation between the first and second economies*. The extent of cooperation depends upon answers to questions such as: can the private sector obtain inputs, on a regular basis, and at a reasonable cost? Can it use the distribution and marketing channels of the first economy and still make a profit? Are the taxes levied and regulations imposed on private activity predictable and reasonable?

The first economy is comprised of the state and the cooperative sectors. The cooperative sector, which can be found in all Eastern European countries in agriculture, in industry, and in the services, differs from the state sector. In some countries cooperatives operate on principles quite similar to those governing the first economy; in others the cooperative is more similar to a second-economy activity.

In all CPEs the state recognizes the second economy's contribution toward balancing consumers' purchasing power and desires and the available supply, quality, and distribution of goods and services; toward providing employment for workers not absorbed into the first economy's work force (particularly in Yugoslavia and Poland); toward supplementing the income of those who could not live reasonably well from their first-economy earnings; and toward providing an investment outlet for accumulated private savings [35]. Intelligent privatization of the economy also tends to increase the legitimacy of the regimes in the area.

At the same time, all CPEs wish to contain the second economy within prescribed (and in some countries frequently changing) limits, for ideological as well as for socio-economic and political reasons. One concern

⁵ A further reason for the discrepancy is that GNP estimates measure production and composition of output but may not take adequately into account quality changes (which are not always unidirectional).

is that loosening the reins on private activity could lead to unacceptably high income inequalities; officials also fear that for workers who moonlight after a job in the first economy, the incentive effect of first-economy wage differentials would be reduced [35].

Because so many variables—ideological, political, systemic, demographic, and cultural—influence policies regarding the prescribed limits and operating rules of the second economy, it is not surprising that the relative importance of the private sector differs greatly among the Eastern European countries. Little statistical information exists, to be sure, on its total size. But informed economists in the region and in the West feel that the relative importance of private activities is greatest in Hungary.

Two Hungarian economists write:

"The secondary economy . . . involves mainly people employed in the socialized sector as well as those considered statistically inactive. While the number of [private] agricultural producers is only about 200 to 250 thousand, small-scale agricultural production embraces 1.8 million private plots and keeps busy half of the country's population, i.e., more than 5 million people. These households produce every year as much as would be the output of 750 to 800 thousand fulltime workers. Retired persons contribute an average of 4.4 hours per day; housewives 4.3 hours; those employed in the socialized sector at least 3 hours. The population builds up to 40 thousand flats a year, which equals the annual performance of 120 thousand construction workers. These flats are built by people who hold other jobs, during weekends, holidays, sick-leaves or temporarily interrupted employment. This means that secondary agricultural and housebuilding activities produce in one year the equivalent of about one million persons' annual working hours while statistics record 5-2 million active wage earners. These approximate and fragmentary data illustrate the secondary economy's enormous span."⁷ [19]

A Western observer writes that in 1979 there were nearly 11,000 private traders assisted by about 5,000 family members and about 1,500 registered assistants. Shopkeepers are offered tax concessions to open stores, especially in the provinces. In 1979, 91,000 private artisans and skilled workers supplied 46 percent of the services available to the population; government economists estimate that the country needs 35,000 more. The government has started to set up offices where requests for the private services of full- and part-time artisans and skilled workers are matched with offers to provide such services. Private construction teams can be found building—legally—private residences, especially in the countryside. Official statistics show that the private sector produces about one-third of agricultural output.

With respect to Poland, in addition to the persons employed in the predominantly private agricultural sector [Newcomb], many persons find work outside the official place of employment, cultivating a garden plot, building a house, working on a nearby family farm, driving a taxi, and so on:

"This diversion of effort into the 'second-economy' has grown in recent years as supplies of foodstuffs and consumer goods to state retail outlets have dried up" [Davies].

In the GDR, after a relatively liberal attitude toward the private sector in the early 1970's, a policy of systematic nationalization was followed up to 1976, with the state sector absorbing some 80 percent of the private sector. This policy has now been reversed. Between 1976 and 1980, about 600 private restaurants have been opened, bringing to 40 percent the number of restaurants in private hands. The government is encouraging private individuals to open grocery stores, hardware stores, etc. [16].

7. Finding a meaningful exchange rate to convert output calculated in national currency to dollars is problematic for any country, even for

⁷ Other knowledgeable Hungarian economists have commented, privately, that the number of people cited above as working on private plots is, in their view, exaggerated.

those with convertible currencies and market-determined exchange rates. Even market-determined rates may not reflect accurately the real purchasing power of currencies; their use in converting output in national currencies to U.S. dollars tends to overstate real per capita GNP differences between less developed and more developed countries.⁶

Finding meaningful exchange rates for CPE's is much more complicated because their domestic prices reflect far less accurately cost of production and relative scarcities than do prices in Western countries. (Yugoslavia's exchange rates are by and large acceptable from that point of view.) Also, methods of price formation differ significantly among the Eastern European countries, and periodic price "reforms" may alter drastically the relative prices of inputs and final products. For example, for consumer goods, the retail price level in Hungary until 1979 was lower than the wholesale price level—possibly the only country in the world with this anomaly—as a result of low retail markups, very high taxes on producers, and enormous subsidies on consumer items [Marer].

Two important conclusions follow. First, the set of domestic prices used could make a major difference in estimating NMP and components in national currency (and their growth rates), as documented in the contribution by Alton. Second, given the arbitrary nature of prices, the purchasing power of a CPE's currency is very difficult to establish. Thus, the exchange rates underlying the dollar GNP estimates presented in Charts 2, 3, and 4 must be fully understood and taken in proper perspective. A brief discussion of this question can be found in Appendix I and in [Marer]; a more detailed discussion in the sources therein cited.

III. ECONOMIC PERFORMANCE DURING THE 1970's

A. Interpreting Economic Performance Indicators

Economic performance is a multidimensional concept in any country. The five indicators economists most often use to measure performance in a given country over time and to compare countries are: growth rates of aggregate output; production efficiency (i.e., how much input is used to produce a unit of output); the standard of living and the distribution of income (including the inflation experience of a country); the level of unemployment; and the balance of payments.

In addition to the problems of accurately measuring economic performance, two very important factors in interpreting economic performance indicators must be taken into account. First, a comparatively good performance in one area of the economy may be achieved at the expense of a concurrent or postponed weaker performance in some other area. For example, excessively large foreign borrowing can accelerate a country's growth rate over a certain period, but servicing a large debt later can drag down future growth rates if the borrowed resources were invested unwisely.

⁶The main problem is that exchange rates are based on prices of internationally traded goods and services, which may bear little relationship to prices in the agricultural and service sectors, and in these sectors, output is usually priced lower relative to industrial output in the less developed than in the more developed market- and mixed-economy countries. (See [27], or a summary and interpretation of its empirical findings in [Marer].)

Secondly, the relative economic potentials of countries differ, and one must consider this fact when judging economic performance. The East European countries' economic potentials differ considerably from one another, for several reasons. For one, central planning was introduced in each country after World War II under differing *initial conditions*, e.g., with respect to levels of economic development; historical, cultural, and political traditions (which affect attitudes toward work and the economic policies chosen by leaders); large regional disparities and friction among nationalities in some countries; and resource endowments. These countries became *further differentiated during the postwar period*, for example, with respect to ownership patterns in agriculture (predominantly private in Poland and Yugoslavia and socialized elsewhere); development strategies (Bulgaria versus Romania, as discussed by Jackson and in [39]); economic systems (the experiments of Yugoslavia and Hungary being best known but country-specific systemic differences are found in the other nations as well); dramatic political events in individual countries which triggered critical economic decisions; and special political links forged or severed between countries (Bulgaria's close links with the U.S.S.R.; Albania's with first the U.S.S.R. and then the PRC, both now severed; the GDR with the Federal Republic [Stahnke]; and Romania with Third World countries [Laux]—to mention only those with very important economic consequences. In recent years, the East European countries have become further differentiated due to the impact of the energy crisis and other disturbances emanating from the world economy.

The countries relatively better endowed with energy and raw materials—Poland, Romania, Yugoslavia, and Albania—had the potential, *ceteris paribus*, to perform significantly better since the 1973–74 energy crisis than the other four countries. The changes between 1973 and 1979 in the terms of trade are one approximate measure of the impact of this difference. For example, Poland's terms of trade did not change significantly during this period, whereas Hungary's deteriorated by approximately 20 percent. Because about 50 percent of Hungary's NMP is exported to pay for correspondingly large imports, a 20-percent deterioration in its terms of trade has led to an outright loss of up to 10 percent of produced national income, the actual loss depending on the elasticity of substitution in consumption and production (which for Hungary are probably quite low).

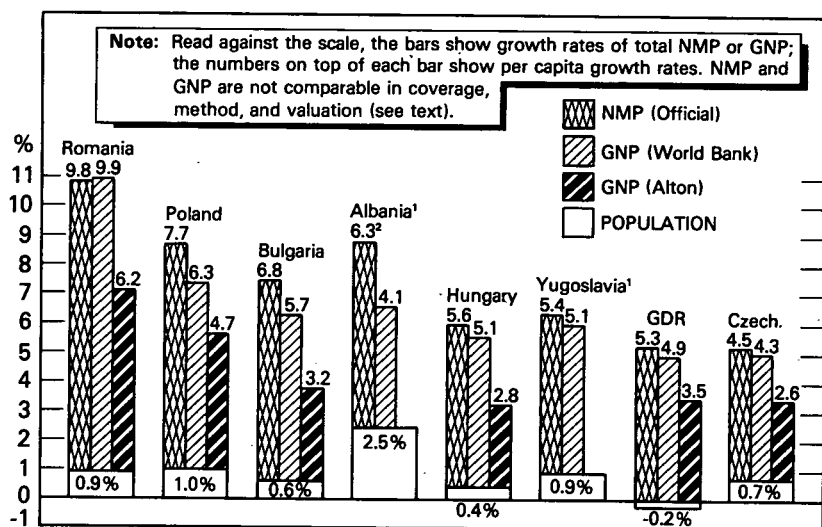
For all these reasons, one should not, therefore, interpret the growth rates or the indebtedness of these countries using the same yardstick.

B. Growth Rates of NMP and GNP

1. THREE ESTIMATES FOR 1970–77

Chart 4 gives estimates of the average annual growth rates for 1970–77 of total and per capita NMP and GNP of the eight East European countries, the average annual growth of each country's population, and the per capita growth rates estimates. The bar charts read against the scale show growth rates of total NMP or GNP, whereas

Chart 4. Estimates of Average Annual Percent Growth Rates of Total and Per Capita Net Material Product (NMP), Gross National Product (GNP), and Population of East European Countries, 1970-1977



¹Not estimated by Alton.

²1970-1975. Albanian data not comparable with rest of Eastern Europe (see text).

Sources: NMP: Albania: [], Table 1; Yugoslavia: [Tyson and Eichler], Tables 3.1 and 3.2, adjusted for change in population. All other: Calculated from [Alton], Table 17. GNP (World Bank): *World Bank Atlas, 1979*. GNP (Alton): [Alton], Table 13.

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the figures on top of each bar give corresponding estimates on a per capita basis. The countries are listed by per capita NMP growth rates, in descending order.

Table 2 ranks the countries according to each of three alternative growth rate estimates. Chart 4 and Table 2 reveal large differences among the three estimates. The differences between official NMP and the World Bank's GNP growth rate estimates are small—6.4 percent vs. 5.7 percent for all the countries combined—while Alton's calculations cut the tempo of growth claimed in the official NMP statistics by almost half, from 6.4 percent to 3.6 percent.⁸

It should be emphasized that the Alton GNP and his related measures presented here are not directly comparable to the official NMP measures. GNP covers various service sectors excluded from NMP where they are regarded as "nonmaterial" or "nonproductive." Moreover, NMP is calculated by subtracting from the gross output of officially defined material sectors only so-called material costs, including depreciation, but does not deduct inputs from the excluded service sectors, so that NMP is not a "clean" value added measure. Further, Alton's GNP sectoral indexes are combined into the overall GNP index by means of estimated factor cost weights, while the official NMP measures are based on actual prices that in some instances diverge

⁸ One reason for the difference between the World Bank and Alton estimates is that the World Bank's methodology is a linear transformation of NMP which will not affect the growth rates greatly, while Alton's is a nonlinear transformation (see text and Appendix) which can have a major influence on growth rates.

widely from factor costs and thus distort the structure and rates of growth from what they would be at factor cost. There are in fact two kinds of NMP's, one at market prices that is generally available in the East European statistical yearbooks, and another in variants of factor cost, that are calculated and published in some countries (e.g. Poland) but for some reason are not prominently reported. The NMP valuation problems, coupled with the truncated national product concept according to the NMP definition (as compared to GNP measures that come much closer to factor cost) in effect should exclude use of the widely published NMP measures as surrogates for GNP measures even for growth rate comparisons. Some Polish economists have publicly recognized the shortcomings of the concept of NMP at prevailing prices:

Studies of the structure of the national economy and analyses of its changes have fundamental significance for planning operations. . . . It is obvious that the price system has a great influence on the execution of analyses and on the economic calculation that is being carried out. . . . Accordingly it is noted often an economic analyses that actual prices distort the proportions of origins and uses of national income; furthermore it is certain also that intertemporal analyses carried out in actual prices do not correctly reflect the phenomenon that is being considered. Hence the search for price systems such as would reflect cost relationships. In economic calculations that has vital significance (cited in [Alton]).

With reference to Chart 4, the large gap between the two GNP growth estimates is due to dissimilar methods of estimation (discussed in Appendix I). The typically large difference between the official NMP and Alton's GNP estimates arises principally for the following reasons: (1) differences in coverage; (2) differences in estimates of sectoral growth rates; in the GNP calculations, agriculture typically grows somewhat faster or declines less than in the NMP calculations because GNP includes depreciation which grows faster than agricultural NMP; in industry and construction GNP grows more slowly than NMP for various reasons (set forth in [Alton]); (3) differences in the weights assigned to the sectors (NMP weights are higher for the relatively fast-growing industrial and construction sectors, while GNP weights are higher for the relatively slow-growing agricultural and service sectors); and (4) the inclusion of depreciation in GNP reduces growth rates compared to NMP which nets out depreciation.⁹ Further details can be found in [Alton] and [Jackson-1].

$$^{\circ} \text{ Schematically, growth of NMP} = \frac{(\text{production-depreciation})_t}{(\text{production-depreciation})_{t-1}}$$

$$\text{while growth of GNP} = \frac{\text{production}_t}{\text{production}_{t-1}}$$

In a growing economy, production $t >$ production $t-1$. Since the capital stock changes much more slowly than output, depreciation $t \cong$ depreciation $t-1$. Therefore, let depreciation = 10, production $t = 110$, and production $t-1 = 100$. Then:

$$\Delta \text{NMP} = \frac{110 - 10}{100 - 10} = \frac{100}{90} = 11.1\%$$

$$\Delta \text{GNP} = \frac{110}{100} = 10\%$$

The greater the capital stock, i.e., the more developed the economy, the greater will be the discrepancy, *ceteris paribus*, between the net (NMP) and gross (GNP) growth rates. For example, if depreciation = 30, $\Delta \text{NMP} = \frac{110 - 30}{100 - 30} = \frac{80}{70} = 14.3\%$. (This point was called to my attention by Josef Brada.)

TABLE 2.—RANKING OF EAST EUROPEAN COUNTRIES ACCORDING TO ALTERNATIVE ESTIMATES OF 1970-77 GROWTH RATES

[At constant prices, in percent]

NMP	Per- cent	GNP (World Bank)	Per- cent	GNP (Alton)	Per- cent
1. Romania.....	9.8	Romania.....	9.9	Romania.....	6.2
2. Poland.....	7.7	Poland.....	6.3	Poland.....	4.7
3. Bulgaria.....	6.8	Bulgaria.....	5.7	German Democratic Re- public.....	3.5
4. Albania.....	¹ 6.3	Hungary.....	5.1	Yugoslavia.....	² (3.3)
5. Hungary.....	5.6	Yugoslavia.....	5.1	Bulgaria.....	3.2
6. Yugoslavia.....	5.4	German Democratic Repub- lic.....	4.9	Hungary.....	2.8
7. German Democratic Repub- lic.....	5.3	Czechoslovakia.....	4.3	Albania.....	^{1,2} (2.6)
8. Czechoslovakia.....	4.5	Albania.....	¹ 4.1	Czechoslovakia.....	2.6
Average (unweighted)....	6.4	5.7	3.6

¹ 1970-75 data.² Estimated by assuming that the relationship between the 2 GNP estimates is the same as the average ratio for the 6 other countries.

Note: NMP and GNP are not directly comparable: see text discussion in connection with chart 4.

Source: Chart 4.

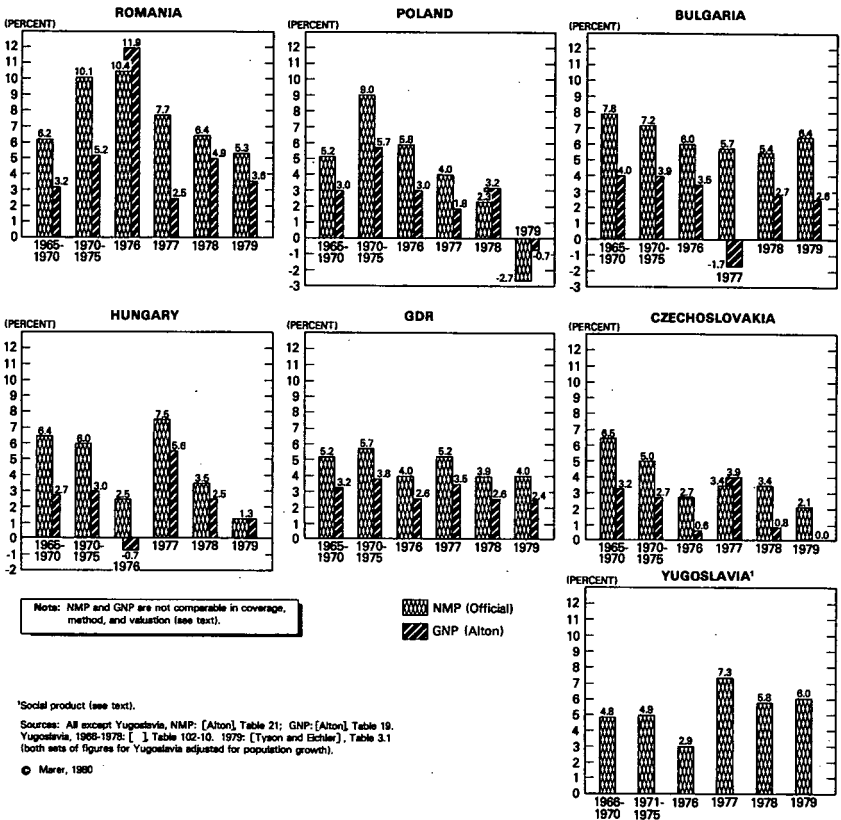
According to Chart 4 and Table 2, the three per capita growth rate estimates for 1970-77 agree only on the ranking of the two fastest-growing economies—Romania and Poland—and on the slowest-growing economy—Czechoslovakia. The ranking of the five countries in the intermediate group differs by fractions of percentage points that (in view of the likely margins of error) are too small to permit a firm conclusion about the countries' relative growth performance.

2. NMP AND GNP GROWTH RATES, 1965-79

Three alternative estimates of overall economic growth rates are available only up to 1977. An assessment of growth performance up to and including 1979 can be based on the NMP series or on Alton's GNP estimates. Chart 5 presents the average annual growth of per capita NMP and GNP for 1965-1979, by two subperiods up to 1975 (1965-70 and 1970-75) and annually thereafter.

In all of the countries except Yugoslavia the recent growth rate trend is downward. This trend is observed for Poland, Bulgaria, and Czechoslovakia since 1976; for Romania since 1976, and for Hungary and the GDR since 1977. The downturn is especially sharp in Poland which in 1979 registered its first negative growth rate in the postwar period, and in Czechoslovakia, which registered no growth in 1979 according to the preliminary GNP estimate. Fluctuations in recent growth rates are notably large in Poland, Hungary, and Czechoslovakia.

Chart 5. Average Annual Growth of Per Capita Net Material Product (NMP) and Gross National Product (GNP) of East European Countries by Subperiods, 1965-1979 (AT CONSTANT PRICES)



3. GROWTH RATES IN INDUSTRY AND AGRICULTURE, 1965-79

The performance of industry and agriculture strongly influences the growth of NMP or GNP in each country. According to East European statistics, industry and agriculture combined account anywhere from slightly less than $\frac{2}{3}$ (Hungary) to about $\frac{3}{4}$ (Romania) of NMP [Alton, Table 4]; according to GNP calculations these two sectors represent anywhere from 55 percent (GDR) to 71 percent (Romania) of GNP [Alton, Table 2].¹⁰ Although presently in all Eastern European countries except Albania the share of agriculture is smaller

¹⁰ The other sectors included in NMP are construction, transportation and communications, and trade; the GNP concept also includes housing and government and private services plus depreciation.

than that of industry, agricultural production plays a very important role by either supporting or constraining expansion in the rest of the economy. If agriculture performs well, it supplies direct inputs for the other sectors, supports improved living standards which provide the material incentives for improved productivity, and helps the balance of payments by earning and saving convertible currency.

Chart 6 presents growth rates in industry and agriculture according to the NMP and GNP concepts even though NMP and GNP are not measuring the same things, as was already noted. Chart 6 differs from Chart 5 in that it shows (not per capita but) total growth rates and in that it presents four rather than six subperiods: 1965-70, 1970-75, 1975-78, and 1979.

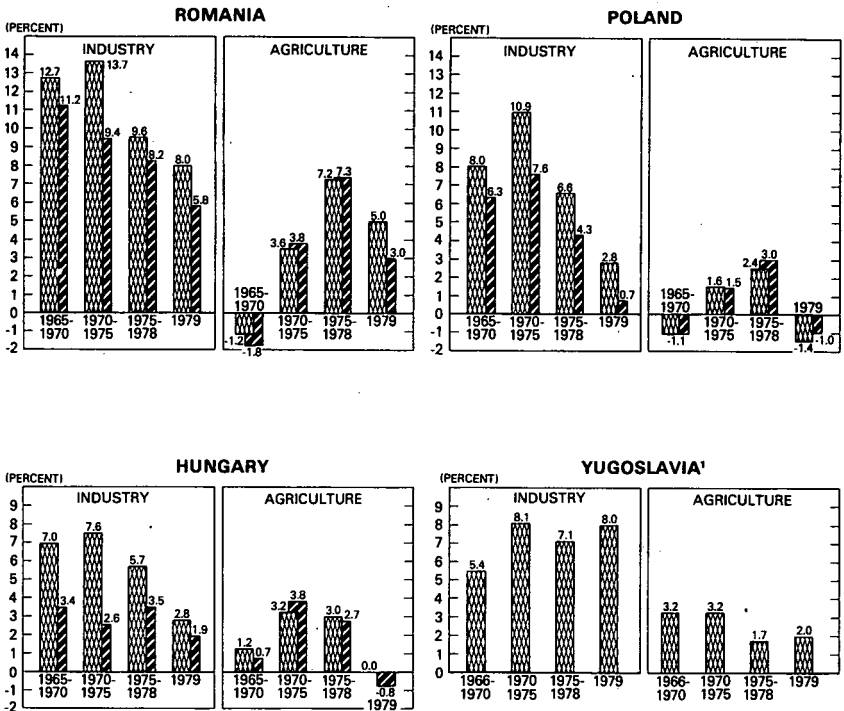
There is no need to sum up; the chart is self explanatory. One interesting fact, however, that the chart calls attention to is the comparative performances of Romania and Bulgaria, a topic discussed in considerable detail in the two studies by Jackson. During the 1960's, Romania and Bulgaria were practically neck to neck leading the group in the growth race, but during the 1970's, Romania appears to have pulled away from the other Balkan country (but see measurement problems discussed in Section I-C). The divergent trends are apparent both in industry and in agriculture. Romania has had significantly higher industrial growth rates during the 1970's because both labor and capital inputs grew faster in that country; labor because until the late 1970's Romania still had excess agricultural labor to draw on, and investments probably because consumption was held in check more severely than in Bulgaria. A very likely further reason is the terms of trade which, because Romania is relatively more self-sufficient in energy, deteriorated less than those of Bulgaria [Jackson-2]. With respect to agriculture, during 1965-70 both Romania's and Bulgaria's production declined.¹¹ During the 1970's, however, Romania was able to expand agricultural output by a wide margin, whereas Bulgaria's agricultural production declined according to the NMP index [Alton, Table 16] and increased by a very small margin according to the GNP index.

What happened to Bulgaria's agriculture, which during the 1950's and 1960's performed well relative to that in the other countries [39]? Officially, the recent difficulties are attributed to poor weather but, clearly, Bulgarian agriculture also faced many man-made problems.¹²

¹¹ According to the formula used in Chart 6 to calculate overall annual growth rates during a period; use of a different formula, i.e., comparing average outputs during two five-year periods, may yield a positive growth figure [Jackson-1, Table 22].

¹² Among these were the virtual elimination of cooperatives in the 1970's, with their absorption into new "agricultural-industrial complexes"; inadequate investment and inputs of all kinds, such as fertilizers and agricultural machinery (a recent census showed that 35 percent of the tractors and 98 percent of the grain combines were over eight years old, while Bulgarian norms specify their optimum life span to be only 6 to 7 years); and the high average age and low average educational level of agricultural workers [Jackson-1].

Chart 6. Average Annual Growth of Industrial and According to NMP and GNP



C. Labor and Capital Inputs and Productivity

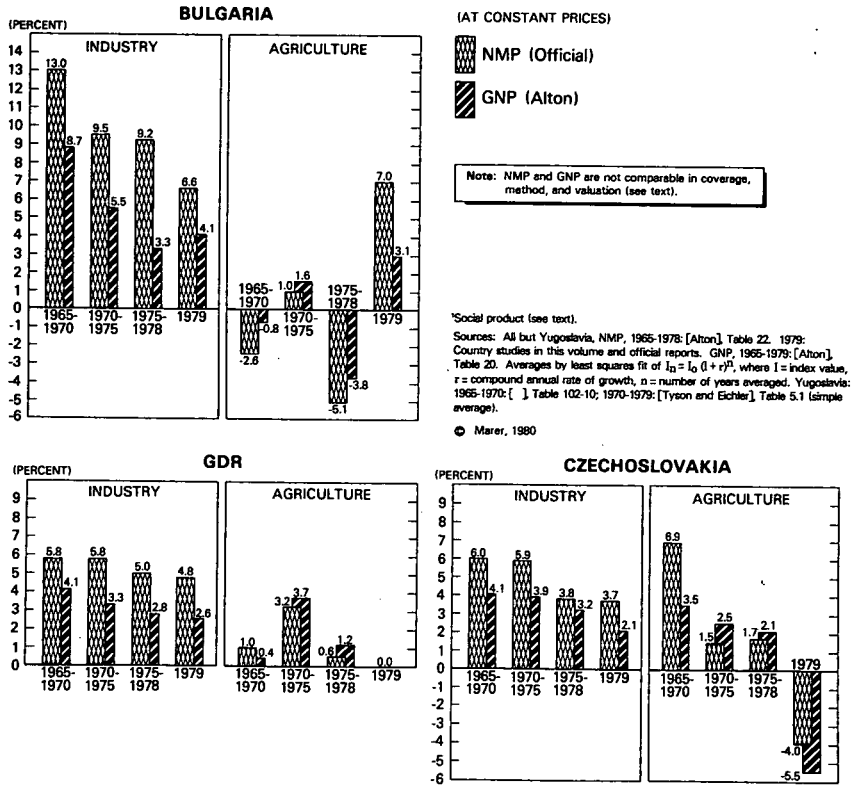
Productivity measures the relationship between inputs and output; its simplest indicator is the ratio of some measure of national income to employment. Productivity estimates will vary, of course, depending on whether NMP or GNP measures of output are used. Alton has calculated productivity indices for the six East European countries for 1965-78, by subperiods and economic sectors (his Table 24), concluding that:

... with employment growing at relatively low rates and GNP at higher rates, the obvious arithmetic outcome is positive growth per unit of labor. To say that GNP grew because of the positive contribution of labor productivity, of course, subsumes the complex of socio-political milieu, the contribution of capital and technology, and all else we know little about.

1. LABOR FORCE TRENDS

Key manpower developments that influence the growth of output and productivity are the labor force *participation rates* of the population, which in East Europe have already reached close to maximum levels ([Vais], Tables 5 and 6, and [Alton], Table 7), the *shifting of labor from agriculture* to other sectors, and the extent of rural industrialization. Because in most countries productivity historically has

Agricultural Production of East European Countries Concepts by Subperiods, 1965-1979

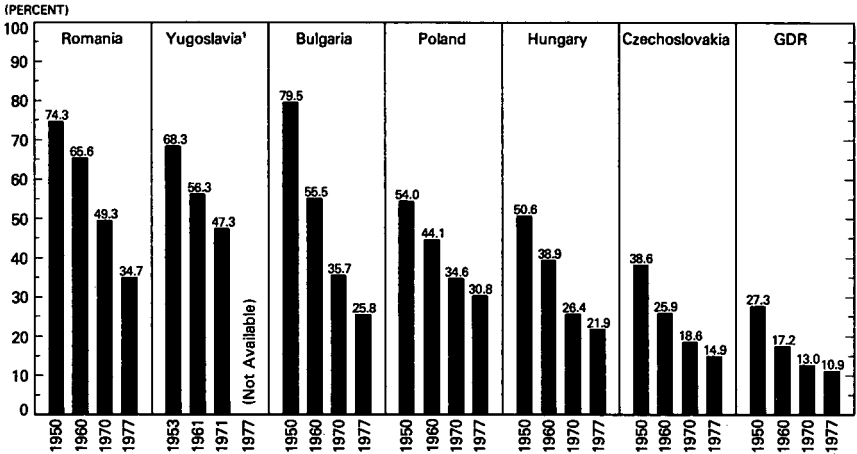


been lower in agriculture (but not in the United States), a transfer of workers to the non-farm economy usually enhances output and productivity, unless the transfers contribute to food supply or balance of payments problems. (To be sure, because the new workers lack industrial experience and skills and divert some experienced workers to training, productivity level differences may not be exploited fully for some time).

Chart 8 presents the labor force employed in agriculture and forestry in the seven East European countries for selected years between 1950 and 1977. As the chart shows, large initial differences among their employment patterns have narrowed during this generation. Data presented in Chart 8 and demographic information on the age composition and labor-force participation rates of the populations reveal that in four of the seven countries (the exceptions are Romania, Yugoslavia, and to some extent Poland) labor reserves have been exhausted, i.e., when the agricultural labor force falls below the 25 percent level, in the short- to medium-run practically only natural increments in the working-age population will provide additional

labor for industry or agriculture [Vais]. One alternative to solving the labor force problem is rural industrialization, putting to work the underemployed workers and family members in and various tertiary-sector activities, a policy that has been followed, for example, by Hungary, with considerable success. Another alternative of course is economic reform which would increase the efficiency of labor utilization.

Chart 8. Percent of Labor Force Employed in Agriculture and Forestry in East European Countries, 1950, 1960, 1970, and 1977



¹Economically active population in agriculture/total economically active population (census data). Alternative definitions would yield slightly lower figures.

Sources: Statistical yearbooks of countries, as compiled for the East Europe Six by [Vais], Table 7. Yugoslavia: [] 1976, Tables 104-4 and 104-6.

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2. INVESTMENT TRENDS

Investment, which can be financed from domestic or foreign sources, consists of fixed-capital formation (including unfinished investment projects) and inventory changes. A distinction must be made between gross and net investment, the latter representing increments to the capital stock. The difference is depreciation, whose importance in total investment varies among countries with the size of accumulated capital stock. Because of immense statistical problems in measuring investment flows and the value of capital stock, particularly in East Europe, comparisons among the countries are probably not very accurate. One problem, for example, is that if industrial prices are kept artificially low relative to consumer prices, as they are, say, in the Soviet Union, Czechoslovakia, and the GDR, then their investment ratios will be understated as compared with the other countries.

A measure of each country's investment effort is the ratio of gross investment to GNP or GDP in current prices, a statistic generally not published in the area. Available in its stead is the "net accumulation rate": the ratio of savings net of depreciation to distributed NMP (e.g., value in production net of depreciation, plus imports minus exports). The measure's principal shortcoming is its exclusion of depreciation (another is its dependence on net exports), which in CPE's

typically finances investment in excess of capital retirement [Jackson].

In a given country, the share of accumulation of NMP can vary, *for the same year*, depending on which set of prices is used to value the components (relative prices change with each price reform), as documented by Alton. Alton's compilation of officially reported accumulation shares (his Table 6) shows their considerable growth in most countries between 1965 and 1975 (years vary by country). In each country, we may add, a portion of the increase was financed by foreign borrowing.

Alton also computes gross investment as a percent of distributed GNP for five countries, for selected years (no comparable data for Romania). Alton does not compute gross investment in distributed final uses of product; instead he calculates "residuals" by subtracting private consumption plus selected civilian components of government from distributed GNP. The "residual" is thus comprised of gross investment plus military and some other unspecified government expenditures.

Between 1970 and 1978, this residual was highest in Poland, where it reached 44 percent in 1975 (1970-78 range: 34-44 percent), followed by Bulgaria (31-39 percent), Czechoslovakia (33-36 percent); Hungary (31-35 percent), and the GDR (22-24 percent). In Yugoslavia, gross investment in fixed assets as a percent of GDP increased from a 1971-75 average of 28 percent to a 1976-78 average of 30.5 percent [Tyson-Eichler, Table 3-4]. Because investment in fixed assets is more narrowly defined than gross investment, which also includes military and some other government expenditures, Yugoslavia probably joined some of the European CPE's as having the highest investment rates in the world.

For the same five countries, Alton also computed a residual index comprising gross investment, defense, and other lesser end uses for selected years between 1965 and 1978 (his Table 15). He then tabulated the NMP indices of net accumulation (his Table 18 on investment) but cautioned that no comparisons should be made between the residual in total domestic final uses and NMP accumulation because of differences in coverage, methodology, and bases of valuation.

Problems of definition and measurement notwithstanding, statistics plainly show that the East European countries have been devoting a share of output to investment that is very large by international standards and that during the first half of the 1970's (in some countries until 1978) these shares had been rising. Clearly, this fact has been responsible for a substantial part of the region's output and productivity growth. Yet, certain special features and consequences of the emphasis on investment can be seen only by looking beyond aggregate statistics.

One of the more interesting findings—particularly well-documented in several of the studies—is that central planners have been partly unwilling and partly unable to control the growth of investment. In Poland, for example, the 1971-75 plan targeted a 42-percent increase in total investment over the previous five-year period; the actual rise (in constant prices) was 90 percent [Fallenbuchl]. Not only was the investment plan increased in the wake of the ready availability of

foreign credits, but the plan was also "overfulfilled." In Czechoslovakia, too, investments over and above the planned levels were found to be causing the main difficulties in economic management [Brada-King-Schlagenhauf].

How can a system with so many administrative controls on individual investment projects typically overfulfill its investment plan, sometimes by a large margin? The study on Hungary [Hewett] examines this question in particularly rich detail. The essential problem in that country, as in other CPEs, is that lacking the constraints that would be imposed by competition and lacking good information about the real efficiency of projects, all proposals can be justified to the center (to the commercial banks in the case of Yugoslavia) which finds it difficult to resist political and economic pressure for new investment projects. At the same time, disinvestment has not been built into the system [Hewett].

Lack of control over investments can have disastrous consequences for the economy, such as: inability to finish projects on time (by the time they are completed, the products may already be outmoded); rapid growth of imported machinery, materials, and energy required to construct and operate the plant (exerting pressures on the balance of payments); and inefficiency and waste resulting when the balance-of-payments constraint finally forces the planners to cut investments and imports drastically and usually inefficiently.

The direction of investment also contributes to inefficiency, creating a problem with several dimensions. In comparison to Western countries, CPE's typically devote a much larger share of gross investment to building new capacity and a smaller share to replacement investment. Reduced output and efficiency due to equipment breakdowns, inadequate supply of spare parts, and prolonged maintenance and capital repairs result when productive assets are not replaced when they become economically obsolete. Also, financing too many investment projects at once causes delays and an inefficient scattering of scarce resources, which leads to the creation of new capacities with low technological levels [Vais], in part because investment built on the basis of blueprints and machinery purchased from the U.S.S.R. (and other East European countries) often mean built-in obsolescence [Fallenbuch] and excessively high capital-, material-, and energy-intensity of plant construction and operation [Levcik].

Furthermore, new investment has traditionally been concentrated in heavy industry sectors—mining, metallurgy, machine building, chemicals—which are not only capital- and energy-intensive at the construction stage but also energy-intensive (with exceptions) and material-intensive (consequently import-intensive) during operation. Thus, one consequence of past investment patterns is that the region's economies have become heavily dependent on imported energy, raw materials, and semifinished products—a point stressed in the individual country studies, documented in especially rich detail for Czechoslovakia by [Levcik] and [Brada-King-Schlagenhauf], and comparatively for the six East European CMEA countries [Watson].

Examining labor and capital inputs and simple labor productivity, we reach the following conclusions for the six countries: the rapid growth of investment in fixed capital, preference for new capacity

("greenfield") over replacement investments, and the high priority accorded to projects in heavy industry have contributed to the high growth rates of output and large increases in employment outside agriculture up to the mid-1970's (in some countries, until 1977 or 1978).

In countries with a proportionately large workforce in agriculture, where underemployment may have existed, this investment pattern has reduced underemployment. However, extensive investment in new capacities was continued much too long in all countries, even after labor and other input reserves had been exhausted. This led to an apparent labor shortage [Vais] and contributed to a subsequent, trade-related economic crisis, whose arrival was hastened—but not created—by the world energy crisis and associated major disturbances on the world market.

The experience of Yugoslavia is similar to that of the rest of East Europe but contains some unique features. Yugoslavia, too, has devoted a large share of output to investment and has given priority to the heavy industrial sectors; as a result, its economy, too, has become increasingly import dependent. Yet, the investments have been financed and allocated among enterprise and regions, and consequently the impact on employment, have been different in Yugoslavia.

Yugoslavia's decentralized economic system precludes easy mobilization of savings in the enterprise sector. The combination of collective ownership and self-management provides an incentive for workers to distribute enterprise income as wages and to rely on external sources to finance investment. During 1971-76, for example, commercial banks (which are to a considerable extent under the control of enterprises) financed 43 percent of investment in fixed assets and Yugoslav enterprises obtained large additional resources directly from foreign sources² [Tyson-Eichler]. Problems of investment efficiency rise from:

... a misallocation of capital among sectors of production, enterprises, and regions. On the aggregate level, concentration of investment on capital-intensive projects appears to be inconsistent with relative factor scarcities. Because of this concentration, additions to the capital stock have had smaller effects on output and employment than might otherwise have been the case [Tyson-Eichler].

In the CPE's of Eastern Europe, labor tends to move to areas with new investment projects. In Western market economies, capital for new investment projects tends to move to areas with large labor force and natural resources. In Yugoslavia, significant regional barriers to capital mobility and remaining cultural barriers to labor mobility contribute to some misallocation of investments among competing enterprises and regions.

D. Unemployment

The percentage of workers without jobs is uniformly low, hovering near zero in all the East European countries except Yugoslavia, where unemployment is comparable to Western levels. Wiping out *open unemployment* (as well as extreme forms of poverty) is the most significant economic and social achievement of the postwar regimes in the area. However, these achievements are not without costs and problems.

These economies suffer *disguised unemployment*: for managerial reasons, jobs do not fully utilize workers' skills and training, i.e., labor productivity is low. Ambitious national plans and investment strategies create such a high level of aggregate demand that labor is short at the macro level, even though at the micro level labor surpluses result from hoarding, and inefficient use of, labor. Practically all blue- and white-collar workers are guaranteed not only employment but their current jobs. Open and disguised unemployment are alternative forms of inefficiency [7], though with quite different outcomes for income distribution. The lack of competition (which would identify inefficient enterprises) and the failure of the state to liquidate inefficient enterprises and fire workers and employees except in the most flagrant cases all result in fewer incentives and opportunities for workers and managers to improve efficiency than in a market economy.

Yugoslavia's unemployment situation, its causes and future prospects for eliminating it are discussed in considerable detail in the country study [Tyson-Eichler]. There, the unemployment problem first became acute during the post-reform plan period of 1966-70, when social sector employment increased only .7 percent a year, partly because of the new emphasis on efficiency accompanying the economic reform. At the same time, the postwar baby boom added new entrants to the labor force at a rapid rate. During 1965-73, external migration absorbed about 60 percent of the total increase in the labor supply; the number of workers employed abroad climbed from 275,000 in 1966 to more than one million by 1973. By 1978, however, this number had fallen to about 800,000 as net inflow replaced net outflow, due to unfavorable economic conditions, which in turn prompted restrictions on the inflow of guest workers in Western Europe.

The capital-intensive bias of investments (system-determined and supported by the government's tax policies) has tended to aggravate the problem of labor absorption in Yugoslavia. Looking ahead, Tyson and Eichler conclude that Yugoslavia's increasingly severe balance-of-payments constraint will require more emphasis on small-scale, labor-intensive projects in both the social and private sectors.

E. Consumer Satisfaction: Standard of Living, Income Distribution, Inflation

1. MEASURING THE STANDARD OF LIVING

The standard of living—perhaps better called “consumer satisfaction”—is an important indicator to measure and compare different countries' economic performance. Consumer satisfaction includes the level and growth of private and public consumption, the availability of consumer goods and services (overall and to different segments of the population), the distribution of income, and the impact of inflation. Three standards guide the average citizen's and tourist's judgment on these matters: the demonstration effect, i.e., the higher living standards observed in some (mainly Western) countries as compared to the lower standards in some East European countries; the rate of improvement from year to year relative to the population's expectations; and the degree of (and bases for) inequality of income distribution in a country.

The standard of living in a country tends to be compared with those of its neighbors when mobility across national frontiers allows direct comparison. Accordingly, the demonstration effect is probably least important for Albania's isolated population and most important for the GDR, whose people have excellent opportunities to make comparisons with the FRG. (It is interesting to note that politicians in the FRG regularly have claimed responsibility for the welfare of their compatriots in the GDR and have attempted to devise trade policies to improve living standards in the Eastern part of their divided nation [Stahnke]).

Serious obstacles hinder the measurement of living standards in Eastern Europe and their comparison with those of Western nations. Typically, publicly supplied goods such as nominally free health care (although under-the-table payments to health professionals have become the norm in some countries) comprise a much larger share of a family's consumption in East Europe. Its countries also subsidize housing, public transportation, and many basic food items. Consequently, comparisons of CPE's wage, salary and income tax *levels* and of wage and salary *increases* across countries is much less meaningful than comparisons solely among market economies.

Wide differences among the Eastern European countries in the *availability* of consumer goods and services present another difficulty in comparing living standards. The lack of consumer goods or lack of desired assortment is a serious problem in some countries; for example, in Poland, where queues in front of retail stores are evidence of scarcities; even families with the money typically have to wait eight to twelve years or longer for a decent apartment and four to five years to buy a car. Some highly-prized consumer goods, including many produced in Poland (such as meat), are readily available only in special stores, at substantially higher prices [Newcomb]; other important consumer items, including durables and apartments, may be purchased without a long wait only in hard-currency outlets, for dollars or other Western currencies. Such discrimination in favor of consumers with foreign currency has contributed to tension in that country in recent years [Davies].

POLISH BLACK MARKET CONTAINS SOMETHING FOR MOST EVERYONE

To observe Eastern Europe's well-established black market in its fullest and freest form, come to Poland.

Here the U.S. dollar is still king, supporting a second economy in which everything from Japanese cars to scarce building materials can be bought and sold. Perhaps most significantly of all, Poland's Communist government doesn't discourage such activity, which carries severe penalties in neighboring countries.

On entering the country, a Western visitor is immediately invited by taxi drivers, street-corner merchants and local acquaintances to sell dollars at the black market rate of 110 zlotys each, more than three times the official rate of 30 zlotys.

This exchange is highly attractive, it seems, to everyone.

The Western visitor sharply reduces the cost of a stay in Poland.

The local resident acquires the only currency that lets him acquire some luxury goods from the West or, briefly, even some canned meat in the hard-currency shops run by the government or on the black market].

The government [also] gets to use the money for its international needs by encouraging residents to deposit any amount of dollars or other hard currencies in state bank accounts.

These hard-currency accounts draw interest of as much as 7 percent if left as long as three years. Depositors, moreover, can withdraw their funds at any time and for any purpose, including overseas travel. And, to the relief of depositors, they aren't asked to declare where the money comes from. "It's wonderful; everyone knows these deposits must derive from the black market," one depositor says.

The government's view: "We know the black market is going to exist. Why shouldn't the state take advantage of it?" a state planning official asks.

Not all the money, however, comes from the black market. Dollars also flow legally into Poland from remittances of relatives living in the U.S., Social Security benefits of Americans who retire to Poland and the earnings of Poles who work abroad.

As a result of such legal and extralegal flows, hard-currency accounts at Bank Handlowy, the central bank, are thought to total about \$500 million, almost as much as Poland borrowed last year from private banks in the West.

The hard-currency funds are used by the bank for its normal operations and to reduce the state's borrowing requirements abroad. "If you have a big debt, every dollar is needed," one economic specialist comments.

Analysts say the dollar economy probably also helps defuse some consumer discontent because it makes some commodities available to a limited segment of the population.

At the same time, however, it increases friction by creating a privileged class with access to hard currency. The contradiction of a socialist state increasing class differentials is apparent to some. "From a social point of view it isn't very pleasant," one Warsaw resident says.

Source: *The Wall Street Journal*, March 12, 1980.

Each CMEA country has retail outlets offering imported and certain domestic goods at higher prices or for hard currency only (the GDR's retail trade turnover in such stores has been quantified [Cornelson]), but the range of goods in these stores varies considerably from country to country. The Hungarian population, for example, feels no effect because hard-currency stores almost exclusively sell handicrafts for foreign tourists. No special stores operate in Yugoslavia, while for Albania, no information is available on this matter. By contrast, such stores are very important in Poland and of significant importance in the other countries, affecting income distribution and the standard of living most in those countries with serious shortages of consumer items. This is one reason why in those countries, particularly, the consumers' position will not be reflected accurately in the official real income statistics.

2. INFLATION

CPE's and market economies are both subject to *inflationary pressures*, but these are typically manifested in different ways. Market economies are characterized mainly by *open inflation*, which is measured by changes in their price levels. CPE's are characterized mainly by *repressed inflation*, whose symptoms are chronic shortages, consumer queues, inefficiency of the distribution system, and widespread corruption. Price controls, pseudo product differentiation (higher prices charged for a product with superficial change), the opening of "commercial shops" where goods not available in the regular retail outlets are sold at substantially higher prices, and the consumer's involuntary substitution of higher priced goods for unavailable lower-priced products are ways of trying to keep open inflation under control.

Moreover, many goods and services are exchanged at higher prices in the "second economy," under conditions that range from the officially sanctioned to the illegal.

Beginning in 1979, the consumer price policies began to change throughout the six planned economies. After a long period of *relative* stability of consumer prices, in 1979 Bulgaria, Czechoslovakia, Hungary, and Poland officially raised prices of consumer goods and services. The price increases in Hungary and Bulgaria affected a broad range of items, causing a steep rise in the overall consumer price index; the increases in Romania and Czechoslovakia involved a smaller array of goods, but the resulting price increases were still substantial [Kohn]. The policy change to some degree was intended to limit real consumption and excess demand while wage growth continued. Money wages were rising to provide work incentives and in some countries (e.g., Poland) also because planners found it very difficult to control the wage bill [Fallenbuchl]. But the most important general reason for the price increases was a desire to correct relative price distortions and to reduce the huge price subsidies draining the government budget. Because the price distortion and the subsidy burden are the greatest in Poland, in July of 1980 the government had tried once again to pass along some of the subsidy costs to the consumer by raising retail prices, most notably on meat products. This action, once again, triggered an explosion of worker discontent in the form of a wave of strikes that during July spread to many parts of Poland. These protests resembled two previous protests over food-price increases (in 1970, when Gomulka was toppled after protests over price increases led to the deaths of scores of workers, and in 1976, when worker protests forced his successor, Gierek, to rescind price increases within 24 hours). This time, although the strikes began over higher meat prices—and the transfer of much meat from regular retail outlets to the special "commercial shops" where higher prices are charged—the protests quickly extended to other issues: overtime pay, inflation adjustments, plant safety, and so on. Although this time the government managed to stick to the higher prices, it was forced to grant wage increases between 10–15 percent, which reportedly cost more than the government is saving on meat subsidies, and thus will inevitably lead to further price-wage spirals.

In the other countries where prices were raised during 1979–80, these measures have gone some way toward reducing the very large subsidies on consumer products and toward adjusting relative prices to those prevailing on the world market. The resulting change in consumption patterns is expected to improve the convertible currency trade balance, mainly by freeing more agriculture goods for export. An attempt was made in some countries to protect the real income of the poorest segment of the population. In Hungary, for example, an across-the-board wage, salary, and pension supplement (of 180 forints/month; equal to about 5 percent of the average monthly wage and 10 percent of the average retirement pension, respectively) was granted. While the Western press tends to chide the East European countries for their inability to escape inflation, price increases, if intended to bring relative prices closer to those prevailing on the world market, make good economic

sense. To be sure, significant domestic political costs are incurred by the leadership when consumer prices go up because the increases are abrupt rather than continuous, and they must announce them. This makes it difficult to shift responsibility to market forces beyond their control, especially since propaganda has stressed for years that socialist planned economies are not subject to "capitalist" crises such as inflation.

In Yugoslavia, inflation has persisted with varying degrees of intensity since the early 1960's. During the 1970's, the cost-of-living index has increased at an average annual rate of 18 percent [Tyson-Eichler, Table 5.1]. A thorough examination of the causes of Yugoslavia's inflation reveals that prices are both pulled by excess demand (facilitated by rapid growth of the money supply) and pushed by wage and other cost items. Thus, many of the causes are very similar to those in most market economies, although the details of the transmission mechanism and policies attempting to contain inflation have unique Yugoslav features. One such feature is the direct political pressure by enterprises on the National Bank for rapid increases in the money supply because tight monetary policy would affect investments much more than consumption, since enterprises finance a high share of investments from bank loans which tight monetary policy would curtail [Tyson-Eichler].

3. INCOME DISTRIBUTION

The leaderships must reconcile two contradictory objectives: keeping income inequality within certain limits and allowing income differentiation to provide material incentives. Focusing on the distribution of wage-type income in planned and market economies, a recent study found that, in both systems, responsibility, physical exertion, and special hardship in work conditions command a pay differential, for similar reasons. But in CPE's taken as a group, income from work seems to be significantly less unequally distributed than in capitalist countries, once allowance is made for size of country and level of economic development [12]. In recent years, Albania appears to have moved toward drastic equalization of wage- and salary-type incomes, so much so that it might well have become the country with the lowest income differential in the world [Schnytzer].

In Yugoslavia, great disparities in the level of economic development, as measured by per capita incomes in the six republics and two autonomous provinces, continue to be a major problem. Regional income disparities have increased further during the postwar period, in spite of persistent central government policy efforts to correct the imbalance and in spite of the rapid growth in the less developed regions, whose relative gains in total output were more than offset by their more rapid growth of population. In 1977, the ratio of per capita national incomes between the richest republic (Slovenia) and the poorest province (Kosovo) was 6.5:1.0: differences in per capita personal incomes were smaller [Tyson-Eichler].

A very important consideration for assessing the level and distribution of income in CPE's is the wide range of unpublished economic

and travel privileges granted in most countries to the political, managerial, military, and scientific elite. This is an especially important consideration in countries where the availability of consumer goods through the normal distribution channels is deficient and travel to the West, as a rule, is not allowed. These privileges are carefully differentiated by type of position, and are greater for those holding politically sensitive posts. The economic value of privileges, such as obtaining desirable apartments quickly and access to well-stocked special stores, can exceed the recipient's money wages. The power to grant and take away highly prized economic perquisites is one of the key levers in the hands of party organizations to secure the loyalty of key people to the regime.

IV. EXTERNAL ECONOMIC PERFORMANCE DURING THE 1970's

A. Measuring the Importance of Trade

In each East European country, the relative importance of trade has risen during the 1970's, as shown by substantially above-unity income elasticities of import demand in every country [Neuberger, et al.]. Regrettably, other measures of the "openness" of these economies are difficult to calculate. Trade participation ratios (exports+imports as a share of some measure of national income) cannot be measured accurately because domestic and foreign trade price structures differ and are not integrated, except in Yugoslavia and to some extent in Hungary. The geographic and commodity composition of total foreign trade are difficult to compute because foreign trade prices for the same commodities differ in intra-CMEA and East-West commerce (see discussion in [Vanous-2] and [29]). Though not fully comparable, calculations show that foreign trade participation ratios are highest in Hungary and Bulgaria; measured on the basis of per capita foreign trade flows, the GDR would rank first.

B. Terms of Trade

1. SOURCES OF INFORMATION

One of the most important developments during the 1970's has been a change in Eastern Europe's terms of trade with the U.S.S.R., with each other, with other CPE's, with the more developed countries of the industrial West, and with the less developed countries of the Third World and OPEC. The U.S.S.R., Bulgaria, Czechoslovakia, and the GDR (until 1976) have published physical value indices (trade in constant prices) for total trade, from which price indices can be derived. Hungary, Poland, and Yugoslavia publish foreign trade price indices. No information is available for Albania and Romania although Jackson does speculate on what Romania's terms of trade may have been, on the basis of trade partner information and analogy with Bulgaria and Yugoslavia [Jackson-2]. The official indices are based on different (often unspecified) methodologies of index number construction and therefore are not fully comparable to one another.

TERMS OF TRADE: CONCEPT AND MEASUREMENT

By the terms of trade is meant the ratio of export prices to import prices over time with a fixed base year. Terms of trade are said to improve when export prices rise more rapidly (or fall less rapidly) than import prices or when export prices rise while import prices fall. When this occurs a country is able to obtain a larger volume of imports for a given quantum of exports. There is a deterioration in the terms of trade when the reverse happens.

There are a number of technical questions before terms of trade can be used as a basis for policymaking. First, the terms of trade should be measured in foreign currency prices; they can also be measured in local currency prices provided the conversion factors are the same for both exports and imports. Complications arise when there is a marked shift over a period in the commodity mix of exports and imports. Then there is the question of the choice of the base year. If the chosen year is one when export prices are relatively high, then the terms of trade will appear to be unfavorable in the subsequent period. If export prices are low in the base year, then the terms of trade will appear unrealistically favorable. While policymakers may have special reasons for choosing one year over another, one could partly avoid the base year problem by fitting trend lines to export prices and import prices and then compare the two trends. Even here, there is the question of what overall period one should consider. How far back should one go to make such a comparison?

Source: U Tun Wai, "Some Economic Concepts and Policy Issues," *Finance and Development*, June 1975.

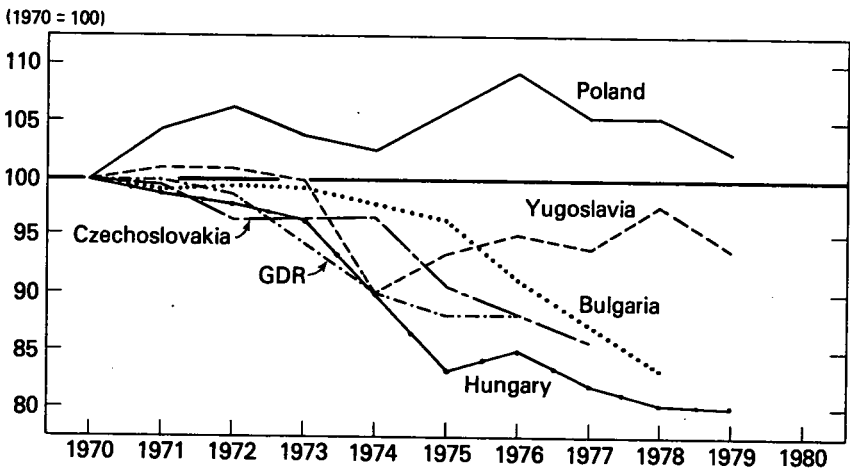
Several somewhat complementary approaches toward assessing the terms of trade of the East European countries are used. One is to accept the official statistics (fragmentary or not published in some countries); another is estimating by analogy the indices for countries that do not publish such information, that is, assuming that countries with similar geographic and commodity trade compositions have had similar changes in their terms of trade (the method Jackson relies upon for Romania); or computing foreign trade prices indices from sample unit values, which can be calculated from original or trade-partner sources (the approach followed in [Vanous-2]). In this section we use all these types of estimates.

2. TOTAL TERMS OF TRADE

Chart 9 presents the terms of trade for six countries (Bulgaria, Czechoslovakia, the GDR, Hungary, Poland, and Yugoslavia), for total trade during 1970-79 (or to the latest available year), based on official sources. With the exception of Poland and Yugoslavia, the Eastern European countries' terms of trade have deteriorated since 1973, basically because they are very large net importers of energy and raw materials. Albania, a net exporter of energy and raw materials [Schnytzer], almost certainly would show an improvement in its terms of trade. For Romania—on the basis of estimates that could have a substantial margin of error, Jackson concludes:

From 1970 to 1975, it is estimated that Romania's overall terms of trade declined by 8 percent. Since 1975 estimates are more hazardous. Through 1977, her terms of trade with CMEA probably declined about 4-6 percent, but were offset by a slightly smaller rise in terms of trade with the more developed countries. Terms of trade with the less developed countries probably declined slightly by 1977. Part of Romania's position has been defined by very large increases [in the prices of] exports of refined petroleum products [Jackson-2].

Chart 9. Total Terms of Trade of Bulgaria, Czechoslovakia, the GDR, Hungary, Poland, and Yugoslavia, as Available, 1970-1979



Sources: Bulgaria: [Jackson], Table 14; Czechoslovakia: [Levcik], Table 17; GDR: [], Table 6; Hungary: [], various issues; Poland: [Fallenbuch], Table X; Yugoslavia: [], various issues.

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The timing and extent of changes in the terms of trade reflect differences among the countries in their geographic and commodity compositions of trade. Because about 80 percent of Bulgaria's trade is with the CMEA, where price changes lag behind those on the world market, its terms of trade began to fall somewhat later than the other countries'. Hungary's terms of trade appear to have deteriorated the most. Hungary lost a full 20 percent of what it could have purchased with a given volume of exports, had foreign trade prices and the composition of its trade remained unchanged during the last decade.

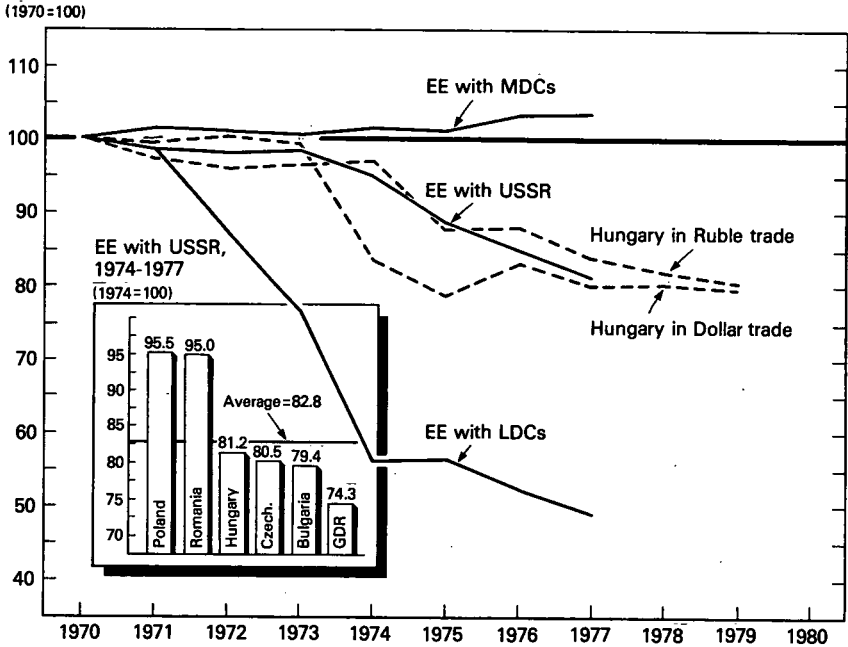
3. TERMS OF TRADE BY COUNTRY GROUPS

Chart 10 presents the terms of trade of the Six CMEA members (including Romania but excluding Yugoslavia and Albania) combined, with the U.S.S.R., with the more developed countries, and with the less developed countries, based on independent Western estimates [Vanous-2] and Hungary's official statistics on its ruble and dollar commerce.¹³

Terms of trade with the U.S.S.R.—The U.S.S.R. is the largest trading partner of each East European country (including Yugoslavia), except Albania. Prices in intra-CMEA trade are set on the basis of lagged moving average world market prices of the previous five year

¹³ Ruble vs. dollar trade differs from socialist vs. non-socialist trade because ruble trade excludes that part of socialist trade which is priced at current world market prices and settled in dollars or in other convertible currency. Based on calculations for Hungary, such trade may account for 8 to 10 percent of the total, depending on the trade partner and year (see [30], Appendix); for Poland, the hard-currency component of intra-CMEA trade is less than 5 percent.

Chart 10. Terms of Trade of the East Europe Six with the USSR, MDCs, and LDCs, 1970-1977, and of Hungary in Ruble and Dollar Trade, 1970-1979



Sources: East Europe Six: [Vanous], Table 11; Hungary: []. Insert: [], Table 8.

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period (for details, see [Marer-Montias], [Vanous-1], [Vanous-2], and [25]), so that changes in terms of trade tend to reflect, with a delay, changes in world market price ratios for the commodities traded. The calculations show that East Europe's weighted average terms of trade with the U.S.S.R. did not change significantly until 1973, when they deteriorated rapidly until 1977, the latest year for which information is available. This average, however, hides significant differences among individual countries which are shown in the insert of Chart 9. These figures are from a different source [13], which estimated changes in the U.S.S.R.'s terms of trade with the individual countries between 1974 and 1977. The ranking shows that Poland and Romania fared much better than the four other countries, experiencing only a small deterioration in their terms of trade with the U.S.S.R.—Poland because it is also an exporter of energy (coal) and other raw materials to the U.S.S.R., and Romania because it did not import crude oil and natural gas from the U.S.S.R. until 1979.

On the basis of Hungarian statistics, a rough estimate may be made of the terms of trade between 1977 and 1979. Price changes between Hungary and the U.S.S.R. up to 1977 were close to the average U.S.S.R.-East Europe price change (as shown in the inset). On that basis, the area's terms of trade with the U.S.S.R. may have deteriorated a further 4 to 5 percent, with the same four countries probably bearing the brunt of the deterioration.

Terms of trade with the West.—Vanous's calculations presented in Chart 9 contrast the terms of trade of the combined CMEA-Six with the more developed countries which changed little, and their terms of trade with the less developed countries which deteriorated by more than 50 percent by 1977. This is because East Europe's imports are mostly price-sensitive raw materials and fuels and exports mostly less-price-sensitive manufactures. Romania probably suffered large price losses because it trades heavily with the less developed countries [Jackson-2] and [Oechsler-Martens]) and because it imports most crude oil from OPEC countries ([Vanous-1] [Oechsler-Martens]).

Western estimates of how the individual East European countries have fared in trading with the more developed countries (MDC's) are available up to 1976, as shown in the following tabulation:

Country	Terms of trade with MDC (1970=100)	
	1973	1976
Bulgaria.....	100	112
Czechoslovakia.....	89	84
German Democratic Republic.....	95	94
Hungary.....	97	87
Poland.....	108	120
Romania.....	103	111

C. Volume of Trade

1. INTRA-CMEA TRADE

Vanous computed the commodity composition of trade of the combined CMEA-Six with the U.S.S.R. in value and in constant-price (physical volume) terms for 1970-77. While imports from the U.S.S.R. rose in *value terms* throughout the period, the *physical volume* of imports from the U.S.S.R. actually declined slightly in 1975 and 1976. On the other hand, the East European countries' exports to the U.S.S.R. continued to climb both in value and volume terms. The U.S.S.R. may have been unwilling to supply more energy, raw materials, and semi-manufactured products to Eastern Europe at a time when their prices were increasing faster on the world market than in the CMEA, due to the CMEA price rule (i.e., intra-CMEA prices are set on the basis of world market prices averaged over the previous five years), and/or the U.S.S.R. was not willing to increase its trade surplus with these countries (resulting from its improved terms of trade), given their presumed inability to increase exports to the U.S.S.R. fast enough [Vanous-2].¹⁴

The other side of the coin of the 1975-76 stagnation of the physical volume of imports from the U.S.S.R.—a time when East European exports to both the U.S.S.R. and to the West had to be increased to finance deteriorating terms of trade and to service a growing hard-currency debt—is that it became necessary for East Europe to turn

¹⁴ Hewett also investigated Soviet East European trade trends on the basis of official Soviet and recalculated CMEA trade data. His results and interpretations do not agree fully with those of Vanous; for example, he finds that during 1975-76, the physical volume both of Eastern Europe's imports from and exports to the U.S.S.R. stagnated [22], Table B-1), and that the Soviet Union appears to have shown no reluctance to run up further surpluses with these countries ([22], Table 5). A reconciliation of the Vanous and Hewett calculations would be useful.

more and more to the world market for energy, raw materials, and semimanufactured products needed for the domestic economy and the production of exports. This identifies one mechanism through which intra-CMEA and East-West trade are interrelated.

I have examined this interrelationship in some detail for Hungary, which publishes comprehensive statistics by commodity categories and trade partners. Western experts focus on energy imports, especially crude oil, pointing out that the U.S.S.R. supplies the bulk of foreign oil to the East European countries (except Romania). For Hungary, however, raw material imports are considerably more important than energy; in 1977, raw materials were obtained in approximately equal shares from ruble and dollar sources, and by 1979 more than half (in current value terms) from dollar sources. (To be sure, because Hungary has operational exchange rates that value the dollar and the transferable ruble differently than do the official rates between these currencies, trade shares calculated in Hungarian currency will be different than trade shares based on Soviet or CMEA statistics. For this reason, my trade share calculations for Hungary are not directly comparable with Vanous' calculations cited earlier.) Most important and striking are the imports of energy- and raw-material-intensive *semi-finished products* (mostly chemicals and ferrous and nonferrous metal products), which in value terms account for nearly as large an expenditure as energy and raw material purchases combined. In this commodity category, Hungary buys nearly three times as much, in value terms, for dollars than for rubles! And in recent years, 84 to 90 percent of agricultural and food imports have been obtained for hard currency.

Consequently, by the late 1970's about 70 percent of Hungary's convertible currency imports were comprised of primary products and semi-finished goods (including food) and only 30 percent of finished manufactures. Evidently Hungary has not been able to secure adequate imports of energy and, more importantly, of raw materials and semifinished products from the CMEA. The problem is not only the growing inability and increased reluctance of CMEA exporters of energy and raw materials to supply more of these products to their bloc partners, but also—and more importantly—the inadequate expansion of the semifinished-goods sector *everywhere* in the CMEA during the postwar period. Consequently, Hungary is unable to meet its demand for semi-finished goods from either the domestic or the CMEA market; hence, it must rapidly increase imports of these products from convertible currency areas.

The significance of Soviet credits granted to Hungary and to the other East European countries after 1975 to help finance their deteriorating terms of trade must be evaluated in light of these facts. As I understand, political leaders at the highest levels allocate such credits, but often they cannot be utilized fully because the additional goods Hungary and the other countries need most—energy, raw materials, and semifinished products—are not available. Additional goods which are offered—standard machinery, watches, and cameras, for instance—are not needed by these countries. A further reason why Soviet credits are difficult to track is the “games” enterprises play in some (all?) East European countries. Because exporting manufactured goods to the

Soviet market is often advantageous for firms in these countries, they *tell* the Soviet customer to *ask* for a larger volume of specified imports; under these circumstances, government negotiators find it difficult to limit the overall level of their country's exports.

An analysis of the changes between 1970 and 1978 in the commodity composition of East European-Soviet trade by Vanous shows the rapid increase of the former's fuel imports in *value terms*: in 1970 this commodity category represented less than $\frac{1}{6}$ of total imports; by 1978 it reached $\frac{1}{3}$. However, the share of raw materials other than energy and food declined: from 43 percent in 1970 to 32 percent in 1977. On the export side, the pattern has changed very little: machinery and equipment account for nearly half and industrial consumer goods for more than $\frac{1}{3}$ of East Europe's total exports [Vanous-2].

The pattern of intra-CMEA-Six trade has remained stable during the 1970's. The share of machinery and equipment has accounted for a gradually rising 53-57 percent; the share of non-food raw materials, about 20 percent [Vanous-2]. Trade between individual East European countries tends to be bilaterally balanced not only in total but also by categories of so-called "hard" and "soft" goods.

2. TRADE WITH LESS DEVELOPED COUNTRIES (LDC'S)

In recent years, machinery and equipment have consistently accounted for nearly half of East Europe's exports to this group of countries; between 1970 and 1977, the share of non-food raw materials has grown from $\frac{1}{4}$ to $\frac{1}{3}$. East Europe's imports consist of non-food raw materials (61 percent in 1970 versus 45 percent in 1977) and fuel (5 percent to 29 percent). The share of machinery has remained at an insignificant 1 percent or less. During the 1970's, East Europe's oil imports from OPEC countries increased moderately in volume and dramatically in value, accounting for about $\frac{1}{4}$ of the region's total volume of crude oil imports by 1978. The growth, composition, and future supply and demand prospects of the region's exports to OPEC are examined in great detail in two of the contributions [Vanous-1] and [Oechsler and Martens].

3. TRADE WITH MORE DEVELOPED COUNTRIES (MDC'S)

The basic determinants of East Europe's trade with the industrial West during the 1970's were: (a) the tempo and pattern of East European economic growth; (b) the availability of so-called "hard" goods from the U.S.S.R. and from other soft-currency sources; (c) changes in the terms of trade with partners in the CMEA and in the rest of the world; (d) economic conditions in the West; and (e) the availability and terms of Western credit and the willingness of the Eastern European countries to borrow.

(a) Regional growth rates accelerated during the first half of the 1970's as compared with the previous five-year period; in some countries, the high growth rates continued well into the second half of the decade (Chart 5). Given this high tempo and the pattern of investments described in section III-C, coupled with the inefficient use of resources documented in all of the country studies, the inevitable result

was this entire region's rapidly growing import dependence during the 1970's.

(b) The U.S.S.R. has been able to supply a *portion* of East Europe's increased import requirements in three out of five key commodity categories—energy, raw materials, and semimanufactured products—but has been unable to supply the region's growing import requirements in two other commodity categories—agricultural goods and high-technology products. From 1970 to 1977, the share of grain and other agricultural commodities in total Soviet exports to East Europe declined from 8 percent to 1 percent [Vanous-2]. The small share of high-technology goods supplied by the U.S.S.R. is more difficult to document, but all CPE's rely on the industrial West for a large share of such purchases.

(c) Terms of trade developments during the 1970's contributed greatly to five out of eight countries' increased dependence on Western imports. The exceptions were Poland, Yugoslavia, and Albania. Deterioration in terms of trade with the U.S.S.R. means that they must export increased quantities to obtain a fixed volume of imports. These increased exports require more energy, raw materials, semimanufactures, and high-technology imports, most of which has to be purchased for convertible currency on the world market. Deterioration of the region's terms of trade vis-a-vis the more or the less developed countries reenforced these tendencies.

(d) The crisis in the world economy adversely affected not only East Europe's terms of trade and the availability of hard goods from the U.S.S.R., but also Western demand for its exports. One contribution provides a conceptual framework and facts regarding the transmission mechanism through which world market disturbances affect Eastern Europe [Neuberger et al.]. A crucial fact is that a recession in the West reduces Western demand for all East European exports except fuel. The Organization for Economic Cooperation and Development (OECD) has calculated that the volume of imports from the seven CMEA countries (including the U.S.S.R.) fell below the trend line by 10 percent in 1974 and by 15 percent in 1975, presumably due mainly to demand factors. At the same time, import-sensitive goods—clothing, textiles, shoes, steel, basic chemicals, and other products—comprise too high a share of Eastern Europe's exports to the West so many restrictions are still imposed on them.¹⁵

(e) The crisis in the world economy benefited Eastern Europe by opening up new opportunities (with potential dangers) to borrow large sums from Western governments and private financial institutions. These new opportunities were connected with the "recycling" of the Organization of Petroleum-Exporting Countries' (OPEC) dollar surplus. During the 1970's, much financing and international liquidity creation shifted to private financial institutions, with the big multinational banks accepting deposits and making loans on the Euro-currency markets. This new environment favored the borrowers, and the Eastern European countries were able to obtain large sums on only slightly less favorable terms than borrowers in the OECD countries

¹⁵ The shares of import-sensitive goods in each East European country's exports to the West has been calculated in a study by the U.S. Dept. of Commerce [43].

and on better terms than less developed countries and even OPEC. Western government lenders also were eager to provide credits to CPEs to stimulate Western countries' exports. Between 1973 and 1977, 20 percent of OECD's official export credits went to the CMEA countries (including the U.S.S.R.), even though these countries accounted for only 4 percent of total OECD exports [Neuberger, et al.].

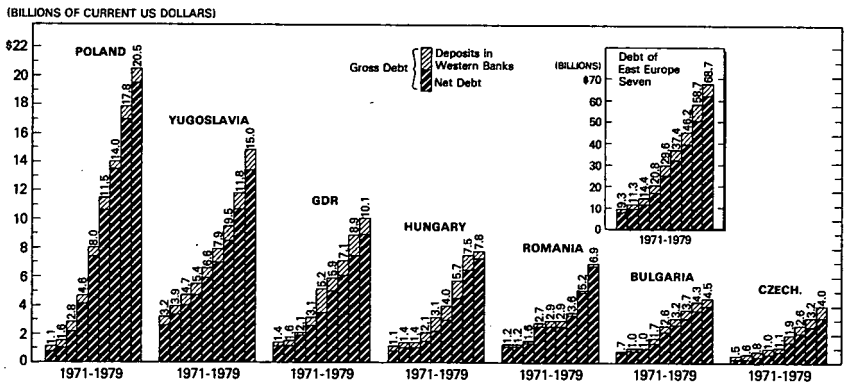
D. Growing Indebtedness to the Industrial West

1. GROWTH OF TOTAL DEBT

Chart 13 presents the increase of gross and net hard currency debt of the seven countries between 1970 and 1979. The difference between the gross and net figures is hard currency deposits in Western commercial banks. Debt estimates do not include CMEA countries' obligations to the two CMEA banks as their share of these banks' hard currency obligations to Western banks. At the end of 1979, the six countries' share totaled about \$2 billion [Zoeter], incurred mostly in funding the construction of the Orenburg gas pipeline through the CMEA's International Bank [Hannigan and McMillan].

While at the beginning of the 1970's the East European countries differed only slightly in their debt levels (most of them owing about \$1 billion), by the end of the decade their debt levels differed widely.

Chart 13. Gross and Net Hard-Currency Debt of the East European Countries, 1971-1979¹



¹1979 preliminary.

Sources: East Europe Sb: [Zoeter], Yugoslavia, 1971-1979: [1 Table 15, 1979: [Tyson and Eichler], text.

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2. SOURCES OF CREDIT

Three main sources of hard-currency credits exist: 1. *private commercial sources*, in which costs and conditions are largely determined by market forces; 2. *Western governments*, whose terms, as a rule, are more advantageous to the borrower than those from private sources (see [42] for a detailed discussion of government finance in East-West commerce); and 3. *The World Bank and the International Monetary Fund (IMF)*.

Private commercial sources include, among others, *commercial banks*, which may lend directly, on a bank-to-bank basis (usually for short term), or on a syndicated basis, via the Eurocurrency markets (usually for medium- or long-term), and *supplier credits* (promissory notes held by the exporters or by a financial institution). *Government credits* in the United States are extended by the Export-Import Bank to finance the sale of machinery and equipment and by the Commodity Credit Corporation (CCC) to support agricultural exports. Other industrial Western countries have similar official institutions to help finance exports from their countries. Financing from the *World Bank* and *IMF* is available to members only, i.e., to only Romania and Yugoslavia in the region.

During the 1970's, commercial finance, principally by large international banks in the form of syndicated Eurocurrency loans, became the largest source of credit, as shown in Table 3. At the end of 1979, U.S.-based banks and their major foreign branches held a combined \$4,330 million in net claims against the CMEA-Six, 25 percent of which was held by U.S.-domiciled and 75 percent by foreign domiciled units. The \$4,330 million accounted for 12.4 percent of the total net liabilities of these countries to Western commercial banks, as shown in Table 4.

TABLE 3.—COMPOSITION OF EAST EUROPE'S INDEBTEDNESS BY SOURCES OF CREDIT AT THE BEGINNING AND AT THE END OF THE 1970'S

[In percent]

Source of funds	CMEA-6		Yugoslavia 1979
	1971	1978	
Private commercial.....	58	83	35-41
Government credits.....	42	15	40-45
World Bank and IMF.....		2	19

Sources: EE-6: [Zoeter]; Yugoslavia: [Tyson-Eichler] and information provided by Eichler.

TABLE 4.—NET U.S. COMMERCIAL BANK LOANS OUTSTANDING TO EAST EUROPEAN COUNTRIES AT THE END OF 1979

[Dollar amounts in millions]

Borrowing country	Amount (millions)	As percent of CMEA-6 total from United States
Hungary.....	924	21
German Democratic Republic.....	782	18
Bulgaria.....	473	11
Romania.....	380	9
Czechoslovakia.....	129	3
Total.....	4,330	100
Yugoslavia.....	2,000	

Source: EE-6 [Zoeter]; Yugoslavia: [Eichler-Tyson].

At the end of 1979, U.S. commercial bank loans outstanding to Yugoslavia were about \$2 billion [Tyson-Eichler], which I estimate represented about 20 percent of loans extended to Yugoslavia by Western commercial banks.

As of 1980, access to U.S. Government export credit facilities has been granted only to the four countries that have also been extended U.S. MFN status: Yugoslavia (never denied MFN status), Poland (since 1960), Romania (since 1975), and Hungary (since 1978). (A summary of the legal status of U.S. commercial relations with individual countries can be found in [Pregelj]. All four countries have used the credit facilities of the Export-Import Bank and the CCC as shown in Table 5.

TABLE 5.—OFFICIAL UNITED STATES CREDITS OUTSTANDING TO INDIVIDUAL EAST EUROPEAN COUNTRIES
(EXIMBANK AS OF MARCH 31, 1981; CCC AS OF AUGUST 31, 1980)

[Dollar amounts in millions]

Country	Loans outstanding		Total
	Eximbank	CCC	
Poland.....	\$256	\$670	\$926
Yugoslavia.....	976	6	982
Romania.....	139	50	189
Hungary.....	10	10

Table 6 shows that Romania and Yugoslavia have also obtained large loans from the World Bank and the IMF. Yugoslavia has received more in World Bank loans on a per capita basis than any other country. Romania also benefitted from membership in the two international financial institutions by obtaining large loans.

TABLE 6.—WORLD BANK AND IMF LOANS TO ROMANIA AND YUGOSLAVIA OUTSTANDING AT
THE END OF 1980

[In millions of U.S. dollars]

Country	World Bank		IMF (net use)
	Disbursed	Undisbursed	
Romania.....	\$810	\$663	\$322
Yugoslavia.....	1,385	992	747

The principal mission of the World Bank is to finance public-sector development projects in less developed countries; that of the IMF is to help all member countries with temporary balance-of-payments problems. Thus, if the other East European countries became members of these two institutions (a country must join the IMF to be eligible for Bank membership), all could make use of the IMF's loan facilities, but probably only Bulgaria and Albania could become eligible for loans from the World Bank. (Although no absolute eligibility standards are published, my understanding is that, at the beginning of 1980, the eligible countries were those with per capita GNP levels below \$2,100.) Another advantage of World Bank membership is the right of all members to take part in competitive bidding on any World Bank project.¹⁶

¹⁶ Participation is open only to suppliers from member countries and Switzerland. Switzerland, though not a member, has worked closely with the Bank and has opened its capital market to the sale of Bank bonds and notes.

3. REASONS FOR THE GROWING INDEBTEDNESS

Many factors contribute to the East European countries' growing indebtedness. Both *increased demand for credits* and *increased supply (availability) of credits* are responsible for the large expansion of debt depicted in Chart 13. Some factors responsible for increased demand are largely within the control of decisionmakers in the area while others are largely outside their control.

(a) *Factors largely within the control of decisionmakers*

(i) *Rate of economic expansion.*—The more rapid and sustained the growth of a country's real product, the stronger, *ceteris paribus*, is its demand for imported fuel, non-food raw materials, semimanufactures, food, machinery and equipment, and industrial consumer items, and the lower its export supply of many primary products. The income-elasticity of the CMEA-Six's demand for imports from the West is very high for fuels, non-food raw materials, agricultural commodities, and industrial consumer goods [Vanous-2, Table 14]; the elasticities of export supply to the West are much lower [Vanous-1, Table 16].

(ii) *Level and direction of investment.*—The high level and rapid growth of investment in fixed capital and the high proportion of projects in the heavy-industrial sectors contribute to the rapid increase in imports from the West. Most projects require Western technology imports for their construction and energy and raw material imports for their operation. Many projects are not intended to produce hard-currency exports; for others, completion delays and other problems often result in lower-than-planned hard-currency exports from projects intended to produce goods for sale to Western markets.

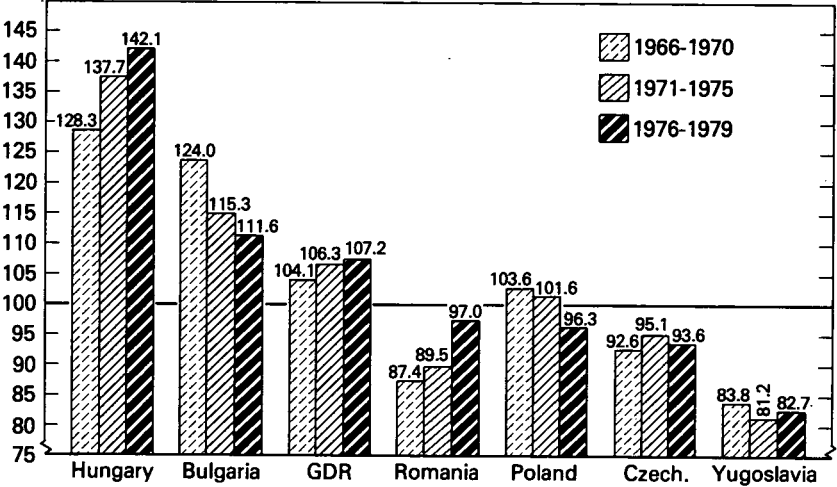
(iii) *Type of specialization in the CMEA division of labor.*—The more energy-, raw material- or high-technology intensive is a country's specialization within the CMEA, the greater, *ceteris paribus*, will be the adverse impact on the hard-currency balance of payments. This relationship is documented for Poland [Fallenbuchl], Czechoslovakia [Levcik], the GDR [Oechsler] and Hungary ([40], Chapter 8).

(iv) *Policies toward agriculture.*—Inadequate inputs, poor management of state and collective farms, insufficient incentives, and policy mistakes toward the dominant private farmers in Poland [Newcomb] have caused agricultural output to remain below potential in many of these countries, with adverse consequences for the hard-currency balance of payments. Agriculture performed well during the 1970's in only two of them: Romania and Hungary, as shown by Chart 7 depicting comparative levels of per capita agricultural output during 1966–79 by subperiods.

During the 1970's, only these two countries were net exporters of agricultural products, Hungary consistently, in excess of \$500 million yearly, Romania considerably less and with greater year-to-year fluctuations. By contrast, Czechoslovakia, the GDR and Poland are large net importers of agricultural products of about \$1 billion yearly for each country, while Yugoslavia's net imports of agricultural products were between \$300 and \$750 million, depending on the year [Terhaar-Vankai].

Chart 7. Comparative Levels of Per Capita Agricultural Output in Eastern Europe, 1966-1979

(EASTERN EUROPE = 100)



Source: [Lazarcik], Table 19.

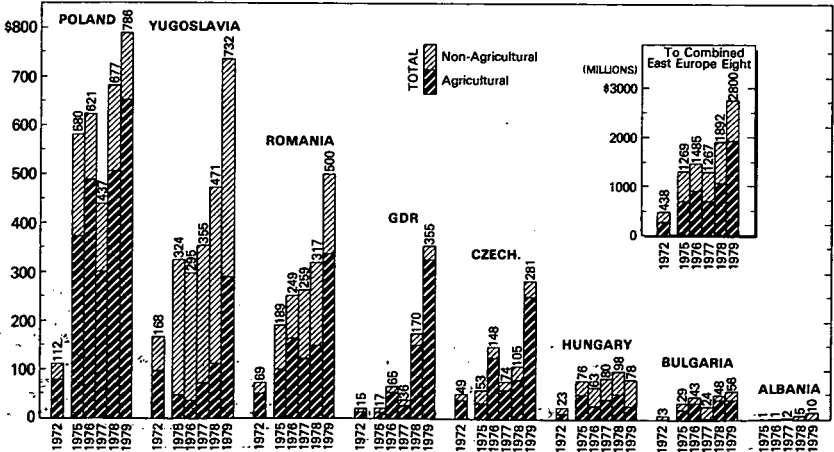
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Grain is a key agricultural product in Eastern Europe's balance of payments and a very important commodity in U.S. exports to the region. Charts 11 and 12 depict total U.S. export and import trade, respectively, with total, agricultural, and non-agricultural commodities.

(v) *Standard of living policies.*—Providing more meat and certain other food items to consumers (without appropriate wage, price, and

Chart 11. US Exports to East European Countries, Total and Agricultural Commodities, 1972, 1975-1979

(MILLIONS OF CURRENT US DOLLARS)

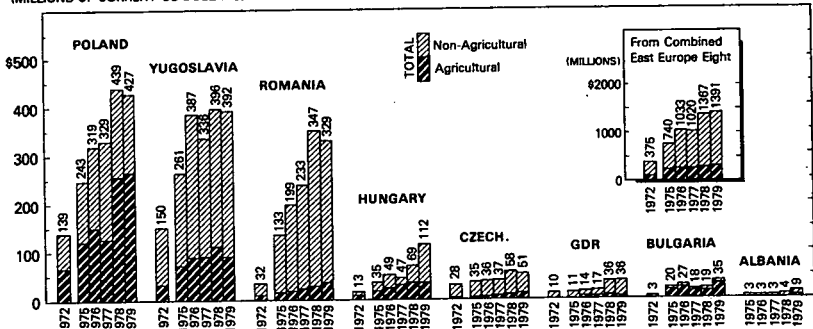


Source: [Jurew], Table 2 (U.S. Dept. of Commerce data).

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Chart 12. US Imports from East European Countries, Total and Agricultural Commodities, 1972, 1975-1979

(MILLIONS OF CURRENT US DOLLARS)



Source: [Jurew], Table 1 (U.S. Dept. of Commerce data).

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agricultural policies to maintain a reasonable balance between domestic supply and demand for such products) can result in a huge drain on the hard-currency balance of payments as illustrated by recent developments in Poland [Newcomb]. A decision to supply the population with more automobiles and other import-intensive consumer items may also have an adverse impact on the balance of payments. To illustrate: in the early 1970's, relying almost entirely on West European technology and licenses, Poland decided to build up its passenger automobile industry to supply the domestic and export markets. Although exports have risen, the hard-currency cost of imported parts reportedly exceeds hard-currency export earnings by a substantial margin [Teske].

(vi) *Policies toward tourism.*—Not only do the East European countries differ in the amount of sun, water, and other attractions they can offer Western tourists, but they also differ significantly in their policies to exploit their tourist potential [34]. Yugoslavia has done the most to promote tourism; Hungary, Romania, and to some extent Bulgaria have made major efforts in this direction; and the GDR has accepted large numbers of visitors from the FRG. However, for political reasons, Czechoslovakia and especially Albania have discouraged Western tourists. Although one would expect any sort of tourism to have a favorable impact on the balance of payments, accommodating a significantly large number of tourists from the CMEA countries than a country is sending—who pay for food, gasoline, and other purchases with soft currencies—has an adverse impact on the hard-currency balance. This was Romania's justification for its unilateral decision in the summer of 1979 to sell gasoline to all foreigners for convertible currency only (under an agreement that the deficit country is to settle the balance with delivery of "hard" goods), thereby stranding thousands of East European motorists traveling in that country.

(vii) *Other policy decisions.*—Major strategic or policy decisions in other areas, taken for a variety of economic and political reasons, can have positive or negative impacts on the hard-currency balance of payments. Yugoslavia's decision to permit its citizens to work in Western Europe, resulting in up to a million Yugoslavs being employed abroad

in some years, has provided a critical flow of hard currency into the country [Tyson-Eichler]. The GDR's clever management of the FRG's willingness to provide hard-currency benefits to the GDR through numerous channels and for a variety of political and economic reasons [Stahnke] benefits that country's hard currency balance of payments. Decisions with a negative impact on the hard-currency balance include various kinds of "planning" mistakes, many of which are documented in the country studies in this volume. Many East European countries' policymakers, for example, failed to realize for quite some time after 1973 that price changes on the world market, especially with respect to energy, were permanent. One consequence of the 1973-74 turn of world events was a sudden drastic change in the profitability of certain industries and products. In many Western countries, therefore, the production of certain chemicals, plastics, iron and steel, various kinds of machinery and equipment, etc. became unprofitable, and worldwide demand for new capacity in these branches declined precipitously. Suppliers of plant and equipment in these branches, faced with excess capacity, offered attractive deals, including financing, to willing buyers. Many buyers were found in East Europe, and a disproportionately large number in Poland. A survey of West German firms involved in technology transfer under recent coproduction deals showed that 50 percent of the projects involved products already facing saturated markets in the industrial West; another 44 percent involved products that were moving in that direction [Teske].

(viii) *Efficiency of the domestic economic systems.*—Although last on this list, the efficiency of the domestic economic system is the single most important factor under the control of decisionmakers in the region because it can have a favorable or unfavorable impact on all of the other factors listed. Here the economic system refers to a country's price mechanism and the role it plays in production and consumption decisions, the system of planning and management at all levels in the economic bureaucracy, and the economic-social-political incentive systems which guide the actions of workers, managers, and professionals.

The CPE economic system is particularly adversely suited to the export of manufactured products—precisely the type of goods on which the East European countries must increasingly rely to finance their rapidly growing Western imports. Typically, the manufactured goods which they wish to sell in the West have serious, system-determined shortcomings in quality. Product innovation and technological change tend to lag behind those of competitors because the incentive system discourages firms from introducing new technology and because military-related research is kept separate from the civilian economy. Ties between the large R & D establishment and manufacturing enterprises are weak even in the civilian sector. In the absence of competition on the domestic and CMEA markets, enterprise output is "distributed," not "sold," so that the competitive skills necessary in international trade are not developed. Export promotion and good trading performance require the nurturing of personal contacts between buyer and seller. i.e., travel, but in some of these countries such activities are discouraged [Eichler] granting it only as a privilege to select people.

Successful exporting of manufactured products also requires continuous change and adaptation of the production structure. Decision-

makers must initiate or promptly follow technological changes on the world market and respond to market signals in a timely fashion. Because manufacturing is dynamic, risky, and highly competitive, entrepreneurship is vital to international trade, much more so than to domestic development. As conventionally interpreted, Marxist economic theory inculcates a disdain for market forces, the price mechanism, competition, and entrepreneurship—an attitude that is especially damaging for efficient allocation of investment funds and in international trade [20].

Another systemic problem is overfull-employment planning and a perennial sellers' market, which lead to the so-called "salability illusion": planners consistently overestimate their ability to export to the West since they are used to thinking in terms of supply rather than marketing constraints. Even when planners perceive and attempt to close quality gaps between their products and their competitors', by the time they succeed, another gap has usually opened up, at a different level [22a]. The outcome is unfulfilled export plans and unforeseen hard-currency deficits.

Another systemic problem is the absence of operational exchange rates to link domestic and world market prices. Enterprises are paid a fixed local-currency price regardless of whether the output is sold on the domestic CMEA, or Western markets. The result: enterprises prefer to sell their manufactured products on the domestic and CMEA markets that are less demanding and risky. As for imports, quality, availability, and service considerations prompt enterprises to prefer goods imported from the West. Because they are charged a fixed domestic price for inputs and because financing (once an input is allocated) is automatic, firms have little interest in the foreign price or in the availability of foreign exchange, and bargain hard with authorities to obtain Western imports.

Without operational exchange rates (which only Yugoslavia and Hungary have) and currency convertibility. East European countries are unable to rely on devaluation to solve persistent balance of payments problems. Because foreign trade with the West is conducted in Western currencies and approximately at world market prices, de facto devaluation can be achieved only by charging an export price lower than that prevailing on the world market. Such back-door devaluation, however, is limited by Western antidumping regulations. (It is problematic, to be sure, whether a devaluation would improve the balance of payments, which depends on the elasticities).

In spite of efforts to overcome these problems, the system determined constraints on the hard-currency balance remain strong. To be sure, the countries differ in the degree to which their economic systems contribute to or attempt to solve the hard-currency balance of payments and other related problems. For example, fundamental problems with the economic system in Poland are the principal cause of that country's crushing hard-currency debt. Polish and Western experts agree that for quite some time that country has not been led competently in economic matters, and that much economic experimentation notwithstanding, key components of the economic mechanism are not internally consistent. Several contributions discuss Poland's systemic problems: [Fallenbuchl], [Davies], and [Teske].

This long list of factors largely within the control of East European decisionmakers which have contributed to worsened balance of payments problems is not intended to suggest that all factors are of equal contributing importance. In my view, an East European policymaker wishing to solve his country's balance of payments problem during the 1980's must concentrate on the last factor: improving the efficiency of the domestic economic system.

(b) *Factors largely outside the control of decisionmakers in Eastern Europe*

It is not enough simply to enumerate the outside economic forces which have an adverse impact on the hard-currency balance of payments one must focus also on the decisionmakers' response to adverse developments. Timely and appropriate response will largely limit the extent of harm inflicted on a country by forces of external economic disturbance [Neuberger, *et al.*]. Thus, decisions largely within the control of decisionmakers in Eastern Europe are of overriding importance.

(i) *Deteriorating terms of trade.*—Subsumed under this heading is a country's endowment of natural resources and existing production capacity, which in the *short run* will largely determine its terms of trade if world market price ratios change by a wide margin. But after the initial adverse impact of world market price changes, a country should be able to influence its terms of trade by adjusting domestic production and consumption, i.e., by reducing imports and expanding exports of items that have become relatively more expensive on the world market. The same is valid under adverse external developments (2), (3), and (4).

(ii) *Prolonged recession in the West.*—This adversely affects Eastern Europe's hard-currency balance of payments because of reduced demand for its exports.

(iii) *Increased competition from less developed countries.*—During the 1970's, the East European countries faced especially strong new competition from the dozen so-called newly industrialized countries.

(iv) *Increased protectionism in Western markets.*—Partly a Western political response to the prolonged recession and intensified competition from developing and planned economies, growing protectionism involving certain sensitive products has created some added difficulties for the East European countries. With respect to the U.S. market, this issue is discussed in [Jurew], [Pregelj], and [32]; with respect to the European Community, especially in relation to Romania, in [Laux]; with respect to some broader issues in East-West commerce, in [Diebold], [Baumer-Jacobsen] and [Orr].

(v) *Western inflation.*—Rising world price levels usually raise the interest rates borrowers must pay not only on new credits but also on a significant portion of existing debt, because the interest rate on most syndicated Eurocurrency loans is "floating"—determined on the due date (every 3 or 6 months) by adding a fixed margin to the floating LIBOR rate.^{10a} Thus, the larger the share of commercial bank loans in a country's total debt and the larger its need for new financing

^{10a} LIBOR—London Interbank offer rate, the interest charged in transactions between large international banks on borrowed Eurodollar time deposits in London. LIBOR interest rates are influenced by the monetary policies of the major Western countries, by the anticipated levels of world inflation, as well as by more specific demand and supply factors.

the greater will be the impact of rising interest rates on its total debt. For instance, since at end-1979 Poland owed about \$15 billion to commercial banks [Zoeter], an 1-percent increase in LIBOR adds a \$150 million interest burden for Poland. Of course, inflation reduces the debt burden in the long run, provided that export prices at least keep up with world inflation.

(vi) *Fluctuating exchange rates among Western currencies.*—This factor has multiple impact on an East European country's nominal debt. The impact depends on the currency in which a debt is denominated. If in U.S. dollars, a change in the dollars' exchange rate has no impact on the nominal debt level. If the debt is denominated in a currency which appreciates vis-a-vis the U.S. dollar (e.g., the Deutsche Mark (DM) in recent years), then the nominal dollar value of the debt will increase (and conversely if the dollar appreciates). Because the FRG and other Western countries are large creditors to the East European countries and because the Mark and some other currencies appreciated against the dollar in recent years, the nominal dollar value of Eastern Europe's debt has been inflated, even though a portion of the debt is payable in other currencies. A calculation for Poland shows that if its non-dollar-denominated debt were converted to dollars at exchange rates prevailing in 1975, its end-1979 total debt would be only about \$16 rather than \$20 billion [Zoeter]. Because few observers are aware of the impact of Western exchange rate fluctuations on nominal debt figures, a substantial depreciation of the U.S. dollar is clearly detrimental to those debtor countries which have a significant portion of their debt denominated in appreciating currencies.¹⁷

4. SUPPLY (AVAILABILITY) OF CREDITS

Several developments have resulted in the availability of increasingly large credits to the East European countries. First, detente improved the political climate, an indispensable precondition for Western governments and commercial lenders to even consider large-scale credits to communist countries [Eichler]. Next, a large portion of the huge surpluses generated by OPEC countries after 1973 was deposited in Western banks, which were seeking to lend profitably. At the same time, borrowing by traditional debtors in the West declined because of sluggish Western economies; new borrowers, including those from Eastern Europe, were gladly accommodated. Third, the recession in the West created excess capacity and growing unemployment, which caused Western governments to encourage exports by seeking out buyers. Such sales were promoted by subsidized government credits. Fourth, keen competition among American, West European, and Japanese banks, especially during 1978-79, prompted some banks to lend to countries in East Europe (and elsewhere) on perhaps an unwar-

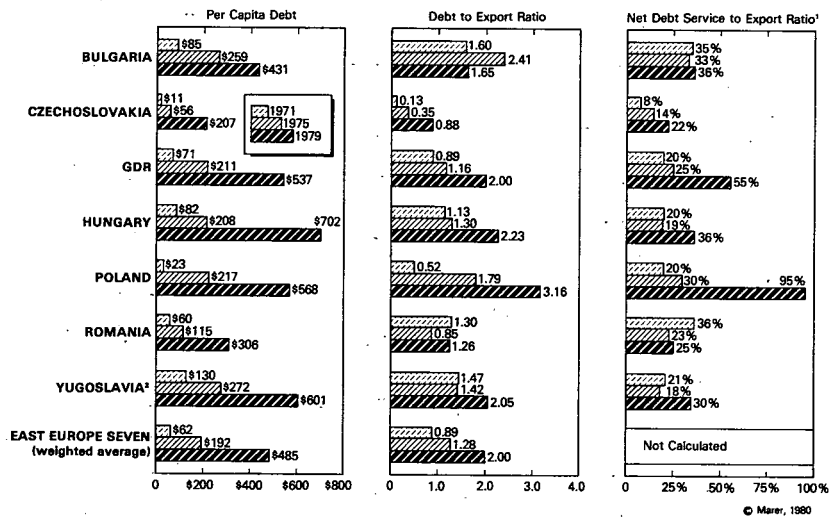
¹⁷ As to the impact of changes in exchange rates on the real debt burden, much depends on the currency in which a debtor country's earnings are generated and whether its export prices are fixed under long-term contracts. If, for example, an East European country enters into a fixed-price, long-term export contract in DM, the Mark appreciates vis-a-vis the dollar during the life of the contract, and the debt is denominated largely in dollars, then the debtor would benefit from the dollar's depreciation. But in export transactions not covered by fixed-price contracts, the world market price quoted in different currencies presumably adjusts instantaneously to exchange rate fluctuations.

ranted scale, in view of some borrowing countries' provision of inadequate information on their financial positions and on the effectiveness of their economic programs in managing a growing debt.

5. THE BURDEN OF DEBT

No one measure can accurately indicate the debt burden of a given country or the comparative debt burdens of several countries. Chart 14 presents three alternative (net) hard-currency debt burden measures for the seven Eastern European countries, for 1971, 1975, and 1979; other (more sophisticated) measures are presented in [Zoeter].

Chart 14. Three Alternative Debt Burden Measures for the East European Countries, 1971, 1975 and 1979



¹1970, 1975, and 1978.

²Yugoslavia not strictly comparable to the other countries (see text).

Notes: Debt refers to net debt; export data: sales to non-CPEs, except Yugoslavia (total exports); net debt service to export ratio: payments on medium- and long-term debt to merchandise exports to non-CPEs, except Yugoslavia (see text).

Sources: Debt: see Chart 13. Population: official statistical yearbooks. Exports of East Europe Six: [Zoeter], Table 1.

Yugoslavia: []. Debt service ratios: East Europe Six, 1970: [], Appendix E, 1975 and 1979: [Zoeter], Appendix G. Yugoslavia, 1970 and 1975: [], Table 15; 1979: [Tyson and Eichler], text.

A very simple indicator is per capita debt (column 1 of Chart 14), sometimes used because it can be easily calculated.

Yet, this measure takes into account neither a country's export potential nor the maturity structure of its debt. The ranking of the Eastern European countries on the basis of their 1979 (net) debt per capita is as follows:

Hungary -----	\$702
Poland -----	568
Yugoslavia -----	543
GDR -----	537
Bulgaria -----	431
Romania -----	306

A more sophisticated measure is the debt to merchandise export ratio (column 2 of Chart 14), which shows the size of the debt relative to the country's annual hard-currency exports. The Eastern European countries' ranking, on the basis of 1979 data is:

Poland	3.16
Yugoslavia	2.96
Hungary	2.23
GDR	2.00
Bulgaria	1.65
Romania	1.26
Czechoslovakia	0.88

Chart 14 reveals the extraordinarily rapid increase in Poland's debt to export ratio during the 1970's, indicating the inability of that country's exports to keep up with increased debts. By contrast, Bulgaria's and Romania's 1979 ratios were about the same as in 1971, revealing that these countries had been able to increase hard-currency exports roughly in proportion to their debt (partly, of course, because they borrowed at a slower pace than Poland). Bulgaria's improved 1979 ratio is mostly due to the almost 50 percent increase in its 1979 hard-currency exports [Zoeter, Table 1]. If this level of exports cannot be sustained and expanded in the early 1980's, Bulgaria's debt to export ratio will deteriorate once again, as it did during the mid-1970's.

The third measure of the debt burden presented is the debt service to export ratio (column 3 of Chart 14), relating interest on total outstanding debt and principal payments on medium- and long-term debt in a given year to hard-currency exports in the same year. The advantage of this measure over the previous one is that it focuses on the immediate situation. Two countries with identical total or per capita debts or debt-to-export ratios may have quite dissimilar debt service ratios; for one country, a large share of repayment obligations may be bunched and falling due soon, whereas the other's payments may be stretched out over a longer period. The main shortcomings of the measure are the bias introduced by omitting services, e.g., Yugoslavia, Bulgaria, and Poland have substantial net service revenues (see below) available for debt service, and the implicit assumption that short-term credits (which for some East European countries amount to one-third or more of their total debt) can be rolled over automatically.

The ranking of the East European countries on the basis of their 1979 debt-service-to-export ratios is:

	<i>Percent</i>
Poland	95
Yugoslavia	55
GDR	55
Hungary	36
Bulgaria	36
Romania	25
Czechoslovakia	22

Poland's extraordinarily high debt service ratio is due not only to its very large nominal indebtedness but also to the dramatic worsening of the maturity structure of its debt, which in turn is due partly to: (1) Poland's increasing reliance on government export credits to purchase commodities (grain, steel, chemicals, etc.) for which terms are considerably shorter than for financing machinery and equipment or for syndicated Eurocurrency loans; and (2) principal repayments on

earlier Eurocurrency credits falling due during 1979-80 [Zoeter]. In contrast, Hungary (which ranked higher than Poland on per capita debt and placed second to Poland on debt-to-export ratio) has relied heavily on medium- and long-term syndicated Eurocurrency loans, so that it does not face a debt service crisis similar to Poland's.¹⁸

Invisibles are omitted in calculating the debt service ratio because full balance of payments data are not available for five of the seven countries, Hungary and Yugoslavia being exceptions.^{18a} Revenues and expenditures in these two countries' invisibles are presented in Table 7, which reveals that invisibles are not a significant source of net revenue (or expenditure) for Hungary, but are extraordinarily important for Yugoslavia, whose 1978 earnings of \$5.3 billion on the invisibles account compared with export revenues of \$5.7 billion. Yugoslavia's net invisibles earnings of about \$3 billion were available to finance a portion of its traditionally large import surplus or its debt service.

TABLE 7.—SELECTED INVISIBLE REVENUES AND EXPENDITURES IN HUNGARY'S AND YUGOSLAVIA'S BALANCE OF PAYMENTS, 1979

[Dollar amounts in millions]

	Revenues	Expenditures	Balance
Hungary (1979):			
Freight and insurance.....	\$23	\$210	-\$187
Tourism and travel.....	157	85	+72
Government expenditures.....	15	52	-37
Other current payments.....	235	145	+90
Transfer payments.....	46	6	+40
Total.....	476	498	-22
Yugoslavia (1978):			
Freight, insurance and other transport.....	1,550	565	585
Tourism, travel.....	1,050	120	930
Worker's remittances and miscellaneous other.....	3,070	1,542	1,528
Total.....	5,670	2,227	3,043

Sources: Hungary: [38], table 18; Yugoslavia: [Tyson-Eichler], appendix.

Other East European countries' hard-currency invisibles balances are probably much nearer to Hungary's than to Yugoslavia's, although several are able to generate significant net earnings: the GDR, through large visa and transit fees from West German and other visitors to Berlin and the GDR plus other payments by the FRG, related to Berlin and the freeing of political prisoners by the GDR; Poland, from tourism, remittances by relatives; and "internal" hard-currency exports in the "Pewex" shops; and Romania and Bulgaria from shipping and tourist and travel. On the basis of published information for Hungary and Yugoslavia and reconstructed estimates for the East European countries ([28], Table 6), the balance of 1979 hard-currency invisibles transactions (excluding interest on debt) are as follows:

¹⁸ The maturity schedule and other detailed hard-currency balance of payments statistics are officially published by Hungary in [38].

^{18a} Poland provides the information to Western governments and commercial banks on a confidential basis and the Western press occasionally acquires and reports the figures. Romania provides its balance of payments to the IMF and the World Bank. For the first time in June 1980, the IMF has started to publish information on Romania's exchange rates, holdings of foreign exchange, Special Drawing Rights and gold, as well as its position vis-a-vis the Fund [24].

	<i>Millions</i>
Yugoslavia -----	\$3, 750
GDR -----	1, 000
Poland -----	390
Bulgaria -----	250
Romania -----	100
Hungary -----	(22)
Czechoslovakia -----	(50)

To sum up: the various debt burden measures indicate that during the 1970's Poland relied the most and Czechoslovakia the least on external finance, although even Czechoslovakia's 22 percent debt service ratio is substantial by international standards. In the next-to-highest tier we find the GDR, Hungary, Bulgaria, and Yugoslavia. Romania's debt is relatively modest by Eastern European standards, although it has been rising rapidly since 1977. In any event, all countries' hard-currency balance of payments prospects—which are determined by requirements for hard-currency imports, their abilities to earn hard currency, principally through exports, and their continued access to credits from Western private and government sources and from the international financial institutions—are all vital factors in their debt situations.

G. DEBT PROJECTIONS TO 1985

During the early 1980's, the East European countries almost certainly will need substantial additional credits from the West. This conclusion can be drawn from their current balance of payments. In addition to refinancing the debt when payment of principal is due, each year a country needs to cover its hard-currency imports plus the interest payments on the debt outstanding. If these sums cannot be financed by its hard-currency export plus net invisibles earnings, then the

TABLE 8.—ESTIMATED FOREIGN EXCHANGE REQUIRED AND AVAILABLE FOR THE EAST EUROPEAN COUNTRIES TO AVOID INCREASING THEIR DEBT LEVELS, 1979

[Dollar amounts in millions]

Country	Uses of hard currency			Sources of hard currency			Uses less sources	
	Imports	Interest on 1979 net debt ¹	Foreign exchange required ²	Exports ³	Net invisibles ⁴	Foreign exchange available ⁵	Amount	As per cent of exports
Poland-----	\$8, 095	\$2, 351	\$10, 446	\$6, 335	\$850	\$7, 185	\$3, 261	52
Romania-----	6, 670	808	7, 478	5, 350	100	5, 450	2, 028	38
German Democratic Republic-----	5, 900	1, 037	6, 937	4, 500	1, 000	5, 500	1, 437	32
Hungary-----	3, 880	878	4, 758	3, 361	(22)	3, 339	1, 419	42
Czechoslovakia-----	4, 120	383	4, 503	3, 600	(50)	3, 550	953	26
Bulgaria-----	1, 603	462	2, 065	2, 310	250	2, 560	(495)	(21)
EE-6-----	30, 268	5, 919	36, 187	25, 456	2, 128	27, 584	8, 603	34
Yugoslavia-----	10, 179	1, 000	11, 179	4, 463	3, 570	8, 033	5, 716	118
EE-7-----	40, 447	6, 919	47, 366	29, 919	5, 698	35, 617	14, 319	48

¹ Assuming an average interest rate of 12 percent on outstanding debt (in the source cited). This rate may be on the high side.

² Does not include hard-currency obligations due to the CMEA banks and to other CPE's, deficits in intra-CPE hard-currency trade, and miscellaneous other hard-currency obligations.

³ Exports may overstate the amount of hard currency generated because they include sales to less developed countries on credit or under bilateral agreements where the balance is not settled in hard currency.

⁴ Shipping, tourism, sale of gold and arms for hard currency. The estimates have a potentially large margin of error.

⁵ Does not include hard currency that may have been obtained directly from CPE's or less developed countries.

⁶ An alternative estimate gives \$390,000,000 (see note 4).

Sources: East Europe-6: [28], table 6 (except invisibles for Hungary, see text table 7); Yugoslavia, trade: [Tyson-Eichler].

balance must be borrowed. Table 8 presents such calculations for the six countries, individually and combined, plus Yugoslavia.

For the six East European countries combined, the 1979 gap between foreign exchange required to finance imports plus interest payments and foreign exchange available without additional borrowing was \$8.6 billion and was matched almost exactly by the \$8 billion 1979 increase in the six countries' combined debt (Chart 13).¹⁹ Because the 1979 foreign exchange gap was equal to approximately one-third of the CMEA-Six's combined hard-currency exports, the only way the Eastern European countries could avoid increasing their debt in 1980 and beyond would be either to reduce drastically their hard-currency imports or to increase very substantially their hard-currency exports, or both. In view of their countries' dependence on Western technology (including spare parts) and on the world market for imports of energy, raw materials, intermediate goods, and consumer products, added to the various supply and demand constraints on their hard-currency exports, it is unlikely, to say the least, that these countries will be able to balance their current accounts during the early 1980's. Clearly, if their imports are to expand, or even remain for several years at 1979 levels, their total indebtedness must rise.

Table 9 projects 1983-85 debt levels of the East European countries under various assumptions regarding the growth rates of their hard-currency imports and exports. Because so many factors influence a country's exports and imports, these projections are intended to be illustrative rather than predictive. They show that for most countries, even a modest growth of imports and relatively rapid expansion of exports will result in rising debt levels. The exact outcome will be determined by the size of the current gap between imports and exports, the interest on the currently outstanding and future debt, and the growth of imports and exports.

In Table 9, the numbers in row A assume a continuation of each country's 1975-79 growth rates of imports and exports. The numbers in row B are the growth rates of exports required to stabilize a country's debt level by 1983 and 1985, respectively, on the assumption that the 1975-79 growth tempo of imports is continued (except for Bulgaria: see below). In row C, one or more alternative import and export growth rates are projected, along with the resulting indebtedness by 1983 and 1985. Projected debt and export growth rates required for debt stabilization are given within a range, the low figures assuming an average interest rate of 10 percent on outstanding debt, the higher figures—12 percent.

Table 9 can best be explained and interpreted by referring to Chart 15, which depicts the trends in the hard-currency imports, exports, trade balance, and invisibles balance of the Eastern European countries during 1973-79. A bar shows hard-currency exports, imports and the trade balance for each country for each year. A solid black shading indicates a trade deficit: diagonal stripes—a trade surplus. The chart compares the trade trends of each country over time, the size of a deficit or surplus relative to the same country's exports and imports in the same year, and, comparatively, the levels and trends in the trade flows

¹⁹ The \$8.6 billion difference could arise from omissions and inaccuracies in the estimates shown in Table 8 (see the footnotes to the table) and from partial financing of the foreign exchange gap by a reduction of foreign exchange reserves.

TABLE 9.—ALTERNATIVE PROJECTIONS OF 1983 AND 1985 DEBT LEVELS OF THE EAST EUROPEAN COUNTRIES

[Dollar amounts in billions]

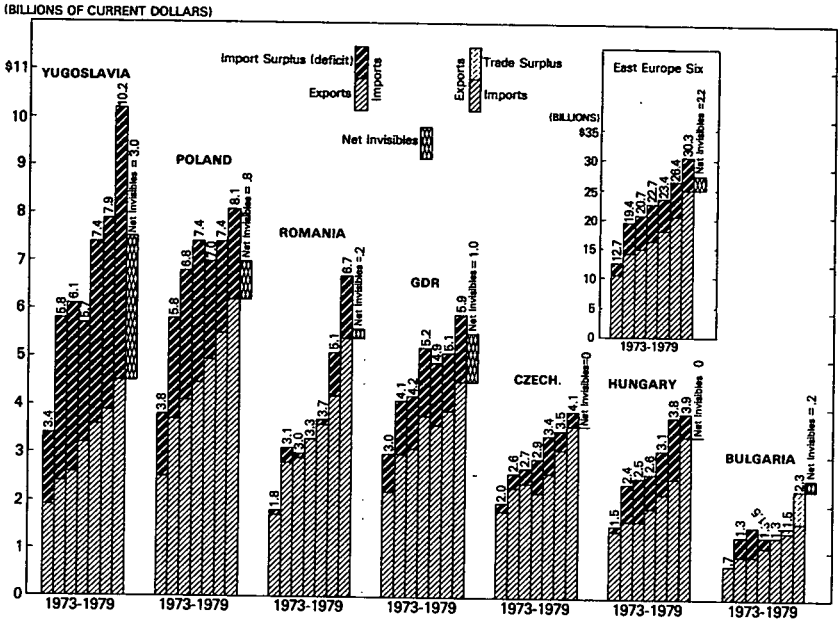
Country/Type of projection	Assumed import growth rate, 1979-83 or 1979-85 (percent)	Export growth rate (percent)		Net year-end hard-currency debt (billions)		
		Assumed	Required to stabilize debt by 1983 or 1985	1979	1983	1985
Bulgaria:						
A.....	4	20		\$3.8	None	None
B.....	15		6.8-7.3		\$2.4-\$2.6	
C.....	20	5	8.7-8.9		4.1-4.5	\$1.3-\$1.6
Czechoslovakia:						
A.....	9	9		3.2	7.9-8.3	11.3-12.2
B.....	9		14.2-14.7		5.4-5.6	
C.....	5	10	12.9-13.2		5.3-5.7	6.9-7.2
German Democratic Republic:						
A.....	8	8		9.0	15.4-16.4	20.4-22.4
B.....	8		14.1-14.8		11.8-12.3	
C.....	5	10	12.5-13.1		12.5-13.4	13.9-14.7
Hungary:						
A.....	7	15		7.5	9.2-10.0	7.5-8.8
B.....	7		13.2-14.1		10.0-10.4	
C.....	5	10	11.4-12.1		10.6-11.0	11.7-12.3
Poland:						
A.....	7	12		20.0	30.4-32.6	35.2-39.4
B.....	7		15.6-16.7		26.7-27.8	
C.....	0	15	13.2-14.1		20.8-22.8	31.3-33.1
	5	15			25.5-27.6	11.7-15.1
Romania:						
A.....	16	14		6.7	19.4-20.9	32.7-34.9
B.....	16		23.4-23.9		12.3-12.7	16.4-17.2
C.....	16		21.4-21.7			
	10	15			13.4-14.3	15.4-17.1

Source: [28], tables 8 through 13.

and trade balances among the countries. The chart also shows, for 1979 only, the estimated net hard-currency invisibles (excluding interest payments on debt), juxtaposed with each country's 1979 trade deficit (or surplus), which a positive invisibles balance reduces. (On the other hand, the interest on debt outstanding, not shown on the chart, enlarges the trade deficit.)

The absolutely and relatively large and growing trade deficits of Yugoslavia are most striking in Chart 15; in 1979 less than 50 percent of imports could be financed by exports. On the other hand, Yugoslavia can finance more than half of the trade deficit with its net invisibles earnings. Also, each previous jump in imports and deficits was followed by a leveling off of imports for two or three years, as the balance of payments constraint forced the country to give priority to improving its current account [Tyson-Eichler]. Poland's difficult situation is also striking: the annual trade deficit could not be reduced significantly in spite of a more rapid expansion of exports than of imports since 1975 (12 percent versus 7 percent, as shown in Table 9). Because the large outstanding debt creates a further financing burden, Poland has to run very fast, so to speak, just to avoid falling further behind. Table 9 shows that even if exports continue to expand at almost twice the rate at which imports rise, Poland's debt will increase to more than \$30 billion by 1983 and may almost reach \$40 billion by 1985, depending on the future interest rate charged. Poland can avoid

Chart 15. Hard-Currency Imports, Exports, Trade Balance, and Invisibles Balance of the East European Countries, 1973-1979



Sources: East Europe Six: [], Table 1; Yugoslavia: [Tyson - Eichler], Table 6.2.

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a substantially larger debt by 1983 only by holding its imports constant at 1979 levels for four years while expanding exports by at least 15 percent per annum, or by implementing some similar arrangement of highly divergent growth rates of imports and exports.

My preliminary assessment of the effect of the recent disturbances in Poland on that country's balance of payments is that the workers' strikes as well as the terms of the settlement reached with them are likely to aggravate rather than bolster the already fragile economic situation in Poland. Giving large increases and freezing prices means that the government must put more goods into the shops. These will have to be imported or diverted from intended exports, thereby worsening the balance of payments.

The hope of the decisionmakers in Poland is that the terms of the strike settlement and subsequent economic reforms will improve morale in the country to such an extent that productivity improvements will more than compensate for the production shortfalls caused by the strike. Everyone agrees that Poland's economy has large "reserves" to boost output and productivity, but Polish officials are more optimistic than Western observers about the prospects for capturing these reserves. To obtain substantial productivity gains will require comprehensive, simultaneous, and internally consistent reforms in the planning, price, incentive, management, and information systems. This would mean a basic overhaul of the Polish economic and management system to reestablish a close connection between economic effort

and reward, to appoint competent officials to key party, government, and enterprise-management posts, and to inform the Polish people in a straightforward manner about the country's domestic economic and foreign debt situation. The broad reform program will probably have to include temporary economic austerity to stabilize the foreign debt situation since Western lenders are becoming more and more reluctant to provide additional funds. The problems and the proposed solution must be laid out by the leadership and accepted by the people. Only then can the leadership hope to restore the confidence of the Polish people as well as of foreign lenders in the ability of the party and the government to solve Poland's extremely serious economic problems.

V. CONSEQUENCES OF ECONOMIC PERFORMANCE; INCREASED EXTERNAL DEPENDENCE AND VULNERABILITY

A. Import Substitution Industrialization Under Central Planning

During the 1970's, the East European countries have continued their postwar industrialization drives at a rapid pace. Fundamentally, two patterns of industrialization may be followed by any country: import substitution industrialization and export promotion industrialization. The eight East European countries have followed essentially the former path to economic transformation.

Import substitution industrialization relies on a protected domestic (or regional) market to generate demand for industrial products, which can facilitate achieving a rapid increase in output over a certain period. Rapid expansion of industrial production, however, requires increased supplies of energy, raw materials, semimanufactures, and machinery, which must be obtained increasingly through imports. But under such policies, many industries are protected from domestic and international competition: thus manufacturing products which are competitive on world markets is difficult. Sooner or later, the country will face a balance of payments constraint on the continued rapid growth of its economy. The timing and severity of this constraint will depend on: (1) the availability of raw materials and agricultural products from domestic (or from protected regional) sources to supply the growing industrial sector and to generate foreign exchange; and (2) the availability of external financing to bridge the foreign exchange gap.

In contrast, export promotion industrialization can typically proceed without severe foreign exchange constraints; industrialization can thus become more a self-sustaining process. It, however, tends to be more difficult to initiate than import substitution industrialization for political and economic reasons. For example, industrialization by export promotion typically requires policies that make explicit a considerable degree of reliance on domestic and external market forces.

The postwar growth performance of small- and medium-sized market economies has been more satisfactory under export promotion than under import substitution industrialization for several reasons. Under the latter, a country often constructs plants of less than efficient minimum optimal size. The absence of strong competition allows both

efficient and inefficient firms to prosper. Thus it often involves uneconomical, high-cost activities which use resources which could otherwise be used more productively. The resulting shortfall in export earnings relative to rapidly growing import requirements creates a foreign exchange bottleneck, which in turn leads to more and more policies to save foreign exchange by limiting imports. Such policies tend to be bureaucratic, indiscriminate, and shortsighted; they further constrain the growth of manufactures exports, because in order to compete internationally, producers must be given reasonable access to imported raw materials, intermediate goods, and technology. Therefore, a country pursuing import substitution policies will typically become strongly constrained by—and thus dependent on—apparently uncontrollable external economic forces, even though upon adoption these policies appeared to assure a greater degree of economic independence than export promotion policies. Export promotion industrialization policies acknowledge from the outset a close interdependence with the world economy. This interdependence in turn sets constraints on the economic behavior of both the government and enterprises because the international market provides practically instantaneous feedback on the success or failure of decisions.

During the postwar period, each of the eight countries has essentially followed import substitution industrialization policies. The extreme version of this policy—attempted autarky—has been given up after several years by all except Albania [Schnytzer].²⁰ Import substitution policies in the region do not mean that these countries have attempted to replace all imports, but that they have been largely indiscriminate in their willingness to establish and expand industrial branches and enterprises regardless of their ability to compete with the resulting products on the world market. Central planning under an authoritarian government protects these industrial branches and enterprises more securely than any tariff could in a market economy; central planning also reinforces both the strengths and the weaknesses of import substitution policies. By substituting government demand for the market, output growth is not constrained even by domestic market forces. Government ownership and control of the means of production and the use of coercion to finance an ambitious economic development program facilitate, for a time being, rapid progress toward industrialization. However, by running the economy in a typically bureaucratic fashion, central planning in effect carries the protectionist tendencies of import substitution to extreme, because foregoing all competition is equivalent to perfect protectionism. This leads to inefficiency in the use of all inputs, in investment decisions, and in the ability to generate hard currency via manufactures exports.

The East European countries have been able to pursue such policies much longer than comparable market-type economies because up to now they have been able to rely—temporarily—on three special support mechanisms: (1) a highly centralized political system geared to resource mobilization and suppression of dissent; (2) the U.S.S.R., as

²⁰ For Albania, attempted autarky includes not having to import grain and other food products; manufacturing all the spare parts needed to keep imported machinery in operation, plus some simple machinery, including tractors; and producing some basic industrial consumer items [Schnytzer].

a supplier of energy and raw materials and a market for manufactures; and (3) access to large Western credits in recent years.

(1) A highly centralized authoritarian political system had been instrumental both for initiating and extending import substitution policies. Such a system is able to mobilize domestic resources and contain dissent, including consumer discontent, by strong-arm methods. The government is able to finance rapid industrialization and exports by diverting resources which in a market economy would have been consumed (or saved voluntarily if there were sufficient incentives). However, the economic effectiveness of such policies diminishes rapidly after a point at which further economic growth must be generated principally by improved productivity.²¹ All the East European countries have reached this point at various times during the last two decades.

(2) The U.S.S.R., in supplying energy and raw materials as well as a market for manufactures, has extended the life span of import substitution policies by postponing the appearance of a binding foreign exchange gap. Since the mid-1960's, it has been evident that the availability of *additional* energy and raw materials supplies from the U.S.S.R. in exchange for manufactures that could not be sold readily for hard currency is only temporary. East European countries began to feel the pinch during the 1970's; the problem is sure to get worse during the 1980's.

(3) During the 1970's, the consumer began to require more attention, necessitating increased Western imports. The supply of primary products from the U.S.S.R. became more limited, requiring growing supplementary purchases for hard currency. The need for Western technology to modernize industry became more pressing—a need that could be met only by heavy reliance on Western imports. At the same time, Western credits began to flow on a very large scale, temporarily bridging the growing foreign exchange gap. However, during the 1980's additional Western credits will not be available to finance hard currency imports on anywhere near the scale of the previous decade, even though the debt levels of most East European countries will continue to rise. (For Albania, the economic assistance China supplied until about 1978 provided resources on a scale roughly comparable to those made available to the other countries of the region via Western credits. See [Schnytzer] and [30], Table 4.)

B. Increased External Dependence and Vulnerability

Import substitution industrialization policies pursued under command-type central planning for a generation and their growing reliance on Soviet raw materials and markets and Western credits have driven the East European countries into a position not only of increased external dependence (which is not necessarily bad) but also increased external vulnerability (which is the real problem).²² They are especially vulnerable in the following five areas:

²¹ It is interesting to note that the rather consumer oriented period in Poland in the early 1970's did not bring about the expected feedback on productivity, probably because of the fundamental shortcomings in the economic and management systems.

²² Vulnerability refers to the degree of difficulty a country has in attempting to respond to adverse external developments that are bound to arise when a country is externally dependent and the likelihood of successful response in meeting adversity.

1. INCREASED DEPENDENCE ON IMPORTED ENERGY, RAW MATERIALS, AND INTERMEDIATE PRODUCTS

While the East European countries are still predominantly dependent on the U.S.S.R., even under the most favorable assumptions about Soviet production capabilities and export policies, during the 1980's they will become much more dependent on other hard-currency sources [Watson].

2. GROWING DEPENDENCE ON IMPORTED AGRICULTURAL PRODUCTS

Increased consumption of meat must remain a high priority for economic and political reasons. Much of the grain and other animal feedstuffs currently imported already comes from the United States and other hard currency sources and is expected to continue so during the 1980's [Vankai and Terhaar].

3. INCREASED DEPENDENCE ON WESTERN TECHNOLOGY

The East European countries are vulnerable partly because they imported so much Western plant and equipment during the 1970's (which must be maintained with a continuous flow of components and spare parts) and partly because the CMEA still lacks much of the modern technology essential for continued industrialization and for the creation or maintenance of hard-currency export potential.

Basic problems are: (1) that CMEA countries continue to experience difficulty in taking indigenous and foreign technology and applying it to commercial processes quickly and on a broad scale. This is partly a systemic problem—improper incentives—and partly the result of macroeconomic policies which stress capacity expansion over capacity replacement; and (2) inability to create adequate substitutes for foreign direct investment as a means for transferring technology [10].

4. INCREASED COMPETITION AND VULNERABILITY OF THEIR MANUFACTURES AND PROCESSED AGRICULTURAL EXPORTS ON WESTERN MARKETS

Eastern Europe's vulnerability is in part due to its growing dependence on Western multinational corporations not only for technology but also for marketing services, often under industrial cooperation agreements (see [32] and [33]). In product areas in which the Eastern European countries are less dependent on multinationals for technological and marketing know-how—mostly traditional, labor-intensive agricultural products and industrial consumer goods such as textiles, clothing, and shoes—they are becoming more and more vulnerable to competition from the rapidly industrializing but still low-wage developing countries and to growing protectionist trends in the recession-prone industrial Western countries.

5. CONTINUED, IN SOME CASES EXCESSIVE, DEPENDENCE ON WESTERN CREDITS

This is the most immediately critical area of vulnerability for the East European countries, for several reasons:

(a) Conventional debt burden measures show that several countries already have excessive debts relative to their export potential (Chart

14); these debts will be extremely difficult to service. Today's Western financial press features prominently the debt servicing difficulties already encountered by Poland, whose refinancing maneuvers during 1980 have been interpreted as tantamount to forced rescheduling [36].²³ Actual rescheduling of Poland's foreign debt, estimated at \$24 billion at the end of 1980, is almost certain to be necessary in early 1981.

This year (1980) and in each of the next four years Poland needs to borrow between \$6.5 and \$7.5 billion to overcome the bunching of the maturities on its existing debt during the early 1980's. Its large outstanding debt, bad harvests, and economic mismanagement are making it exceedingly difficult for Poland to obtain the amounts it needs (most of it to service the existing debt). My understanding of the consensus of opinion of major Western banks that have been approached by Poland for further credits in the spring of 1980 is that the banks were reluctant to lend until they received convincing evidence that Poland had a well-conceived program to get its balance of payments under control. In August 1980, Poland obtained a \$325 million syndicated loan from a consortium of commercial banks (of which, about \$70 million was provided by a Soviet bank)—less than the \$500 million Poland requested in this particular round of syndication. To a large extent, this loan went to refinance the maturities coming due. For the first time, the loan agreement provided to the banks an opportunity to "monitor" the implementation of the stabilization program. Monitoring in this context means a formal semiannual meeting between a small group of Western experts elected by the banks participating in the syndication and Polish bankers as well as responsible government officials. The Polish side is to discuss in considerable detail the status of the economy and the implementation of the economic stabilization program. The assessment of the participating bankers naturally would have an impact on Poland's future borrowing capability (and cost) from the private sector.

(b) A direct relationship exists between the external debt service performance of Poland—or that of any other European CPE—and the availability and cost of credits to the East European countries as a group. An imperfect repayment record of any member of the group would be reflected in deterioration of the terms and conditions on loans to other members of the group [Eichler].

(c) Practically all of the debt has been borrowed under portfolio rather than equity arrangements. Many countries borrowed sizeable amounts during the take-off stages of their industrialization, but in most cases a significant portion of the debt incurred for long-term purposes—to build infrastructure and new industries—was in the form of equity. Therefore, more reliance on risk capital would make sense, but this would require not simply new laws but the creation of an economic environment attractive to foreign investors.

²³ In a published letter to *Euromoney* (February 1980), the First Vice President of Bank Handlowy took exception to the rescheduling interpretation:

"... the majority of countries all over the world are taking up new credits, whether for the purpose of financing their imports or for financing their balance of payments deficits, and you would hardly call that rescheduling. Why then in regard to Poland?" The editors of the journal reply: "Reschedule is a difficult word to define in banking. To us, however, it means this: If a debtor is forced to renegotiate a loan on such terms that imply that the original terms could not be met, then that is a rescheduling. It was along those lines that... Poland renegotiated a major French loan recently."

(d) Borrowers heavily dependent on private financial markets are vulnerable to adverse economic and political developments affecting those markets. At the end of 1979 Poland owed approximately \$15 billion to banks, on which it must pay a floating interest rate. As inflation in the United States accelerated in 1979 and early 1980 and as the Federal Reserve tightened credits, the London Eurodollar interest rate skyrocketed from 10.5 percent during the first half of 1979 to 19.5 percent in March 1980, then declined to 11 percent by April. Each 1 percent rise (or decline) in the Eurodollar interest rate means an approximately \$150 million extra payment for savings) for Poland, according to the terms of its syndicated Eurocurrency contracts. To illustrate the political side: the deterioration of East-West political relations in the wake of Afghanistan is making Western corporations and banks more sensitive to the risks of doing business in the East; "stiffer lending terms could result" [Brainard].

(e) Some rather ominous grey clouds are hanging over the entire international financial structure; if a storm were to be precipitated, many borrowers would be hurt, and all creditors would run for cover. International lending would be seriously affected, meaning borrowers would find difficulties in purchasing those goods and services which they had planned to import on credit. An international credit crunch could conceivably be precipitated by several large borrowers' simultaneous inability to meet their payments before an international agreement is reached on the handling of such a crisis. Recycling the large new surplus funds being generated by the 1979-80 round of crude oil price increases will present another concern in the next few years. A 1980 estimated OPEC surplus of \$115 billion is likely to be duplicated in each of the next two years, and possibly longer. Because the big international banks recycled a large part of the previous OPEC surplus by filling their portfolios with loans to less developed countries and to East European countries who are now approaching or have passed prudent credit limits, whether and how a next round of recycling can proceed smoothly is an open question [Brainard].

The common denominator in all five of the key vulnerabilities to which the East European countries are exposed—growing dependence on energy and raw material imports, on imported grain and other agricultural products, on Western technology, on markets in industrialized countries, and on Western credits—is their need for hard currency. The root cause of this vulnerability is their deficient earning of hard currency via manufactures exports, which in turn is a consequence of import substitution industrialization policies, traditional central planning, and the protected nature of the CMEA markets. (Even in their economic transactions with the U.S.S.R., the East European countries' fundamental cause of vulnerability stems from problems of generating hard currency: if they were able to pay for Soviet energy and raw materials with manufactures that could be sold readily for hard currency, their vulnerability vis-a-vis the U.S.S.R. would be reduced greatly). The energy crisis, the recent round of price increases by OPEC, deteriorating terms of trade, the prolonged recession in the West, and other external disturbances in recent years have contributed to, but are not the fundamental cause of their increased external dependence and vulnerability.

Increased economic dependence and vulnerability are the inevitable fate of any small- or medium-sized country with a rapidly growing, open economy but there are degrees of dependence and vulnerability. Increased economic interdependence is unavoidable for practically all countries; but the excessive lopsided dependence experienced by the East European countries need not be crippling for any industrialized or industrializing country which has an efficient production system, reasonably strong export orientation, and flexibility to adopt to changing global economic circumstances, so long as a world economic crisis (of Great Depression magnitude) can be avoided.

Small, open economies pursuing export promotion industrialization policies are still and will continue to be much better suited to responding to external economic disturbances, as the economic performance of Hong Kong, Taiwan and numerous other countries will illustrate. While I do not want to suggest that these countries should be set up as the ideal models for East Europe (since many Asian countries have cheaper labor as well as very substantial direct investment by foreign corporations), it is still instructive to note that Hong Kong, Taiwan, and some other Asian countries are small, open economies without mineral resources that have managed to cope remarkably well with the global economic turbulence around them. Just one example: during 1970-78 Taiwan's exports to the United States, consisting almost entirely of manufactured products, increased at 34 percent per annum.

VI. PROSPECTS FOR THE 1980's

A. Austerity Programs and What They Can Accomplish

All eight East European countries' 1976-80 five year plans proposed a slower growth rate than the growth tempos achieved during 1971-75 (Table 10). With the possible exception of Albania for which no information is available, the 1976-80 five year plans also envisioned that absorption (national income used domestically) would grow at a slower rate than output (national income produced), the difference representing projected net exports' (or a narrowing of the annual trade deficit) required to finance a deterioration in the terms of trade and to service the hard-currency debts.

Neither the more moderate 1976-80 output plans which were still much too ambitious, given the internal and external pressures described earlier), nor the plans to keep the growth of absorption significantly below the growth of output will be achieved by the end of 1980. Estimated 1976-80 plan fulfillment, based on growth rates during the first four years and the planned growth rates for the fifth year, are shown in Table 10.

During 1976-80 all countries showed a clear tendency toward decelerated growth, especially during 1978-79, when every country except Bulgaria and Yugoslavia had a lower rate of growth of output than during the first two years (1976-77) of the five year plan period. In 1979, output actually declined in Poland. Of the three countries for which both output and absorption plans for 1980 are available—Czechoslovakia, Hungary, and Poland—absorption is expected to decline by approximately 1 percent in Hungary and Poland and to grow

TABLE 10.—GROWTH RATES OF NATIONAL INCOME OF THE 7 EAST EUROPEAN COUNTRIES, ACTUAL (1971-79) AND PLANNED (1976-80)

Country	[In percent]						
	1971-75 actual	1976-80		1979		1980 plan	
		Plan	Estimated actual ¹	Plan	Actual	Output	Absorption
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Bulgaria.....	7.9	7.7-8.5	6.2	7.0	6.5	5.7	(?)
Czechoslovakia.....	5.6	4.9-5.2	3.7	4.3	2.7	3.7	2.2
German Democratic Republic.....	5.4	4.9-5.4	4.3	4.3	4.0	4.8	(?)
Hungary.....	6.2	5.4-5.7	3.9	3.5	1.4	3.0-3.5	-1.0
Poland.....	9.7	6.9-7.2	2.9	2.8	-2.0	1.4-1.8	(- .5)-(-1.0)
Romania.....	11.3	11.0	8.3	8.8	6.2	8.8	(?)
EE-6 ⁴	7.8	6.6	4.6	4.6	2.4	4.3	(?)
Yugoslavia ⁵	6.3	7.0	6.4	(?)	7.0	(?)	(?)

¹ Unweighted average annual increases between 1975 and 1980.

² Not available.

³ In June 1980 Poland reduced its plan targets by 1 percent, so that practically no growth is planned.

⁴ Weighted average.

⁵ Social product.

Sources: EE-6, col. (1), (2), (4), (5): [37], table 2; col. (3): calculated by the author on the assumption that 1980 plans will be fulfilled; Col. (6), (7): [37], table 1. Yugoslavia: [Tyson-Eichler], table 3.1.

only minimally in Czechoslovakia (Table 10). Poland's performance in 1980 is expected to be much worse than just stagnation.

Focusing on the 1976-80 growth of output, in all of these countries except Poland, so far we can only talk about a reduction of growth, not a Western-type recession in which production actually declines over some period. Two factors, however, must be considered when comparing the macroeconomic growth performances of CPE's and Western countries: differences in statistical measurements (discussed in Part II-C) and differences in the political consequences of declining growth rates. Up to now, propagandists in many CPE's have claimed that, as a group, they have shown and will continue to achieve superior economic performance over most market economies because of their higher growth rates. Because of the strong emphasis placed on rapid growth, a stagnating or declining tempo of growth in a CPE creates not only the conventional economic and political problems any government typically faces in such a situation, but also raises fundamental questions about the basis for the leadership on which to claim political legitimacy. The situation is somewhat different in Yugoslavia, where the real problem of declining growth rates arises from the need for new jobs to absorb the large, rapidly growing number of unemployed and underemployed persons [Tyson and Eichler]; and in Hungary, for some time where the leadership has focussed as much if not more on other performance indicators.

A slowdown in the rate of economic growth after a period of rapid expansion is not unusual in Eastern Europe; the cyclical nature of postwar growth in the region has been amply documented. The difference this time is the nature of duration of the slower growth faced by the four more developed countries and the severity of the prospective future constraints on all East European nations, as the external economic environment continues to deteriorate and as the temporary

mechanisms (described earlier) which have enabled these countries to postpone fundamental adjustments are ending.

How does declining growth today differ from those in previous economic cycles? Comparable decelerations in output growth can have fundamentally different causes and implications. A point of departure for analyzing declining growth rates is to juxtapose the growth rate of production and the growth rate of absorption: a faster tempo of absorption over an extended period typically portends future debt-service problems; a lower rate of growth of absorption *may* be a healthy sign, if the real costs to the economy of holding down absorption are not excessive. These costs tend to be very high if domestic absorption is held in check either by an indiscriminate and panicky promotion of exports or by inability to purchase essential imports. Both factors have been present in Poland since about 1977 and at least one of the factors, shortages of essential imports, in Czechoslovakia, in the GDR, and probably in varying degrees in the other countries also. Polish planners have responded to their country's severe hard-currency balance of payments problem by across-the-board import restrictions, causing sectors of the economy to be unable to fulfill their plans for lack of energy, iron, steel, copper, cement, plastics, synthetics, and so on, and by a desperate drive for exports, sometimes by rerouting goods needed in the domestic supply system into exports [Fallenbuchl]. The situation in the current slowdown, at least in some Eastern European countries, is new: the growth of output is limited not so much by a lack of production capacity but by limited supplies of energy, raw materials, and intermediate products to operate existing capacity.

The fundamental question for the East European countries other than Yugoslavia is whether they can tolerate their current economic difficulties by restoring once again to temporary austerity programs without carrying out fundamental reforms in their traditional CPE systems. For the four more developed countries (Czechoslovakia, the GDR, Hungary, and Poland) the most probable answer already today, is negative, while for the less developed countries (Bulgaria, Romania and possibly Albania) the answer will probably become negative toward the latter part of the 1980's. The chief reasons are the relentlessly growing pressure on their hard-currency balances of payments (which temporary austerity programs alone will not solve) and the domestic economic and political problems created by prolonged austerity programs. Growing pressure on the balance of payments requires the earning or saving of hard currency without incurring exorbitant costs which can undermine the country's future economic potential. That in turn requires large new investments to adapt these excessively energy and raw material intensive economies to the changed availability and cost situation on the world market. A much stronger hard-currency export orientation on the part of manufacturers, typically absent in CPE's, is also necessary. The political constraints on prolonged austerity programs, which cause stagnation or very slow growth of investment and consumption, are strong interest group (ministries, enterprises, regions) and consumer pressure on the planners and political leaders to provide additional resources.

B. Economic Reforms

Appendix II provides a short essay conceptualizing types of economic reforms in CPE's; this section describes pressures for and against reforms.

1. PRESSURES FOR REFORMS

While a traditional CPE can mobilize and allocate resources to a limited number of priority targets and rapidly expand primary product exports, it is unable to obtain desired efficiency of production and to expand rapidly the sale of manufactures to hard-currency markets. Today, reform pressures in both industry and agriculture are gaining strength throughout Eastern Europe because greater efficiency in the use of limited inputs and expansion of hard-currency manufactured products are vital.

Further pressure for reforms comes from the consumer sector. Neglect of consumption has an adverse impact on productivity and on the regime's political stability. Given the new inflationary environment in East Europe (following the actual or expected 1979-80 rise in consumer prices in all countries) and the announced austerity programs, consumers are less willing to save as much of their income as they had until recently under relatively stable price levels and expected increased availability of scarce consumer items, especially durable goods and housing. If these expectations are not met, "the household sector may hold productivity hostage in the 1980s" [Green]. Pressure for reforms also comes from the gradual ending of the "sheltering" of the CMEA market, principally by the U.S.S.R.'s supplies of energy and raw materials at less than world market prices, in exchange for "soft" manufactures. During the 1970's, increased reliance on Western technology and credits has substituted for fundamental reforms. The resulting external debt is fast becoming a binding rather than potential constraint on economic expansion, and thus a pressure for reform.

2. OBSTACLES TO ECONOMIC DECENTRALIZATION

A major obstacle is the turbulent international economic environment which, paradoxically, contributes simultaneously to the pressure for and against reforms. The pressures against reform have two bases. First, for any nation experiencing major disturbances in its foreign economic relations, the great temptation is to centralize decision-making. This reflex action is even stronger and more automatic in a CPE than in a market economy. Secondly, external economic pressures add to the "tautness" of the economy: plan fulfillment requires greater exertion, whereas reforms require some slack—i.e., reserves of materials, machinery, labor, consumer goods, and foreign exchange—to cushion predictable and unforeseen difficulties during the transition period. Tautness also means operating under repressed inflation; thus reforms which give a greater role to market forces are especially feared because of the increased likelihood that economic decentralization will lead to rapid, open inflation, perhaps resulting in significant, though temporary, unemployment.

Another obstacle to reform is the opposition of vested interests of segments of the ministerial bureaucracy, the party apparatus (especially the middle and lower levels), managers of enterprises, and union leaders who have prospered under the existing system. All fear a loss of personal power; while some party leaders are also concerned about the party's diminished role in the economy. Other obstacles include shortcomings in the statistical system which may fail to disclose the facts and causes of declining economic performance [8] and lack of a reform movement in other CMEA countries, which causes continued difficulty in fitting trade with the CMEA—conducted under bilateral government agreements—into a decentralized, market-oriented economic system.

3. PERSPECTIVES ON THE REFORMS IN HUNGARY AND YUGOSLAVIA

Three contributions to these volumes and an upcoming book [21] focus on the evolution and current status of Hungary's New Economic Mechanism (NEM). A comprehensive view of its institutional features and some details about policy can be found in [Kramer and Danylyk]; a balanced statistical analysis and interpretation of the achievements and shortcomings of the NEM in [Hewett]; and the role of exchange rates and the prospects for currency convertibility in [Marer]. Therefore, a review of the principles of the NEM is not needed here; rather, a few observations, intended to place it into a broader perspective.

In 1968, Hungary introduced the NEM all at once, but with some elements applied in agriculture earlier. Generally unknown to the West, reforms embodying the spirit of the NEM had been introduced in agriculture during the early 1960's. The unambiguous success of the agricultural reforms in output growth and efficiency (without political side effects that would have worried the system's directors) played a key role in the decision before 1968 to go ahead with economic decentralization in industry also.

In preparing the 1968 NEM, planners' attention focused on the principles and rules of the new *economic mechanism*, by and large neglecting the other two components of the triad: *economic strategy* and selection of the *managerial personnel*. The new feature in the 1979–80 round of NEM reforms is the attention given to economic development strategy as well, making a decisive choice essentially in favor of export promotion industrialization—export promotion industrialization. All East European countries have for years been expounding on the need to improve the hard-currency balance of payments by increasing manufactures exports, but the economic policies they actually followed (in spite of impressive-sounding ad hoc measures, such as export bonuses) were not fundamentally effective. What may be one of the most significant new trends during 1979–80 began in Hungary in 1979: for the first time in any Eastern European country in the postwar period, all major economic targets and programs were subordinated to a strategy for improving the hard-currency trade balance. Hungary first prepared what Hewett calls the "X-M Plan" for 1979, starting with an estimate of the economy's export capability and targets for external financing, the two jointly yielded import pos-

sibilities, which in turn determined planned growth rates and all other targets [Hewett]. At the same time, improved economic policy instruments were introduced. Still lagging, however, is the retraining or replacing of managers who are unable to perform well under NEM-type rules.

What impact, if any, did Hungary's NEM have on the country's economic performance over the last decade? Considerably less than it could have, had the development strategy and the system of management not been neglected (even today, the latter remains a weak link) and had the country not been subject to severe external shocks since 1973. The country's economic performance indicators—growth rates, productivity, hard-currency trade balance, and the growth and level of hard-currency indebtedness—are not decisively more favorable than for the rest of East Europe viewed as a group, so that under these criteria, Hungary's performance may well be judged "just average." However, considering that Hungary was subjected to greater unfavorable external shocks than any other East European country (see, for example, the terms of trade depicted in Chart 9), its average performance represents a good achievement. This interpretation would stress also that Hungary does not benefit from special advantages, such as Bulgaria's relationship with the U.S.S.R. or the GDR's with the FRG [Stahnke], or Romania's and Yugoslavia's membership in the IMF and the World Bank.

The economic performance benefits of the NEM are much more apparent qualitatively than quantitatively, in the economic as well as in the political realm. As one observer noted:

Hungarian economic policy . . . has been clearly focused not on spectacular growth rates but on balanced development with concomitant increases in real incomes of the population, again rather without spectacular jumps in statistical indices but with the purchasing power of the population relatively well covered by the supply of consumer goods on the market. This required, among other things, a pragmatic agricultural policy [in which] the methods of collectivization, and particularly the economic system established both within the cooperatives (including individual plots) and in the relationship between the cooperatives and the state, differed considerably from the Soviet model, and in some respects from other East European countries as well ([11], p. 49).

During the last two decades Hungary has displayed a greater degree of internal political stability than perhaps any other East European country (with the possible exception of Yugoslavia) by the absence of sudden violent purges at the top of the leadership hierarchy and by the relatively few signs of popular dissatisfaction with government policy, even with as irritating a measure as the recent large price increases on essential consumer goods. Political stability has been instrumental in introducing and nurturing the NEM; the NEM in turn contributes to economic and political stability in the country:

The distinctive feature of Hungary has perhaps been not so much the loosening of tensions in all instances and at all times (some other countries at some periods in some respect have gone further than Hungary), but that that has been accomplished consistently, without major retreats . . . and on a relatively broad front. . . . The basic approach used [is] widening of what I call the "political indifference zone," concentrating active interference only (or mainly) on matters of direct relevance to the foundation of authority. Among other things, this opened the way to wider use of genuine expertise on the part of decision-makers ([11], p. 49).

In contrast to Yugoslavia, Hungary has maintained the principle and practice of effective central planning. The reforms intend to make central planning more effective by changing the methods of plan construction and by guiding enterprises not by obligatory targets and physical allocation orders but by a wide array of fiscal and monetary regulators. The NEM has been introduced and nurtured without sacrificing any basic features of a Communist political system that remains under the tutelage of the U.S.S.R. A single party still controls, directly or indirectly, the commanding heights (and more) of the economy and other aspects of social and political life. All appointments to positions of authority remain under party control. Autonomous political activity is banned, and the mass media monopolized. Finally, foreign policy continues to guarantee the primacy of the U.S.S.R. in the country's external relations [11].

Given these economic and political developments, the Soviet Union may actually welcome Hungarian efforts to improve economic performance via the NEM. Soviet comments on the Hungarian reforms have generally been favorable, although they state carefully the continuing socialist character of Hungarian society [Kramer and Danylyk]. There is no reason to believe, therefore, that the Soviet Union would veto the introduction of Hungarian-type reforms or policies elsewhere in East Europe, given its own interest in the region's improved economic performance. To be sure, *ceteris paribus*, the Soviet Union may well prefer all CMEA countries to have essentially similar, highly centralized internal planning and management systems to facilitate the negotiation and implementation of CMEA agreements [8].

The Yugoslav economic system, fundamentally different from the Hungarian, is based on the idea of self-management at every level in the economic hierarchy, with a much greater role for the market. In Yugoslavia, central planning has become more and more indicative and advisory, performing chiefly a coordinating and redistributive function among the republics and regions [Tyson and Eichler]. In recent years, some further vital, fundamental reforms have been introduced, centering around two new institutions: Social contracts and self-management agreements. These reforms further decentralize decision-making within the government from the federal to the republic and local levels and within enterprises from central management to so-called basic organizations of associated labor (BOAL), which represent any group of workers whose performance can be evaluated independently of the results of other workers [Tyson and Eichler].

To be sure, the Yugoslav economic and political system makes economic policy coordination cumbersome and difficult. Yet, at the same time:

. . . the existence of a broad range of institutions for the expression of group interests has meant that the Yugoslav system can absorb conflicts of interest without such conflicts becoming a challenge to the current political leadership. The Yugoslav situation in this regard stands in stark contrast to the situation [elsewhere] in Eastern Europe, where the very notion of divergent interests is unacceptable, and where the very expression of group interests is . . . interpreted as an attack on the political system [Tyson and Eichler].

Just as this essay was going to the printer (December 1980), it was reported that Poland has unveiled an economic reform program which borrows extensively from both Hungary's and Yugoslavia's economic

model. The Polish plan (which requires approval of the Parliament and is to be implemented over 3 years) instructs planners to place more weight on the profit motive and economic efficiency and to forge a closer link between wages and productivity—the direction of Hungary's NEM. On the other hand, Poland's reform program also talks about establishing worker councils at the factory level and giving them a strong role in managing enterprises—one of the essential features of Yugoslavia's economic model.

The Yugoslav and Hungarian reforms illustrate the East European countries' attempts to deal with growing economic problems. While the other Eastern European countries seriously consider such reforms themselves, perhaps even more far-reaching forms will prove necessary to deal with the regional and world economic problems of the future.

APPENDIX I

ALTERNATIVE DOLLAR GNP OR GDP ESTIMATES FOR EASTERN EUROPE

A. Statement of the Problem

GNP estimates for CPEs must rely on Western reconstruction for two reasons. First, CPEs use a different concept of national income—the so-called Net Material Product (NMP)—which differs from GNP mainly in that it excludes government, most services, and depreciation. Second, NMP or GNP estimates in national currencies must be converted into dollars. Because prices in CPEs do not reflect relative scarcities, and because realistic exchange rates that reflect the purchasing power of the currencies are not generally available for the non-convertible CPE currencies, translating East European GNP or NMP data expressed in national currencies into dollars poses even more difficult methodological problems than one finds in such currency translations for other countries.

B. Alternative Estimating Methods

Here we review four different projects that have made dollar GNP or GDP estimates for one or more East European countries, each based on a different methodology: (1) the Research Project on National Income in East Central Europe in New York, headed by Thad Alton, for the six countries, sponsored by the U.S. Government (referred to here as the Alton estimates); (2) the Economic and Social Data Division, Economic Analysis and Projections Department of the World Bank in Washington, for all CPEs (referred to as the World Bank estimates); (3) the Secretariat of the Economic Commission for Europe (ECE) of the United Nations (UN) in Geneva, for seven countries (excluding Albania) (referred to as the ECE estimates); and (4) the International Comparisons Project (ICP) under the joint auspices of the UN, the World Bank, and the University of Pennsylvania, so far including only Hungary, but now in the process of adding Poland and Romania also (referred to as the ICP estimate). Presented here briefly are the methodology and main results of each estimate.

1. THE ALTON ESTIMATES

(a) Summary of methodology

Alton bases his estimates on a reconstruction of each country's GNP "from the bottom up"; that is, he relies on detailed physical output, employment, consumption, wage, and capital stock data from the official East European publications to reconstruct GNP in local currency. These figures, in turn, are converted to U.S. dollars on the basis of exchange rates based on detailed purchasing power ratio calculations for components of end-use GNP between individual East European countries and the Federal Republic of Germany in 1955, linked to U.S. dollars via estimated 1955 purchasing power ratios between Deutsch Mark and the U.S. dollar. The 1955 ratios are updated to 1975 and 1978 by applying various East European, West German, and U.S. quantity and price indices [Alton, Appendix B]. Although establishing conversion ratios for components of GNP is prob-

ably the preferred methodology for determining exchange rates, the fact that Alton's basic calculations are based on 1955 data must be considered when his GNP estimates are interpreted.

(b) *Main results of computations*

Alton's estimated 1975 and 1978 per capita GNPs are shown in the tabulation below; his 1978 figures are also presented in Chart 3.

Country	1975 in 1975 dollars	1978 in 1978 dollars
German Democratic Republic.....	3,650	4,77
Czechoslovakia.....	3,660	4,61
Poland.....	2,440	3,13
Hungary.....	2,390	3,04
Romania.....	2,200	3,18
Bulgaria.....	2,180	2,72

Source: 1975 [1], table 10; 1978: [Alton], table 11.

2. THE WORLD BANK ESTIMATES

(a) *Summary of methodology*

The World Bank publishes one of the most frequently relied upon reference works for international comparison of GNP levels and growth rates, the annual *World Bank Atlas*. For all countries except CPE's, the Atlas' figures for GNP in U.S. dollars are derived from GNP in domestic currency converted to dollars on the basis of official or market exchange rates. Its GNP estimates for the East European CPE's except Romania, however, are based on an estimated regression relationship between the actual GNP and the derived NMP calculated for a group of West European countries. For Romania, its GNP estimate in local currency is not comparable to those it makes for other CPE's. The estimate has been arrived at by adjusting official Romanian national accounts data for differences in coverage ([46], 1979, p. 16). The resulting estimates of GNP in local currency are converted to dollars in the case of six out of seven of the East European countries (Romania being the exception) via the official exchange rate (also called "noncommercial rates").²⁴

The World Bank's justification for using the dollar tourist exchange rates is that they are periodically adjusted to reflect changes in the purchasing power of the national currencies and that the implicit GNP exchange rates Alton derived for 1975 (in [2]) were quite close to the tourist rates [45].

Two comments on the use of tourist exchanges rates for GNP conversions. My understanding is that tourist rates are based on the purchasing power of a basket of goods and services sold to a typical tourist at the retail level in the East European country and in one or more Western countries. Whether they reflect reasonably accurately purchasing power parities for the other GNP components remains an open question. Moreover, in an earlier study I found that individual East European countries adjust their tourist rates from estimated purchasing power

²⁴ The currencies of CPEs are not convertible. Typically, CPEs have the following exchange rates: (1) the official rate calculated on the basis of the arbitrarily established gold content of the national currency. It usually serves only an accounting purpose, to convert foreign trade transactions denominated in foreign currencies into a so called "devisa" domestic currency. Trade flows expressed in such devisa units are not comparable to transactions expressed in domestic currency units. (2) *Tourist* (also called *non-commercial*) exchange rates, established approximately on the basis the purchasing power parity of the currency for a basket of goods and services tourists typically purchase. (3) *Commercial* exchange rates, based on the average domestic cost of earning a unit of foreign exchange through exports. (4) *Black market* exchange rates, which are determined by supply and demand for those goods and services that certain segments of the population can obtain for foreign currency. Typically, the highest value for the currency of a CPE will be implied by the (often arbitrary) official rate, followed by the tourist rate, then the commercial rate, and then the black market rate. To illustrate: in April 1980, Romania's official rate was 4.45 lei/dollars, its tourist rate 12 lei/dollars, its commercial rate 18 lei/dollars ([24], p. 327), and the black market rate lei/dollars [44]. During 1970-77, the ratio of black market rates to tourist rates ranged from a low of 1.40 to 1.84 in Hungary to a high of 4.18 to 6.54 in the U.S.S.R. ([44], Table 5). For a more detailed discussion of tourist and commercial exchange rates in Hungary, see [Marer]; throughout East Europe, [41] and [44].

levels, depending on whether they wish to encourage or discourage the inflow of tourists from the West [34], a practice that still continues in some countries. For example, in the early 1970's, Bulgaria set rates that were very attractive to Western tourists. In 1975, the so-called "tourist premium" on convertible currencies was discontinued, then re-introduced in October 1978 [Jackson-1].

The problematic nature of finding an appropriate exchange rate for CPE's, and more generally, a methodology for estimating GNP's for CPE's in dollars, is recognized by the World Bank: "The estimation methodology adopted for the European CPE's (other than Romania) is outlined . . . without any claim that the method is the best. . . . The most difficult problem . . . is the selection of an exchange rate." [45]

Only for Romania among the CPE's does the World Bank rely on the so-called commercial rate (18.00 lei/dollar during 1978-79) rather than the tourist rate (12.00 lei/dollar). The application of a different type of rate for Romania causes the World Bank's dollar GNP estimate for that country to be understated by 50 percent (!) as compared with its GNP estimates for the other East European countries (see Charts 2 and 3.)

(b) Main results of computations

The World Bank's estimated 1975-78 per capita GNP's are shown in the tabulation below; the 1978 figures are also presented in Chart 3.

Country	GDP per capita estimates at current prices			
	1975	1976	1977	1978
German Democratic Republic.....	\$4, 178	\$4, 564	\$5, 066	\$5, 664
Czechoslovakia.....	3, 554	3, 853	4, 239	4, 717
Poland.....	2, 706	2, 989	3, 291	3, 658
Hungary.....	2, 550	2, 759	3, 099	3, 454
Bulgaria.....	2, 302	2, 545	2, 830	3, 199
Romania.....		1, 400	1, 530	1, 750
Yugoslavia ¹		1, 750	2, 100	2, 390
Albania.....		570	660	740

¹ Not classified as a CPE so the methodology of estimation is the same as for market economies.

Sources: Romania and Yugoslavia: [46], various issues; all other: [45], table 7 and 8.

THE WORLD BANK AND OFFICIAL ROMANIAN STATISTICS

Why does the World Bank treat Romanian statistics differently from those of other CPE's? When I raised this question with the staff at the World Bank, the official reply was:

The estimate for Romania is not governed by the method applied to other European CPE's because for all Bank member countries we obtain estimates from our regional departments which in turn obtain estimates from official sources.²⁵

The answer is thus related to Romania's being the only CPE in Eastern Europe with membership in both the World Bank and the IMF (Yugoslavia is a member but is not classified as a CPE), which apparently entails an understanding that these international organizations accept the official data on the member countries without adjustment.

Why would Romania, whose official statistics do not as a rule understate the country's economic achievements, suggest that the World Bank use an exchange rate which will lower the estimate of its per capita GNP in dollars? Perhaps Romania believes that tourist rates yield per capita GNP estimates that are upward biased and prefers a rate that errs in the other direction so as to be designated a less developed country and thus receive tariff concessions and other economic benefits (such as loans on concessionary terms) customarily granted to less developed countries by industrial Western nations and by the World Bank and the IMF. For example, in the Spring of 1980, the threshold level of per capita income below which the World Bank was willing to make loans to countries

²⁵ Letter dated June 6, 1980 from the Chief, Economic & Social Data Division, Economic Analysis & Projections Department.

for approved projects was approximately \$2,100, well below the approximately \$3,000 estimate for Romania that would result if the tourist rate were used. The benefit to Romania of being eligible for 15 year loans at 8.25 percent, with a three-year grace period can be calculated by comparing these terms with financing terms available for the same project from commercial banking sources.

3. THE ECE ESTIMATES

(a) Summary of methodology

The ECE bases its estimate on a method it calls *physical indicator global estimates (PIG)*. The method was first elaborated by F. Janossy and E. Ehrlich in Hungary for comparing their country's level of development with those of other countries. In the original 1970 study [14], dollar GDP estimates were obtained by correlating 21 physical indicators (such as production of steel, cement, plastics, milk yield, rooms per person, infant mortality, etc.) with levels of per capita GDP in 22 non-CPE countries for 1975 and applying these estimating equations to the CPE's. The composite GDP per capita value of a country is a simple arithmetic average of individual GDP estimates so derived for that country. This set of estimates was then moved forward by means of GNP and population growth indices. The most recent calculations (using the described methodology but a larger number of reference countries and physical indicators) are for 1973.

(b) Main results of computations

The ECE's estimated 1973 per capita GDPs in 1973 US dollars are shown in the tabulation below.²⁶

German Democratic Republic-----	\$3, 183-\$3, 301
Czechoslovakia -----	3, 039- 3, 117
Poland -----	2, 243- 2, 482
Hungary -----	2, 324- 2, 433
Bulgaria -----	2, 195- 2, 507
Romania -----	1, 856- 2, 082
Yugoslavia -----	1, 709- 1, 801

Source: [15], appendix table 1.

4. THE ICP ESTIMATES

(a) Summary of methodology

The ICP derives quantity comparisons from detailed price and expenditure comparisons. Expenditures data on a large sample of GDP components are obtained from official sources for each country, as are detailed price data for the same sample of commodities. This makes it possible to calculate the purchasing power of each country's currency by direct price comparisons for a standardized classification of 153 final GDP expenditure categories, obtaining for each category the prices of from one to a dozen representative items. The identification of equivalent representative items in the 16 countries included in the study (Hungary being the only CPE at this stage) is the focal point of much of the research. Both binary and multilateral comparisons are made. In the former, each country is compared with the U.S.; in the latter, all the countries are compared simultaneously.

(b) Main results of computations

For Hungary, the estimated 1973 per capita GDP in 1973 "international" dollars was \$2,793 ([27], Table 1.2).²⁷ The purchasing power of the forint in 1973 for total GDP and its main components was calculated to be as follows:

²⁶ The lower estimate is based on standard indicator coverage, the higher estimate on all available indicators.

²⁷ The international dollar has the same purchasing power as a U.S. dollar over U.S. GDP as a whole, but its purchasing power over individual product categories is different, it being determined by the structure of world prices ([27], pp. 6-7).

Category :	<i>Forints per U.S. dollar</i>
Consumption -----	13.0
Capital formation -----	19.7
Government -----	9.8
GDP -----	14.3

Source : [27], table 1.8.

These purchasing power results compare with Hungary's 1973 tourist exchange rate of 24.6 forints—72 percent discrepancy—which is supposedly also based on the purchasing power of the forint for a basket of goods and services typically consumed by tourists from West European countries. As mentioned in my paper on Hungarian exchange rates and convertibility [Marer], since the consensus of experts in Hungary is that the official tourist rate values the forint quite realistically, there is a need to reconcile ICP and Hungarian calculations.

C. Alternative Approaches Compared

Although the coverage of the four projects—as far as countries included and the years for which estimates are available—is not identical, the approximate orders of magnitude of the estimated per capita levels of GNP or GDP do not differ by unusually large margins, considering the substantially different methods of estimation. The exception is the World Bank's estimate for Romania, for the reasons mentioned. The lowest estimates are those by Alton. Somewhat higher are those by the World Bank (except for Romania). Higher than either of these two are the estimates by the ECE; the highest per capita GNP or GDP estimates are those of the ICP for the one country, Hungary, for which a comparison can be made. But if the ICP's estimated purchasing power of the forint were not so high, the ICP's estimate of Hungary's per capita income level would also be lowered.

As far as the relative ranking of the Eastern European countries are concerned, the overall pattern is not in dispute, although there are some differences among the studies that are worth noting, as shown in the following tabulation, which expresses each country's per capita GNP or GDP as percent of the GDR's.

Country	Estimated levels of per capita GNP or GDP				ECE 1973
	Alton		World Bank		
	1975	1978	1975	1978	
German Democratic Republic.....	100.0	100.0	100.0	100.0	100.0
Czechoslovakia.....	100.3	96.6	85.1	83.2	95.0
Poland.....	66.8	65.6	64.8	64.6	74.4
Hungary.....	65.5	63.7	61.0	61.0	73.4
Bulgaria.....	59.7	57.0	55.1	56.5	72.5
Romania.....	60.3	66.6	30.7	30.9	60.7
Yugoslavia.....	(²)	(²)	38.3	42.2	54.1
Albania.....	(²)	(²)	12.5	13.1	(²)

¹ See "The World Bank and Official Romanian Statistics."

² Not available.

The dispersion of estimated income levels among the East European countries is revealed to be considerably smaller on the basis of the ECE's methodology, using physical indicators of development, than the dispersion resulting from the alternative calculations. This is as expected because the physical indicator approach encompasses a wider sphere of development indicators than production statistics (for instance, health). (The ICP's methodology would probably also show a smaller dispersion of income levels than Alton's or the World Bank's, for the reasons given in Section II-D of [Marer].)

Interesting to note also are the relative positions of Bulgaria and Romania in the three studies. Alton's calculations show Romania surpassing Bulgaria's per capita GNP level in 1975 and gaining rapidly on Bulgaria since then. The World Bank—even if its figures for Romania are adjusted upward by 50 percent—shows Bulgaria's per capita GNP level to be significantly higher, a status confirmed by the ECE's calculations. (Although the ECE's latest is 1973 data, that figure shows such a large distance in favor of Bulgaria that it is unlikely that the gap could have been closed by Romania in five years.)

APPENDIX II

ECONOMIC REFORM CONCEPTS

Modifications of a traditional CPE system typically entail a decentralization of authority among key economic units: planning agencies, ministries, trusts, enterprises, workers, consumers, and households—usually with corresponding changes in the flow of information needed in decisionmaking and in the incentive system.²⁸

There are three alternative models of decentralization: (1) *administrative decentralization*: devolution of authority over selected decisions from higher to lower tiers in the administrative hierarchy, on the presumption that lower levels can make better decisions on a more timely basis; (2) *economic decentralization*: giving a greater role to domestic and external market forces in determining the composition of output, allocation of resources, and distribution of income; and (3) *intra-firm decentralization*: devolution of authority within the firm from a state-appointed manager to the workers. For each of these models, implementation strategy must decide whether the reform is to be introduced (a) all at once or in phases; (b) across all state industry (or across the entire state sector of the economy) or in selected enterprises only, on an experimental basis; and (c) under a model of fixed principles and rules or of continuous adjustments.

The consensus of Western (and many East European) economists is that reform models (2) and (3) are more promising than model (1), and that a comprehensive implementation strategy which introduces all the major components of a reform at once without continuous tinkering with its principles and regulations and which cover at least the entire state industrial sector will be most effective. All East European countries and the U.S.S.R. have experimented with economic reform model (1), administrative decentralization typically in an ambivalent, temporary, and tentative fashion and consequently without yielding a great deal of improvement in economic performance and without fundamentally altering the institutional framework and decision processes of a traditional CPE.

Economic reform model (3) has so far been implemented only in Yugoslavia. The Yugoslav model is unlikely to be duplicated soon elsewhere in the region, for a variety of economic and political reasons, including the fact that the Yugoslav model has developed in response to that country's unique domestic and international political situation.

Economic reform model (2), economic decentralization, was first introduced in Czechoslovakia during the Prague Spring of 1966–68 which also called for meaningful workers' self management in enterprises. The experiment was cut short by the 1968 invasion of that country by the U.S.S.R. and its Warsaw Pact allies (except Romania). In 1968, Hungary also introduced, and after some hesitation (1974–77) has carried forward, comprehensive economic reforms known as the New Economic Mechanism (NEM).

For an economic decentralization reform to achieve the objectives that prompt it, coordinated introduction of the following key requirements appears to be necessary:

(1) The principles and rules of economic decentralization, usually referred to as the *economic system*, are only one leg of a tripod; the other two are the country's *economic development strategy* (the setting of clear priorities and targets), and the *economic management system* (which focuses on the qualifications and attitudes of the key personnel, especially of the enterprise level, who implement the development strategy according to the principles and rules of the economic system).²⁹

(2) A sufficiently large number of autonomous enterprises should operate in a country to insure effective competition; if a country's small size does not permit it, open up the economy to effective foreign competition.

(3) The administrative allocation of inputs and a significant share of investments in the enterprise sector should be eliminated or substantially reduced. This, however, must go hand in hand with the increased monetarization of the economy. Money—in the form of enterprise bank deposits or bank credits—

²⁸ The first 4 paragraphs of this section are based on two excellent essays by Morris Bornstein: [8] and [9].

²⁹ For example, if after a comprehensive reform old managers are retained, for whom it has become a reflex after years of habit to check with their industrial ministry before any major decisions, then the implementation of the reform is not likely to go smoothly.

must not be without cost to enterprises and must represent real command over resources. Presently, enterprises seek "liquidity" by holding real resources, money being simply a convenient means of "financing" the holding of fixed and working capital already acquired [Green].

(4) Prices, wage norms and work incentives should be significantly decontrolled after a reform, ensuring that product and factor prices will reflect cost as well as demand forces. This makes possible a greater reliance on prices as the basis for production and consumption decisions.

(5) Operational exchange rates should be introduced to effectively connect domestic and external prices, so that proceeds from the exports and the cost of imports can be properly valued. Enterprises should become more directly involved with foreign customers or suppliers, possibly through voluntary agency agreements.

(6) Profits should be relied on as the best synthetic indicator of enterprise performance, with profitability having a major influence on the ability of enterprises to obtain additional (or fewer) resources for expansion.

(7) While reforms are typically centered in the state sector, a complementary relationship between the state and the collective and private sectors should be introduced, the key variable being not the legal framework but the economic policies of the state sector vis-a-vis the collective and private sectors.

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[NOTE.—References to contributions appearing in this and in the companion Joint Economic Committee volume on Eastern Europe are cited in the text by the author(s)' name only and not included in this bibliography.]

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EASTERN EUROPE: POLITICAL CONTEXT

By Ivan V. Matussek*

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I. THE IMPACT OF THE AFGHAN INVASION

The invasion of Afghanistan by Soviet forces (December 27, 1979) had a traumatic impact on the authorities in Eastern Europe,¹ many of whom have committed sizable resources, developed long-term planning and undertaken, in some instances, massive financial obligations on the assumption that their economic and political relations with the West will continue to expand in the foreseeable future. Overnight this assumption has become questionable due to events beyond their control. The unthinkable²—a rejection of détente and return to cold war mentality—became a distinct possibility as Moscow invaded a non-aligned state far from East European borders, and the world, in an overwhelming UN General Assembly vote, condemned its action. The subsequent embargo on US technology and grain deliveries to the USSR, joined by other Western suppliers, and the proposal to boycott the Moscow Olympics suggested that, regardless of their wishes, the East European countries will have a hard time to keep out of the controversy. Indeed, in comparison with their usual behavior, Moscow's

*Bureau of Intelligence and Research, Department of State. Paper drafted February 1980 and revised January 1981.

¹For the purposes of this paper Eastern Europe comprises the Warsaw Pact members: the German Democratic Republic (GDR), Poland, Czechoslovakia, Hungary, Romania and Bulgaria, and the two Balkan independents—Yugoslavia and Albania.

²As late as Jan. 3, 1980, Hungarian Foreign Minister Frigyes Puja spoke of "the prospects of détente becoming universal and irreversible."—Frigyes Puja: "The Characteristics and Prospects of the Détente Process." Budapest, Nepszabadsag, Jan. 5, 1980, pp. 4-5.

six Warsaw Pact allies demonstrated a singular lack of enthusiasm about the Afghan invasion:

Only the GDR issued, the very next day, a party/governmental statement supporting the invasion;

Hungary released a government endorsement with a two-week delay, followed by a party endorsement two months later;

Neither Poland, Czechoslovakia, nor Bulgaria published a party or government statement on the event, but congratulations were sent to the Karmal regime;

Romania remained initially aloof of the Karmal regime, implicitly condemned the Soviet action, and did not participate in the UN General Assembly vote on Afghanistan; and

Yugoslavia and Albania voiced vehement condemnation.

However, within a month of the invasion, and evidently under severe Soviet pressure, the Czechoslovaks, East Germans, and Hungarians "postponed" long-scheduled meetings with high-level FRG leaders (Chancellor Schmidt, Foreign Minister Genscher), the Hungarians begged-off from dispatching their first parliamentary delegation to the United States, and Soviet Foreign Minister Gromyko unexpectedly arrived in Bucharest for an apparently contentious confrontation with Ceausescu. The latter had just hosted a U.S. congressional delegation headed by Representative Charles Vanik and held discussions with Department of State Under Secretary Newsom and FRG opposition leader Franz Joseph Strauss. The cold war was rearing its ugly head in Eastern Europe—or was it?

For one, despite an unexpectedly lengthy (Jan. 31–Feb. 2, 1980) stay in Bucharest, Gromyko apparently failed to budge Bucharest from its independent course. A subsequent meeting of communist parliamentarians in Sofia, Bulgaria, saw Romania and North Korea refuse to associate themselves with that body's communique endorsing the Karmal regime and criticizing the United States and China.

The shock was even greater in Yugoslavia where the coincident illness of President Tito reminded the populace of their own vulnerability, especially once Tito was gone. Albania, perceiving a similar threat, found it necessary to reiterate First Secretary Hoxha's 1976 pledge to "stand by the Yugoslav people" and "fight together" with them if Yugoslavia is attacked.³

II. THE ATTRACTION OF DÉTENTE

But even beyond the maverick Balkans, Eastern Europe's disorientation and lack of association with the invasion was understandable, given the evolution over the past five years. Ever since the CSCE Final Act was adopted in Helsinki, the East European authorities have been operating on the assumption that East-West relations will improve progressively and that they have Moscow's blessing to pursue their individual *détentes* with various and sundry Western partners. Not only the populations, but the governments foresaw greater latitudes in their dealings with those Western countries which had been out-of-bounds within the parameters of the cold war.

³ *Zeri i Popullit*, Tirana, Jan. 19, 1980.

Since the last Joint Economic Committee report appeared⁴ Hungary has received back the Crown of St. Stephen held in the United States since the end of World War II and has since followed Romania in concluding a trade agreement with the United States under the terms of the 1974 Trade Act. She thus became the third Warsaw Pact member (joining Poland and Romania) to be a recipient of Most Favored Nation (MFN) treatment from the United States. By the end of 1979, some 53 percent of Hungary's trade was with the Free World (see table 1) and its domestic policies were the most pragmatic of all the Warsaw Pact countries.

Hungary's new economic policy guidelines, taking effect at the beginning of the 1980's, continued to accent not only trade ties with the West, but the principles of its New Economic Mechanism (NEM) reform program which are unique in allowing a role to market forces while command economies remain operative elsewhere in the Warsaw Pact area.

TABLE 1.—SHARE OF EAST EUROPE'S TRADE WITH NON-COMMUNIST COUNTRIES

[Percent of turnover]

	1970	1975	1979
Bulgaria.....	22	23	23
Czechoslovakia.....	30	37	28
German Democratic Republic.....	28	33	34
Poland.....	34	50	43
Hungary.....	35	31	53
Romania.....	44	50	(1978) 54
Yugoslavia.....	75	68	68

¹ Estimate.

Source: National Statistical Yearbooks.

Even more so than in Hungary, the Western connection has become of crucial importance to Poland. The elevation of Cardinal Wojtyla to the papacy and his triumphant tour of his homeland in June 1979 galvanized the population, boosted the church's prestige and reminded the authorities of the unsurpassed—even though uncodified—authority and power of the church. Pursuing its traditional role of guardian of Polish national interests and statehood, the church lent a helping hand to First Secretary Gierek, calming the populace, warning against civil disorders and taking the wind off the sails of the more hot-headed leaders of the proliferating dissident movement. In this sense the church probably contributed to Gierek's re-election at the 12th Party Congress in February 1980, the continuation of his détente policies and the ouster of an unpopular Premier—Piotr Jaroszewicz—whose political demise at the time boosted Gierek's stature.

By the end of 1979 Poland's hard-currency indebtedness approached \$20 billion, nearly a third of Eastern Europe's total (see tables 2-3). The annual repayment of principal and interest on Poland's debt in 1979 mortgaged 95 percent of its annual hard-currency exports. Any drop in exports or in continued access to hard currency loans would endanger Warsaw's repayment ability. Polish access to Western trade and financial markets and the maintenance of Western good-

⁴ East European Economies Post—Helsinki—JEC, Aug. 25, 1977.

TABLE 2.—EAST EUROPE'S HARD-CURRENCY DEBT

[Net, in billions of U.S. dollars (estimate)]

	1975	1978	1979
Eastern Europe.....	24.1	52.9	62.0
Poland.....	7.4	17.0	19.6
Yugoslavia.....	5.4	10.7	12.7
German Democratic Republic.....	3.5	7.5	8.6
Hungary.....	2.2	6.5	7.3
Romania.....	2.4	5.0	6.7
Bulgaria.....	2.3	3.7	3.9
Czechoslovakia.....	.8	2.5	3.2

Source: Joan Zoeter: "Financing and Debt Policy Issues in Eastern Europe" in ch. V of this issue and "The European Economy in 1979", ECE (XXXV)/I.

TABLE 3.—EAST EUROPE'S HARD CURRENCY DEBT SERVICE RATIO

[Debt repayment as percent of hard-currency exports]

	1978	1979
Poland.....	79	95
German Democratic Republic.....	46	55
Bulgaria.....	47	36
Hungary.....	36	36
Romania.....	21	25
Czechoslovakia.....	20	22
Yugoslavia ¹	16	19

¹ As share of total convertible current account revenues.

Source: Ibid.

will is thus of major importance not only fiscally, but also for the further growth of the country's economy which has been stagnating over the past two years, exhibiting the poorest of the generally lack-luster performance throughout the area (see table 4).

TABLE 4.—EASTERN EUROPE: GROWTH OF GNP

[Percent per annum]

	1971-74 (average)	1978	1979 (estimate)
Romania.....	6.7	5.9	4.5
Bulgaria.....	4.6	2.8	2.6
German Democratic Republic.....	3.4	2.5	2.3
Hungary.....	3.3	2.8	1.3
Czechoslovakia.....	3.4	1.4	.7
Poland.....	5.9	3.9	-.1

Source: National-Foreign Assessment Center: "Economic Intelligence Weekly Review." Apr. 11, 1980.

Given last year's poor harvest, Poland's ability to purchase unusual amounts of grain—of necessity in the West—appears crucial lest the food supply situation deteriorates further. The nature of this predicament should be apparent to Moscow.

While ties with the West may not be as important to Moscow's other allies, a potential reversal of the post-Helsinki trend—should this be what the Kremlin has in mind—would put a new crimp in every country's posture. The GDR, for example, would certainly resent curtailment of its profitable dealings with the FRG on numerous pending bilateral issues. It would also resent the resulting drop in its inter-

national standing. The GDR's main foreign policy preoccupation lately has been to demonstrate that its prestige, especially in the Third World, is equal or superior to that of the FRG.

Bulgaria has also invested great effort in improving relations with Greece, Turkey, as well as the US and would not like to see its aspirations brought to naught. And even Czechoslovakia over the last two years has attempted to improve its image in the West.

Moreover, there is the pressing problem of paying—in hard currency—for the energy supplies which Moscow warned it would not be able to provide in the 1980's. By the end of 1978, one quarter of all East European crude oil imports originated in the OPEC countries (see table 5).

TABLE 5.—EASTERN EUROPE: IMPORTS OF CRUDE OIL

[In thousands of barrels per day]

	1970	1975	1978 (estimate)
Total.....	790	1,402	1,810
Of which—			
U.S.S.R.....	687	1,166	1,360
Soviet share (percent of total).....	(87)	(83)	(75)
Non-Communist countries.....	102	236	452
Non-Communist share (percent of total).....	(13)	(17)	(25)
Of which—			
Romania.....	46	102	256
Poland.....		48	76
German Democratic Republic.....	22	38	44
Hungary.....	8	29	29
Bulgaria.....	19	12	27
Czechoslovakia.....	8	7	17

Source: National Foreign Assessment Center, "Energy Supplies in Eastern Europe: A Statistical Compilation," ER 79-10624, December 1979.

Romania, Poland and the GDR were the major importers. Although Soviet crude shipped under annual protocols was being sold to them at about one-half of the world-market prices, most countries found themselves hard pressed to find the means to purchase supplementary non-Soviet crude. This exerted pressure on the East Europeans to divert exports to non-CEMA areas. The Soviet proposal at the January 1980 CEMA Executive Committee Session to raise Soviet crude prices⁵ to world market levels during the 1981-85 period—if implemented—would have the effect of forcing Eastern Europe to direct some additional \$11 billion of its trade to the USSR to cover the increase.

In addition, there was the fear that Moscow might insist that its East European allies give economic or military assistance to another distant country. Afghanistan, like it did with Cuba, Vietnam, Angola and Ethiopia. This would place further strain on their stagnating economies. In fact, the GDR on February 9 signed an economic and technical cooperation agreement with Afghanistan and announced that it was providing medical treatment for wounded Afghan soldiers. At the same time popular resentment manifested itself in anti-invasion graffiti in several East German towns.

⁵ *Frankfurter Allgemeine Zeitung*, V.M.: "Does Moscow Want Higher Oil Prices?" Feb. 4, 1980, p. 1.

III. CAN DETENTE CONTINUE?

At this stage it is not clear what Moscow has in mind as to the future East-West relationship. It appears likely, however, that it initially miscalculated the international reaction to the Afghan invasion and either underestimated or ignored the possible impact on its East European allies. The Kremlin appears to be signaling the East and West alike that it will not tolerate a further erosion in discipline in the Warsaw Pact alliance and letting its allies know that they will have to get the Kremlin's approval before proceeding with any detente moves of their own. How much leeway they have in these matters became apparent during the November session in Madrid of the second review conference on CSCE. While both sides decided to go to Madrid as scheduled, there had been voices in both Eastern and Western quarters expressing fears about the confrontational nature of that meeting and some suggestions that the conference be postponed.⁶

At the same time, the Eastern side just like the West was proceeding with preparations for the meeting. Moscow certainly wanted to blame the West should the Madrid conference be aborted, even while trying to avoid another critical forum similar to the UN General Assembly vote on Afghanistan. If Moscow had not participated at Madrid it would, in effect, have admitted the failure of Brezhnev's CSCE detente initiatives, put the West on notice regarding its hardened posture, and upset its East European allies who have strongly endorsed Soviet detente policies.

The (February 18–March 3, 1980) CSCE Scientific Forum in Hamburg—considered by some observers to be a test for Madrid—gave every indication that the USSR and its allies would go to Madrid, despite their obvious expectations of continued criticism over Afghanistan and human rights violations.

IV. PECULIARITIES OF THE POLITICAL SYSTEM

The nature of Moscow's policymaking and how the Warsaw Pact operates have been vividly demonstrated in the case of the Afghan invasion. The decision of a handful of men in the CPSU Politburo about the most disruptive event in recent East-West relations was transmitted, with no advance warning, to their counterparts in Eastern Europe during the most universally respected holiday in that region—Christmas. There were no consultations and little is known of the East European leaders' initial reaction to what in effect was a *fait accompli*. The eventual acquiescence of most Warsaw Pact members in Moscow's decision and subsequent activation of their propaganda apparatus in support of the invasion suggests that—with the exception of Romania—they have relinquished such policymaking prerogatives to Moscow.

The willingness of the Warsaw Pact countries—except Romania—to defer on such matters to Moscow rests on their alleged "acceptance" of Moscow's doctrine of "proletarian internationalism," by now incor-

⁶ Romanian Foreign Minister Andrei on Feb. 12, 1980 during a press conference in Vienna, Austria expressed the opinion that it would be better if the Madrid conference met at Foreign Ministers level and adjourned immediately until February 1981. (*Die Presse*, Vienna, Feb. 13, 1980.)

porated into some constitutions (e.g., the GDR) and a number of Soviet-East European bilateral Treaties of Friendship and Mutual Assistance. (This has followed the crushing of the "Prague Spring" by the Soviet-led invasion of Czechoslovakia of August 21, 1968.) The thesis—usually referred to as the "Brezhnev doctrine"—in effect maintains that a communist country (in practice the USSR) has the right and obligation to come to the assistance of another when socialism (i.e., communism) is threatened. But there are also practical, self-serving motivations why the Warsaw Pact countries would acquiesce in the doctrine. Each country derives gains from USSR's continuing willingness to supply badly needed raw materials, absorb their manufactures (largely unsalable in the West), and politically back regimes which enjoy little, if any, acceptability among their own populations. Beyond this, there is a certain communality in attitudes which is rooted in the near-identity of institutions and overgrown bureaucracies that control political and economic decisionmaking throughout the area.

These factors, and an elaborate mechanism of internal security forces, are responsible for the remarkable record of stability that has characterized the East European leadership over the past decade. With the exception of Poland, most of the East European leaders have now been in power for more than ten years and seem likely to continue in their jobs for the foreseeable future, barring incapacitation or death.

The system has mellowed over the four decades it has been in power. Gone are the mass executions of "kulaks" (wealthy private peasants) and the show-trials of political opponents, real or imaginary, that characterized the 1950's. While occasional discrimination and brutality against political opponents and dissidents continue in some countries (e.g. Czechoslovakia, East Germany), the authorities' attitude toward them has been tempered by recurrent amnesties and in some instances (e.g., Hungary) even benign neglect. The authorities' relationship with the churches and their handling of divided family issues have been increasingly a mixture of conciliation and pragmatism (e.g., in Hungary, Romania, East Germany).

On balance, the authorities—seeking a degree of acceptance and regime stability—have become more responsive to popular pressures and national aspirations. Some countries have limited their concessions to "consumerism" (catering to material needs of the population) while others tolerate limited popular dissent, or play up nationalistic themes and pursue more autonomous foreign policies. Some combinations of these policies have worked at times so well that a measure of popularity accrued to several leaders (e.g., Kadar in Hungary, Ceausescu in Romania), albeit for dissimilar reasons. In such countries as Poland, the sizable and vocal dissident movement, the independent Catholic Church, and the assertive working class have come to share their leaders' concern about the country's continued existence as an independent state.

All policymaking power in Eastern Europe, as in the USSR, rests with the communist parties whose organizational structure, despite some differences in terminology, is practically identical with that of the USSR. Through an intricate system of cells reaching down to

individual city blocks, factories, and offices, the party exerts its influence over most of the daily life and maintains control over the society. At all administrative levels (state, regional, district and local), it actually maintains a control structure which from behind the scene leads ministries, drafts laws, and in effect, hands down court sentences, subsequently implemented by the ostensibly responsible legislative, executive or judiciary organs. In some cases, party men actually hold both positions; behind the scenes in the party, and in full public view as the President, the Prime Minister, or the Chairman of the Parliament. Some countries—for example, Romania and Poland—have attempted to streamline the structure and heighten party control by merging a number of party and government bodies below the national level (see fig. 1).

In each country, the approximately dozen full members and about half-a-dozen candidate members of the Politburo (or Presidium) represent the highest party authority and are the real policymakers in such fields as foreign or military affairs, economic matters, cultural policy, et cetera. The somewhat smaller Party Secretariat supervises the execution of Politburo decisions, directs the party's current work, and controls the movement of members up or down the party ladder. The First (or General) Secretary heads both the Politburo and the Secretariat and is the most powerful man in the country. All Politburo and Secretariat incumbents are also members of the some 100 to 250-members-strong Central Committee—a sort of party parliament which by statute is the highest party authority when party congresses (held every 4 or 5 years) are not in session and is the body to which the First (General) Secretary is responsible.⁷

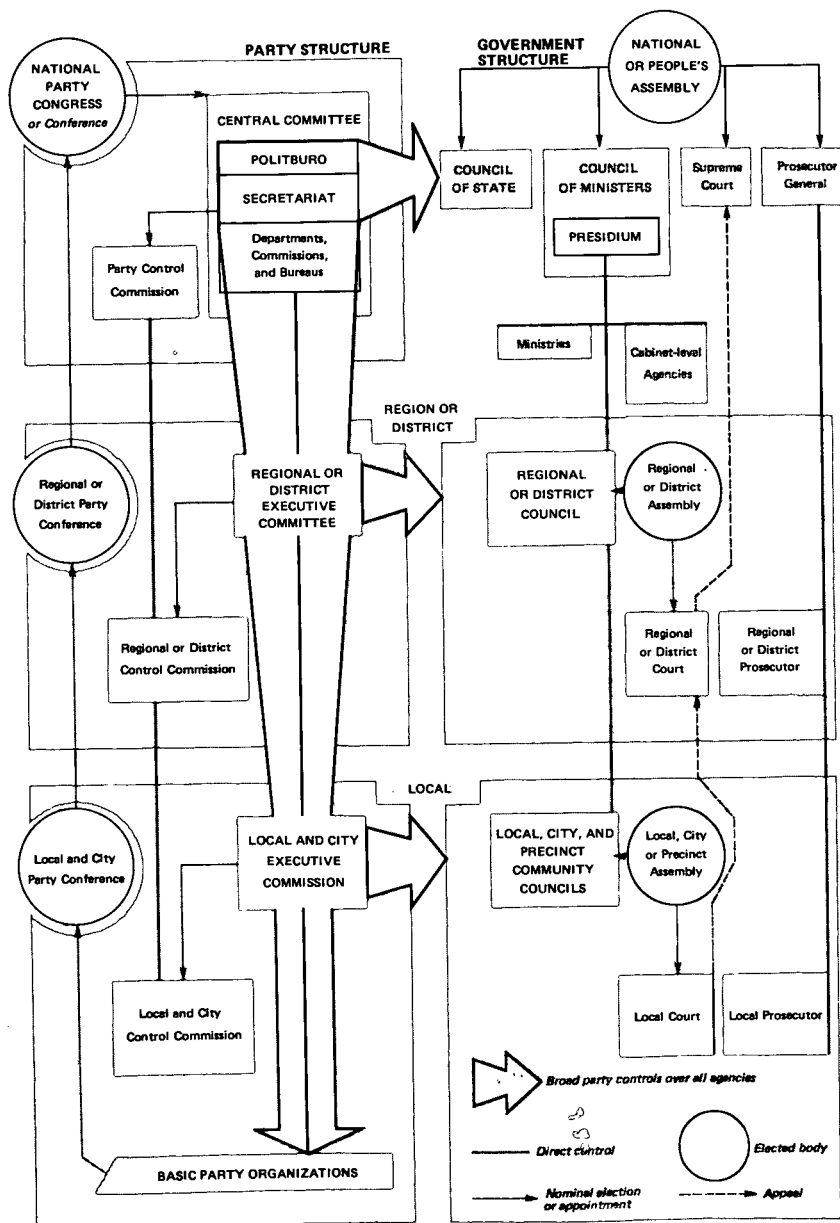
In practice, the Central Committee plenums usually serve no other role than to endorse Politburo decisions. However, if factional infighting develops in the party hierarchy, the Central Committee can assume crucial importance in deciding the political survival or demise of one or another warring Politburo or Secretariat faction. (For instance, the Czechoslovak Party Central Committee decided in 1968 to oust First Secretary Novotny and to replace him with Dubcek; the 1970 replacement of Gomulka with Gierak in Poland was similarly the result of a Central Committee action). The statutory responsibility of the Central Committee or of the Party Congress to elect the Politburo or the Secretariat members has thus at times actually been discharged. For the most part, however, decisions of this type are usually made by the Politburo itself and rubberstamped by the Central Committee.

The Council of Ministers, composed of a prime minister, some half dozen deputy premiers, and 10 to 40 ministers is, according to the East European constitutions, the "supreme organ of state administration". Actually, it is no more than the executor of party policies and instructions. According to the various constitutions, the Council of Ministers is appointed or recalled by the national parliament or

⁷ The Romanian party statute lacks this provision, making the General Secretary responsible to the Party Congress. The Romanian party also differs in that there are two executive decision-making bodies: a 27-member Political Executive Committee and a 15-member Permanent Bureau. The division of labor among them is not clear, although the former appears to ratify the decisions of the latter. In practice, both are dominated by the General Secretary.

the state president. In fact, the selection of incumbents is made by the party long before the parliament acts upon them. The individual ministers "direct" specific branches of state administration, while the Council of Ministers can "rescind an order or regulation" issued by

FIGURE 1
TYPICAL PARTY AND GOVERNMENT STRUCTURE



a minister. In practice, the unwieldy Councils of Ministers rarely act as a body, leaving this function to a Presidium (or Bureau) composed of the Prime Minister and his deputies.

The parliaments, known as National or People's Assemblies are for the most part unicameral bodies (in Yugoslavia, East Germany, and Czechoslovakia the parliament has two chambers) composed of some 250 to 400 deputies. The latter are elected usually for a 4- or 5-year term on a single "National Front slate." The slate includes some independents and puppet party candidates—where such parties exist—but in every instance the communists retain a majority on the slate, despite the fact that nonparty candidates are handpicked and hardly less reliable than actual party members. While according to the constitutions the parliaments are the "highest organ of state authority," they have no real political power and, except in Yugoslavia, simply ratify legislation drafted by the party.

The illusion of parliamentary representation is carried down the ladder of territorial organization parallel with the party structure. Thus, on the regional, district, and local levels there is a system of local government which consists in essence of miniature parliaments and Councils of Ministers under such names as Peoples Councils, National Committees, and so forth. These are usually elected at the same time as national parliaments.

Each Council or Committee exercises government authority over the area of its responsibility. Lower levels report, and are responsible to, their immediately superior level and ultimately either to the parliament or to the Council of Ministers.

Under the principle of no separation of powers, and despite constitutional claims that all judges are independent and subject only to provisions of the law, the judiciary at all echelons in Eastern Europe is little more than an extension of authoritarian party rule.

The purpose of these mechanisms is to provide the regimes with a close control over the population which, since the individual communist takeovers, has been an unwilling captive of the system. The institutional framework is designed to provide close supervision of each individual by government and party agencies, and is augmented by an extensive network of secret and regular police, informers, party-dominated mass organizations (trade unions, youth associations, and so forth), and a system of indoctrination by public media and schools.

Yugoslavia, which broke with the Soviet bloc some thirty years ago, is a notable exception to much of this pattern. While it also does not allow opposition parties, it has evolved since 1948 a system of rule which, while institutionally similar to the one described above, is significantly more decentralized, permissive, and responsive to public opinion pressure—especially from the half a dozen constituent nationalities. Apart from total rejection of Soviet hegemony and pursuit of a "nonaligned" foreign policy, the most notable Yugoslav departures from the Soviet-type structure are a system of "workers' self-management" which gives employees in each enterprise a voice in managerial decisionmaking, including the dismissal or the appointment of a manager, and an economic system which assigns the market forces, profit, and the individual manager a substantially greater degree of influence than anywhere else in Eastern Europe. Another ear-

mark of the system is the markedly greater willingness to experiment with existing institutions and to make frequent changes in the political and economic structure on a trial-and-error basis.

Over the years, but especially since Khrushchev's visit of reconciliation to Yugoslavia in 1955, and the resulting Belgrade Declaration which conceded that there are "separate roads to socialism," (reconfirmed by Brezhnev in 1976), these Yugoslav practices have attracted imitators elsewhere in Eastern Europe (notably in Poland, Czechoslovakia, and Hungary). Most of these experiments proved rather shortlived, however, once they ran into Moscow's opposition.

A major departure from the "one-man" type of rule was introduced in Yugoslavia, after Tito's death. The constitution and party statutes have been reshaped to allow "rule by a committee"—which seemingly borrows from Swiss practices.

A nine-member collective "state presidency" has replaced Tito as president of the Socialist Federated Republic of Yugoslavia (SFRY). Its membership consists of one member from each of the six constituent republics, two autonomous provinces and the chairman of the new Party Presidium. The post of the President of the SFRY presidency—in effect the new head of state—rotates annually (on May 15) according to a predetermined sequence of republics and provinces. The party Presidium representative is excluded from the rotation. The new head of state thus cannot be the state and party leader concurrently, although he becomes the Commander-in-Chief of the armed forces, assuming two of three of Tito's erstwhile positions.

An even more complex and less precisely defined collegial mechanism has been devised for the party—the League of Communists of Yugoslavia (LCY). A 23-member LCY Presidium, headed by a chairman or presiding officer who rotates annually according to as yet undetermined or unpublicized sequence, has replaced Tito in his function as party leader. As in the case of the SFRY Presidency, the Presidium adheres scrupulously to the principle of equal nationalities representation (3 members come from each of the six republics, two from each of the two autonomous provinces, and there is one representative of the armed forces). The SFRY Presidency and the LCY Presidium have as yet had only limited experience in the art of governing, although their performance since Tito's death has been generally favorably assessed.

The system was clearly devised to accommodate Yugoslavia's multinational structure. Yugoslavia opted for an abandonment of the traditional system of rule, in favor of a dispersion of power among its many federated nationalities, an approach that has no precedent in communist history.

THE LIMITS OF AUTONOMY: ROMANIA IN THE 1980's

By Jeanne Kirk Laux*

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I. INTRODUCTION

The overriding purpose of Romania's foreign policy can be succinctly summarized in one phrase: national autonomy. Autonomy, always a relative concept, refers in the first instance to a political capacity: "the ability to frame and carry out objectives . . . which may diverge widely from those of other countries."¹ By logical extension, autonomy also refers to an economic capability to pursue planned development without requisite reliance upon the resources of any single partner. Ultimately, the successful maintenance of autonomy in international relations necessitates a military capacity as well: the ability to raise the cost of the use of force beyond adversary acceptability.

Socialist Romania first attracted international attention nearly twenty years ago by refusing to conform to Soviet preferences for regional integration. Unable to convince its partners during multilateral bargaining in the CMEA to retain Stalinist development priorities, and unable to persuade the Soviet Union to subsidize Romania's steel industry despite new CMEA priorities, the Romanian Communist Party chose nonetheless to pursue its policy of rapid industrialization. The dispute with CMEA was elevated into a nationalist doctrine with the April 1964 Central Committee "Declaration of Independence" which concluded: "Bearing in mind the diversity of the conditions of socialist construction, there are not nor can there be any unique pattern and recipes . . . It is up to every Marxist-Leninist party, it is a sovereign right of each socialist state, to elaborate, choose, or change the forms and methods of socialist construction."

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¹Richard N. Cooper, *The Economics of Independence* (New York: McGraw-Hill, 1968), p. 4.

When Nicolae Ceausescu took over the Secretary Generalship of the party in 1965, the principles used to rationalize a dispute over economic objectives in CMEA were extrapolated to international political-security issues. Romania began to demonstrate to the Western world that the foreign policy of a small socialist state need not conform to Soviet prescriptions despite formal alignment with the USSR: recognition of the German Federal Republic . . . refusal to condemn Israeli "aggression" . . . denunciation of the Warsaw Pact intervention in Czechoslovakia. Romania continues to capture international press headlines today as "the maverick"—as when it boldly refused to join its allies in defense of the Soviet intervention in Afghanistan.

In pursuit of national autonomy, the Romanian party-state essayed three broad strategies. First Romania sought to minimize those forms of collaboration with Soviet-sponsored institutions which undermine sovereignty.² Second, Romania diversified its external ties—economic and diplomatic—to the socialist states outside the Warsaw Pact, the West and the Third World. Diversification serves national autonomy by simultaneously fulfilling a promotive function—augmenting national resources and thereby reducing the extent of reliance on CMEA partners—and a protective function—avoiding diplomatic isolation and thus inhibiting Soviet sanctions. Third, Romania reworked official Marxist-Leninist ideology both to rationalize unilateral actions for the benefit of communist militants at home or in fraternal countries and, by forging a nationalist variant, to legitimize a regime which asks the population to postpone individual material gains for the sake of national industrialization.

How can a relatively small, less developed country, a member of the Warsaw Pact alliance, at one and the same time pursue economic development objectives lacking CMEA sanction and take foreign policy positions which diverge from those of its allies? The quick explanation for Romania's unique foreign policy—one which has become a truism among students of communist politics—is that conformity to the orthodox Soviet model at home allows for independent behavior in foreign affairs. The relationship is seen to be symbiotic—maintaining tight domestic controls reassures the Soviet leadership that Romania is safe for communism while brandishing a nationalist flag offers citizens patriotic compensation for the lowest living standards in CMEA. (More cynically, some add that party controls combined with a personality cult close the door to attempted Soviet manipulation of factions and offer disaffected Romanians only one trapdoor outlet: emigration.)

The objective of this chapter is to reconsider Romania's political and economic strategies with special attention to international relations. To do so we shall reassess the validity of the dichotomous explanation of Romanian foreign policy: domestic orthodoxy/external deviance. We want to know, in Section II, whether, after fifteen years of nationalism Ceausescu-style, Romania's international relations differ substantially from those of its allies. Have the much publicized verbal differences produced divergent outcomes across the

² That is, "the formal ability of countries to make their own decisions and to renounce previously made decisions." *Ibid.*

spectrum of military, diplomatic and economic relations? In short, can we say, at the end of the 1970's, that Romania is still "the maverick"?

Looking forward to the 1980's in section III, we will examine the other side of the equation. If "Romania's special ingredient has been the combination of central planning with mobilization pressure", can we assume that orthodoxy will suffice to ensure popular compliance? For the Party, after all, "The 1980-1990 decade is the decisive stage in the implementation of the Party Programme . . . creating the material and social premises for the gradual passage to communism. Attainment of this aim requires the powerful growth of the forces of production".⁴ A continued industrialization drive implies a continued deferment of major gains for individual consumers. Thirty five years after "liberation", will people wait?

II. REASSESSMENT OF ROMANIA'S POLITICAL AND ECONOMIC STRATEGIES: STILL THE MAVERICK?

A. Political-Security Strategy in the 1970's

Romania's dramatic breaks from established Warsaw Pact policy in the 1960's crystallized its maverick image. Ceausescu transformed a reactive confrontation with CMEA partners over economic development into active provocation on issues of security. He initiated a period of militant nationalism in Romanian foreign policy with his May 1966 speech downgrading the role of the Red Army in Romania's liberation. Here Ceausescu asserted that "One of the barriers on the road to co-operation among peoples are the military blocs . . . (which) represent an anachronism incompatible with the independence and sovereignty of peoples."⁵ Official ideology centralized the concept of sovereignty and combined it with a "small state" identity to rationalize Romania's new political strategy—diversification of ties across alliance lines, particularly through activism in United Nations fora; unilateralism on issues of collective alliance interest; and manipulation of nationalist symbols at home. Certainly the apogee of militant nationalism came in August 1968 when Ceausescu responded to the intervention in Czechoslovakia by mobilizing the armed forces, creating an armed people's militia and rallying the nation from the balcony of his official residence: "We will answer to all—the entire Romanian people will never allow anyone to invade the territory of our fatherland."⁶

By swinging the limelight onto dramatic differences with the USSR and by exposing apparent Soviet sanction attempts, the Romanian regime sought to protect its divergent industrialization strategy and the extra-bloc credit and trade ties which sustained it in a period when diversification still looked dangerously different. More importantly perhaps, orchestrated nationalism corresponds to the period of Ceau-

³ Marvin R. Jackson, "Industrialization, Trade, and Mobilization in Romania's Drive for Economic Independence," in Joint Economic Committee, Congress of the United States, *East European Economies Post-Helsinki*, Washington, 1977, pp. 886-940.

⁴ "Draft Directives of the Twelfth Congress of the Romanian Communist Party for Romanian's Economic and Social Development in the 1981-1985 Five-Year Plan Period and the Guidelines Until 1990," *Romania, Documents-Events*, July 1979, pp. 77.

⁵ Nicolae Ceausescu, *Romania pe drumul desavirsirii constructiei socialiste* (Bucharest: Editura politica, 1968), vol. 1, pp. 412-413.

⁶ *Ibid.*, vol. III, pp. 415-416.

sescu's power consolidation. Nationalism in the face of external opposition allowed him to foster public support for the regime in its industrial push, which required consumer sacrifices, and to forge general party consensus while he eliminated personal rivals and assured his power within the party *apparat*. What became of militant nationalism in the 1970s when the primary objective of heavy industrialization had been achieved and Ceausescu's personal power successfully consolidated?

1. THE WARSAW PACT

Appreciation of any state's role in the Warsaw Treaty Organization (WTO) must consider the two areas of Pact activity: military defense and political coordination. In order to assess Romania's relative autonomy in military defense we would have to know facts which are often not available on military maneuvers; burden sharing; equipment standardization; and inputs into debates on defense strategy. Data on Romania's limited participation in joint military maneuvers, often cited to document its maverick stance, are not very impressive once compared to similar data on Bulgaria—the two look rather alike. Data on burden sharing are wholly unreliable and the general ups and downs in Romania's defense budget do not correlate neatly with Soviet or Pact policy changes. Although it is reported that Romania does not receive the latest equipment and arms from the USSR, this negligence probably has more to do with the geopolitics of the alliance than with political tensions between the two. The best Soviet equipment goes to the more sensitive northern tier countries. As for reconstructing policy debates, we are obliged to rely on unsatisfactory Kremlinologist-style interpretations of banal joint communiques and selective national press leaks.

Despite these handicaps, an analysis of Romanian behavior in the 1970's reveals an orientation which sharply differentiates Romania from its allies and shows that country to be a marginal Pact participant. More impressive than any statistics on maneuvers is the overwhelming legacy of 1968 when Romania neither participated in the planning (it was excluded by the USSR) nor the execution of the allied intervention in Czechoslovakia. Romania's overall orientation emphasizing national rather than allied defense took legal expression in 1972 with the "all-points" defense law and has been continuously reemphasized throughout the 1970's by giving priority attention to territorial defense.⁷ Other indicators of Romania's peripheral role in the Warsaw Pact will be reviewed below.

Romania's position on alliance burden-sharing has been repeatedly manifested through diplomatic action, particularly in United Nations fora where spokesmen argue that defense expenditures constitute the major impediment to economic development and global equity. At the 1978 UNGA Seventh Special Session on Disarmament, Romania presented proposals for a general freeze on military expenditures at 1978 rates with progressive reductions of 10–15 percent by 1985: a practice already announced as national policy. At home the official

⁷ Aurel Braun, "The Yugoslav/Romanian Concept of People's War" *Canadian Defense Quarterly*, VII (Summer 1977), pp. 39–43.

press offered marvelous statistical presentations of the guns and butter trade off to Romanian readers—for example, 12,400 tanks less equals 6,500,000 classrooms (for 30 students each).⁸ At the November 1978 Warsaw Pact Political Consultative Committee meeting, when faced with Soviet proposals for increased defense expenditures, Ceausescu objected and widely publicized this objection at home after being backed up by the RCP Executive Political Committee. The Committee's declaration of support rejected and condemned any new push for increased military expenditures.⁹ The leadership thus communicated two signals to the public—there is an ever present threat of interference by the Soviet Union; and delayed economic benefits are partly due to forces beyond national party control.

Ceausescu's loudly voiced objections to Soviet proposals for further integration of forces at the 1978 Warsaw Pact summit in Moscow also demonstrated that sensitivity to possible violation of sovereign prerogatives in Soviet sponsored regional institutions remains a constant in Romanian foreign policy making. The Executive Political Committee declared its support for Ceausescu and for "the fact that he refused to approve adoption of certain measures which did not have the unanimous agreement of the member countries". Concern for national defense is paramount, but "each national army is exclusively under the orders of the supreme commander of the respective countries." Ceausescu himself then rallied the representatives of the army and the ministry of the interior by swearing that "We will never accept that any Romanian unit or any Romanian soldier receive orders from abroad."¹⁰

The Romanian party has taken a series of decisions which seem to favor the build-up of a national defense industry by reducing procurement from allies and ignoring equipment standardization norms. In the early 1970's when the bulk of its aircraft was still Soviet supplied, Romania purchased several Boeing 707's from the United States; signed a cooperation accord with France to assemble Alouette III helicopters (having already bought six BAC-III from England in 1968). A joint equity venture agreed upon in 1977 with the German-Dutch firm, VFW Fokker, foresaw the production of 100 short-haul aircraft over a ten year period. This project was not ultimately realized but the expertise developed through licensing and industrial cooperation has assisted relative defense autonomy—already by 1975 the Romanians claimed to procure two thirds of their military equipment at home.¹¹ Official propaganda consistently makes the linkage between successful fulfillment of economic objectives, military capabilities and national autonomy: "By the firm orientation towards the highly technical branches . . . industrialization greatly contributed not only to the technical and economic independence of the country but also to strengthening the defence capacity, national independence and sovereignty."¹²

⁸ *Scinteia*, Dec. 7, 1978, p. 5.

⁹ Communiqué published p. 1. *Scinteia*, Nov. 25, 1978.

¹⁰ *Ibid.* The full text of the WTO Declaration and Ceausescu's speech are in *Scinteia*, Nov. 28, 1978.

¹¹ Aurel Braun. *Romanian Foreign Policy Since 1965*, New York: Praeger, 1978, pp. 171-172 and *East West Trade News* July 6, 1977.

¹² "Romania: Industrialization, a decisive factor of progress, of economic and political independence." *Romania: Articles, Features, Information*, No. 5, May, 1977, p. 7.

Romania's divergence from its allies is equally evident in the second area of Pact activity: political coordination. WTO Political Consultative Committee (PPC) meetings, which conclude with a joint statement on the controversial issues in world politics, rarely reach unanimity given Romanian unilateral postures. Romania sought and gained the addition of a committee of foreign ministers to the PCC (1976) so as to accentuate the role of states rather than parties in the Pact's deliberations, and by implication, the role of sovereign equality and noninterference over proletarian internationalism as guiding norms. It has now become commonplace to find the publication of a unanimously endorsed general communique, accompanied by another document supporting specific (Soviet preferred) interpretations of international politics which Romania has refused to sign, for example, the Pact condemnation of the Camp David accords.¹³

2. INTERNATIONAL DIPLOMACY

In international relations outside the Soviet bloc, Romania persisted, in the 1970's, in expanding its diplomatic network to avoid isolation. This political strategy of diversification was buttressed in official declarations by a doctrine of pluralism—presenting a broad, non-exclusive definition of the socialist community and appealing to the solidarity of small states, less developed states or non-aligned states in order to transcend ideological or alliance dividing lines. General optimism about East-West détente in the early 1970's (with CSCE preparations, the fruition of German Ostpolitik, and the Nixon-Brezhnev summit) encouraged other East European states to renew diplomatic ties with NATO states, but Romania today remains different. The Romanian government managed to keep a relatively high profile in Washington in the decade following Nixon's dramatic 1969 visit to Bucharest. This seems to be a source of irritation in Moscow—according to Kissinger's memoirs Ambassador Dobrynin oftentimes complained about Romania's access in Washington. A recent Congressional comparison of U.S. relations with East Europe concluded that "Romania has developed the broadest and most diversified ties with the United States among Warsaw Pact member countries."¹⁴

By the end of the 1970's Romania had constructed extraordinarily versatile diplomatic machinery. Only Romania has decent diplomatic relations with Israel and with every other Mideast state as well as the PLO—Ceausescu was therefore able to play a role in bringing Sadat and Begin together. In the Third World, Ceausescu has used personal diplomacy in a series of multicountry visits to Latin America, Asia, and Africa in order to promote trade. This opening to the Third World was facilitated by Romania's official claim to be a less developed country itself (the whys and wherefores will be explored in the section below on economic strategy). Romania asked, and was granted,

¹³ Robert Farlow pieces together this pattern in "Romania: Problems of Independence and Development." Paper presented to the conference on "East Central Europe: Yesterday, Today, Tomorrow." Hoover Institution, Stanford University, January 1980.

¹⁴ Foreign Affairs and National Defense Division, Congressional Research Service, report prepared for the Subcommittee on Europe and the Middle East of the Committee on Foreign Affairs, U.S. House of Representatives, "U.S. Relations with the Countries of Central and Eastern Europe." Washington, 1979, p. 73.

permission to attend the Lima Conference of Foreign Ministers of Non-aligned Countries in 1975. The following year, the Conference of Heads of State and Government of Non-aligned countries invited several formally aligned countries as guest participants at their Colombo meeting—Romania attended and continues to make part in all major gatherings of non-aligned countries.

Romania retains a unique role in inter-party and inter-state relations in the communist world. Despite the degeneration of Sino-Soviet relations reflected in China's reworking of foreign policy doctrine to make "social-imperialism" the principal enemy, Romania continues to play the role of mediator between the Communist giants when possible and dares to exchange top level visits regardless (Hua Guofeng came to Bucharest after Ceausescu visited Peking in 1978). Romania strives for self-protective pluralism in inter-party politics generally. Ceausescu gave non-aligned Yugoslavia second place billing after the USSR in his verbal listing of socialist friends at the XII Party Congress (November 1979). Ignoring the fact that relations among some socialist friends have deteriorated into military conflicts, he then placed virtually equal emphasis on Romania's solidarity and cooperation with China, with Vietnam and with Democratic Kampuchea. On the question of Eurocommunism, Ceausescu ignored his own regime's orthodoxy to insist that "It . . . appears perfectly natural that the communist parties should define autonomously, with no outside interference, their political line, including a number of new concepts related to their revolutionary strategy and tactics. One such example is the concept of Eurocommunism."¹⁵

In international negotiating behaviour and U.N. voting behaviour related to security issues, Romania government representatives often take a unilateral stance at variance with their Pact allies. Interviews conducted with the heads of NATO country delegations to the first Conference on Security and Cooperation in Europe, for example, revealed that Romania did not always take part in the Pact caucus. Romanian delegates consistently spoke out in plenary sessions without respect to Pact positions—notably on military-security and economic issues (being rather silent on matters of human rights!). In debates on confidence building measures, such as advance notification of troop maneuvers, Romania supported proposals tabled by the neutral and nonaligned caucus rather than Warsaw Pact proposals—this practice was continued at the 1977 CSCE sessions in Belgrade.¹⁶

At the United Nations Romania continues to set itself apart from its allies even on votes critical to Soviet global interests. At the September 21, 1979 General Assembly session only Romania voted with the majority in favor of assigning Cambodia's seat to the Pol Pot regime—thereby condemning Soviet ally Vietnam for its military intervention and preferring to vote alongside China. Reacting to the Soviet Union's military intervention in Afghanistan, Romania did not vote on the January 14, 1980 nonaligned resolution asking for im-

¹⁵ Nicolae Ceausescu, Report on the Fulfilment of the Decisions of the Eleventh Congress of the Programme of the Romanian Communist Party, and on Future Tasks," supplement to Romania Today, No. 1/278, 1978, p. 21.

¹⁶ Jeanne Kirk Lauz, "Les négociations est-ouest: le rôle des pays d'Europe de l'est au sein de la CSCE," Etudes internationales, VI, 4, décembre, 1975, pp. 478-500

mediate withdrawal of foreign troops from Afghanistan. It thus abandoned its WTO allies, all of whom voted against the resolution.¹⁷

Throughout the 1970's, then, Romania's political elite persistently articulated a nationalist foreign policy regarding political-security issues. Militant rhetoric should not of course obscure the reality of alignment. Romania remains a Warsaw Pact member state and renewed its friendship treaty with the USSR in 1970. Nonetheless, Romania plays a marginal role in the military activities of the Pact and the regime continues to frame objectives and take policy stances on the regional and world stage which diverge widely from those of its alliance partners. Romania clearly remains the maverick.

B. Economic Strategy in the 1970's

Commitment to rapid industrialization—with new emphasis on productivity gains from applied technology—remains the priority objective in Romania's economic strategy. In international economic policy, however, recognition of constraints has led the party to modify its ostentatious drive toward self-reliance and instead to frame a strategy of "selective cooperation" with CMEA partners in the 1970's. When Romania's economic behaviour is compared to its partners'—participation in CMEA or international trade, credit and cooperation ties—certain distinctive features are still noticeable. The official doctrine of underdevelopment, for example, is unique as are some institutional affiliations. Yet overall, it is a pattern not of divergence but of convergence which emerges. Romania has normalized its participation in the CMEA while its partners have chosen to increase their participation in the international division of labour.

Signature of the CMEA Comprehensive Program in 1971 marks the transition in Romania's foreign economic policy toward selective cooperation. Efforts to account for this qualitative reorientation must begin from an appreciation of the cumulative impact of more than a decade of heavy industrialization which had exposed the limits of semi-autarkic development. High rates of investment since 1960, with over 12 percent annual increases in fixed industrial assets, established a core industrial infrastructure but also revealed new needs. A rising deficit in trade in industrial raw materials and depleting oil reserves created the need to find new sources of supply. Declining labour reserves created the need to enhance productivity through improved process and product technology. The increasing hard currency debt imposed the need to improve export performance if technology imports were required or to reduce imports from the dollar zone. Disastrous floods in 1969 no doubt made all these issues more salient. Faced with the consequences of domestic structural changes, the Romanian leadership adapted ideology and foreign economic policy to new necessities by pursuing a modified strategy of cooperation within CMEA all the while continuing to essay new forms of economic relations with non-socialist partners.

¹⁷ Romania confirmed its opposition to Soviet intervention when it refused to sign the Feb. 7, 1980 communique after the meeting in Sofia of parliamentary delegations from twelve Communist Party states which supported the Soviet action (North Korea also desisted). Official explanation of the U.N. vote boycott was given in *Scinteia*, Jan. 16, 1980, p. 4 "Sesiunea extraordinara a Adunarii Generale a ONU consacrata situatiilor din Afganistan."

The National Party Conference in July 1972 formally identified Romania as a developing country. This doctrinal choice reflected a compromise strategy—an agreement to push industrialization forward by higher rates of investment, but also to modify pretensions of self-reliance by selective cooperation within CMEA. Status as a less developed country served for the remainder of the decade to justify sacrifices demanded of consumers at home, to rationalize claims for special privileges from capitalist countries and from CMEA partners, as well as to promote new forms of cooperation with the Third World.

1. THE COUNCIL OF MUTUAL ECONOMIC ASSISTANCE

In the 1970's Romania clearly normalized its participation in the CMEA. Overcoming initial reluctance, Romania associated with Intermetal; joined Interchim; became a member of the Bank for International Investment (after an eight-month delay used to bargain about voting procedures); and opted to take part in the Comecon Commission coordinating research and production of computers in 1973 (although Romania is still not part of the division of labor within CMEA for production of the Riad series computers). After a year of hesitation, Romania decided in 1975 to sign the CMEA protocol creating a technical standardization program for the region. Romania now is a member of all but one of the "International Economic Organizations" created to assist coordination and specialization in industrial production. Following the adoption of an Agreed Plan for Multilateral Integration Measures at the 29th CMEA session (1975), Romania decided to participate in many of the major joint construction projects—the Orenburg pipeline for natural gas; the Ust Ilimsk cellulose complex; the Kiyembaev asbestos mine, and the Kingisepp phosphate complex.¹⁸

Romania's representatives are rather brash in advertising their opportunistic self-interest in CMEA cooperation. Joint construction ventures, it is explained, are accepted when they can insure vital supplies of industrial inputs: "As a result of its participation . . . Romania will ensure its own long-term supply of natural gas, cellulose, asbestos and ferro-alloys."¹⁹ Plan coordination is agreed to only in those areas, such as the machine tool industry, where it will create the "prerequisites for a continuous increase in the volume of machinery and equipment exports from the less advanced countries (i.e. Romania)."²⁰ At CMEA's 1975 session, while the USSR promoted its draft plans for multilateral integration, Romania's prime minister negotiated for credits and investment in the country's five leading branches of industry and for "access of the industrially less developed socialist states to more advanced technology."²¹

Despite obvious long-term commitment to CMEA, Romanian political elites do remain sensitive to protecting national autonomy—the

¹⁸ Marie Lavière, *Les économies socialistes soviétique et européennes*, Paris: Armand Collin, 1979 (3rd edition), chapter 7, provides an excellent analysis of recent CMEA innovations. A country-by-country break down of participation in joint projects is given in Z. Lugaň. "Une forme d'intégration du CAEM: la construction en commun d'objectifs industriels," *Le Courrier des pays de l'est*, No. 221, septembre 1977, pp. 3-29. See also McMillan and Hannigan in this volume.

¹⁹ R. Constantinescu. "The Dialectic of the Rapprochement and Equalization of the Economic Levels of the Socialist Countries," *Era socialista*, No. 24, December 1974. Translated in RFE, Romania Press Survey, No. 983 (Jan. 22, 1975).

²⁰ *Ibid.*

²¹ *Scinteia*, July 6, 1975, p. 5.

right to carry out nationally determined development plans. Romania alone has refused to conform to CMEA directives to include a special section on integration in its national plan. Cooperation is contingent on respect for procedures based on interested parties and not supra-nationality. Acceptance of this principle by the other partners made it possible for Romania to sign the Complex Program after three years of negotiation. The sharp objections to Soviet proposals for further plan integration voiced by Romania at the 1978 CMEA session in Bucharest indicate continued sensitivity to issues of sovereignty. It was at this session that the USSR won acceptance for three of the Target Programs while it reportedly failed to convince the others to abandon the interested party principle. Romania's prime minister and head of delegation argued that the means of plan coordination already specified in the Complex Program—that is, reciprocal national consultations—provide an adequate and appropriate framework. The entire purpose of CMEA should be to strengthen central planning within each member-state. "We therefore consider that it is not necessary to amend the CMEA statutes."²²

2. INTERNATIONAL ECONOMIC RELATIONS

Despite renewed cooperation with CMEA in the 1970's, Romania pursued its diversification strategy in international economic relations. Commercial and credit relations with non-socialist partners were expanded and new forms of industrial cooperation introduced. When we compare Romania's international economic behavior today to that of its CMEA partners, however, many Romanian choices turn out to be more typical than idiosyncratic. Romania was often the first to explore new modes of East-West cooperation and remains the most committed to East-South cooperation. Yet other East European countries have followed suit, creating the overall impression of convergence. We shall first point out Romania's unique institutional affiliations and then review the overall trends in commerce, credit and cooperation relations outside the bloc which support the convergence thesis.

Looking for higher credit ceilings and lower trade barriers, the Romanian government successfully exploited its status as a less developed country to gain entrée to several international organizations—some of these affiliations still distinguish Romania from its CMEA partners. Romania convinced the European Common Market (EC) to accept its relative underdevelopment as a basis for inclusion in the EC Generalized Preference System. This overture came in February 1972—one month before Brezhnev's oft-cited speech accepting the Common Market as a "reality". Romania's delegates to the CMEA consistently argue for bilateral, not regional, economic relations with the EC—a policy which suggests that Romania's EC relationship is part of its political strategy of diplomatic diversification in addition to its economic strategy of winning trade concessions. Romania closed

²² *Ibid.*, June 30, 1970, p. 5 gives the text of this speech. Unofficial reports suggest that very hard bargaining took place—revolving around the admission of Vietnam to CMEA membership and Romania's contribution to the Orenburg project. It might be pointed out that the interested party principle does not extend to the IEOs—they use majority decisionmaking for operational functions. See McMillan and Hannigan in this volume.

the decade with another first in EC relations. In February 1979, the government began negotiations which have led to a general industrial trade agreement with the EC Commission in Brussels and to the creation of a Joint Committee to oversee trade. Other CMEA countries have now signed sectoral trade agreements with the EC and Bulgaria has asked to be included in the Generalized Preference System (1977); others are also members of the GATT (Czechoslovakia, Poland, and Hungary). Romania is, however, still the only CMEA country to have joined the IMF and thus the World Bank . . . gaining immediate benefits in substantial hard currency credits. IMF acceptance of Romania was justified by reference to its status as a less developed country able, according to Article XIV, to exercise currency control as a transitional measure.²³ Sanctification of Romania's pragmatic use of its official identity as an underdeveloped country came with the 1976 Executive Political Committee's announcement that Romania had been admitted to membership in UNCTAD "77" at the Manila meeting.

The dramatic drop in Romania's share of trade with CMEA partners over the 1960's—following from the decision to import virtually half its machinery needs from the West in order to achieve divergent industrialization objectives—looked remarkable. Romania today has the lowest trade turnover with CMEA and a rather unique distribution of commercial partners among East, West and South. For the CMEA as a whole, however, trade with western industrialized countries began to grow at a faster annual rate than intra-bloc trade in the 1960's. By the mid-1970's Poland, for example, had a higher annual trade turnover with the western industrialized countries than Romania.²⁴ Romania's trade turnover with CMEA as a share of total trade turnover has in fact risen each year since 1974. Certainly Romania's decisions to source outside the bloc for key items such as oil and nuclear reactors (Romania opted for Canada's CANDU reactor in October 1978) do indicate a distinctive concern with maximizing autonomy in the vital energy sector. Nonetheless, trade diversification no longer indicates maverick behavior in international economic relations. Having turned to the West for an increasing share of machinery imports, all CMEA countries, like Romania, have chosen to tolerate deficits by recourse to external borrowing. In the resultant debt accumulation Romania ranks only fourth among the six smaller CMEA countries in terms of its hard currency debt to the West.²⁵

Revision of the Romanian legal code in 1971 permitted foreign private investment in a CMEA country for the first time and a small number of western firms have formed joint equity ventures in Romania. Hungary, Poland, and Bulgaria have since followed Romania's lead and introduced legislation allowing joint investments with capitalist firms on their territory. Looking more inclusively at different forms of industrial cooperation, all CMEA states are involved in East-

²³ Max Baumer and Hanns-Dieter Jacobsen, "CMEA and the World Economy: Institutional Concepts." in Joint Economic Committee, Congress of the United States, *East European Economies Post-Helsinki*, Washington, 1977, p. 1013.

²⁴ According to Soviet sources cited by Peter Knirsch, "The Significance of Economic Interdependence Arising from East-West Relations", p. 55 in Zbigniew M. Fallenhuehl and Carl H. McMillan (eds) *Partners in East-West Economic Relations* (New York: Pergamon, Press, 1980).

²⁵ Whether gross or net; CIA or Banker's Trust figures for 1978 and 1979.

West inter-firm cooperation, with Hungary and Poland having concluded the largest number of contracts.²⁶

Turning to overseas investment, the data on foreign direct investment by CMEA countries (the USSR included) collected by McMillan²⁷ show that at end-1978 Romania ranked fourth for the number of wholly or jointly owned companies located in the OECD countries while it was first (with 49 out of a total of 185) for the number of companies located in the developing countries. On the one hand, these figures demonstrate Romania's energetic commitment to promoting exports to the developed West (most companies are engaged in marketing activities) and to assuring non-CMEA suppliers for industrial raw materials (the most important sector for companies located in the Third World). They thereby underscore Romania's continuing pursuit of relative autonomy. On the other hand, these figures demonstrate a similar push by all CMEA countries. Romania may be ahead in the scramble for the Third World but everyone is now playing the same game.

At the end of the 1970's Romania's international economic strategy does not appear to diverge from that of its CMEA partners. Romania seems rather to be *competing* with them for credits, raw materials and markets. Romania does remain somewhat less reliant on the regional market and more sensitive to infringements of sovereignty in the integration process. Overall, however, we see a process of convergence as new economic necessities obliged the Romanian leadership to normalize relations with CMEA and as the other East European states moved toward reintegration in the international division of labor. All party leaderships, we assume, would concur with Ceausescu's summary of the environmental constraints shaping his foreign economic policy in the 1980's:

We have had to take account of the implications of the world economic crisis worsened by the energy and raw materials crisis, by the tremendous rise in the prices of petroleum and other basic raw materials, by sharpening of the financial and monetary crisis and the widening of the technological and economic gaps on an international plane.²⁸

C. Reconsiderations

To sum up, therefore, Romania's political and economic strategies, based on analysis of its international behavior during the 1970's, suggests a need to modify general assertions about foreign policy deviance. The very success of Romania's industrialization drive means that the regime's development objectives no longer diverge widely from those of its partners. With a return to CMEA cooperation by Romania, and experimentation with new trade, credit and cooperation ties by other East European states, the pattern of international economic relations is convergent. Romania's political-security strategy,

²⁶ Carl H. McMillan. "East-West Industrial Cooperation." Joint Economic Committee, Congress of the United States, East European Economies Post-Helsinki, Washington, 1977, p. 1188.

²⁷ Carl H. McMillan. "Growth of External Investments by the Comecon Countries." *The World Economy*, vol. 2, No. 3, September 1979, pp. 363-386.

²⁸ "Report of the Central Committee of the Activity of the Romanian Communist Party in the Period Between the Eleventh and the Twelfth Congress and the Party's Future Tasks," presented by Nicolae Ceausescu, reprinted in *Romania, Documents—Events*, No. 67, Nov. 21, 1979, p. 3.

however, still appears deviant with a continued marginal role in the Warsaw Pact and highly visible unilateral actions in international diplomacy. Without underestimating the resolve and ingenuity required by the Romanian leadership to parry Soviet efforts to increase Pact integration, over the past fifteen years we nonetheless see a cumulative process of *routinization of nationalism*. Routinization means that Warsaw Pact allies anticipate Romanian unilateralism. The flamboyant rhetoric of the 1960's has become the litany of the 1970's, so that Soviet sanctions are less likely to be imposed for these diplomatic differences.

III. THE LIMITS OF AUTONOMY: LOOKING AHEAD

If it is correct to argue that Romania's economic development objectives no longer contravene the preferences of its partners and that Romania's maverick role in political-security matters has acquired a de facto tolerance from its allies, then it appears that the real limits of Romanian autonomy are not imposed from outside. The central question for the 1980's is no longer whether orthodoxy at home can continue to assure foreign policy autonomy, but rather whether foreign policy will suffice to protect the maintenance of orthodoxy at home.

Orthodoxy means—at the risk of over-generalization—giving continued primacy to the core principles of the Stalinist economic model (in particular central planning and production for production's sake, regarding consumption as a residual) and the Leninist political model (in particular bureaucratic centralism within the party and a leading role for the party in society, channeling all public expression of economic, social and cultural needs). Given the RCP's announced objective of pursuing its industrial drive to push Romania, by 1985, beyond underdevelopment to become "a medium level developed nation", hortatory patriotic appeals today look like attempts to engender party cohesion and mass compliance to sustain yet another period of sacrifice in order to reach this goal. Yet some twenty years after the original stand-off with CMEA, it might be argued that nationalism has decreasing marginal returns in terms of legitimacy. The routinization of nationalism at home gives greater urgency to the Romanian leadership's economic foreign policy. Selective cooperation—East, West and South—can buy time for orthodoxy by enabling the regime to meet some of the challenges of moving to an intensive growth stage. If, for example, industrial cooperation and economic diplomacy lead to productivity gains, export competitiveness and access to hard currency markets, Romania will climb more quickly out of the debt trap which now requires exports of foodstuffs despite persistent shortages at home.

Two brief case studies will illustrate several of the contradictions facing the Romanian government in the 1980's. Analysis of Romania's political effort to gain economic entrée to the European Economic Community will demonstrate the difficulty of improving export performance in the industrialized West. Examination of the work stoppage by coal miners in the Jiu Valley will highlight the difficulty of sustaining commitment to economic growth without adequate material rewards.

A. International Markets: The EEC Example

Romania's negotiations with the European Community exemplify the government's use of political-diplomatic means to accelerate resolution of development dilemmas. Penetration of this major market for Romanian exports to the industrialized West would not only ease repayment of hard currency debts, but also, if manufactured exports become a larger share in total exports, would allow Romania to reduce exports of current top earners—fuels and foodstuffs—which do not bring as high a return as manufactures and which are now needed at home. Romania became a crude oil importer in 1968, but has only faced the challenge of an overall energy deficit since 1975.²⁹ Diversion of meat products, fruits and vegetables to the international market is increasingly untenable when perennial shortages at home provoke consumer discontent.

Romanian foreign policy makers have assiduously used their political bargaining skills to gain access to the EC market. In order to be included in the Generalized Preference System (effective January 1, 1974) Romania had to win party acceptance at home for official status as a "less developed nation" and then convince EC member governments, in particular the French, to swallow this designation. After a visit to Bucharest, French Foreign Minister Schumann agreed to support Romania's demand "strictly for political reasons" (according to *Le monde* of January 31, 1973).

The EC political concession was not, however, followed up by concrete economic concessions. Preferential treatment was denied to most of Romania's major export manufactures—textiles, furniture, footwear, and agricultural chemicals. The EC has added, piecemeal, more tariff items to the liberalisation list after each annual review session, but the results are not impressive. Often these products are not even produced in Romania. Political friendships are seldom reliable where domestic interests conflict. After the EC Commission had agreed in 1976 to propose nine new tariff positions for liberalisation in the Romanian case, the EC Council of Ministers refused to accept three which were traditional Romanian export items (honey, fruit and vegetable conserves, and fruit juices) reportedly because of the French exercise of veto power.³⁰ Despite continued high level interventions to improve trade liberalisation (for example Foreign Minister Stanciu's talks with the EC in July 1977), the latest figures available from the EC show that Romania's exports to the Community have not increased. In terms of millions of EUC, export values from

²⁹ The World Bank foresees a worsening long run energy deficit for Romania over 1980-1990 and points out the critical implications of any bottlenecks in fuel production for the petrochemical and metallurgical industries which are undergoing expansion. See *Romania: The Industrialization of an Agrarian Economy Under Socialist Planning* (Report of a mission sent to Romania by the World Bank) Washington, 1979. Some alternative long-term supply arrangements for oil made in the mid-1970s have run into problems—political instability in Iran disrupted expected deliveries; disagreement over terms delayed construction of a refinery on Romania's Black Sea coast financed by Kuwait and to be supplied by Kuwaiti oil. The results of recent exploration are not fully known—Ceausescu reported to the last Congress: "I would like to inform the Congress that our workers on the first offshore drilling rig in the Black Sea have tapped oil sources. We hope they are large enough to be exploited on an industrial scale and help us implement the provisions of our programme of meeting all our necessities of fuel and energy and becoming self-sufficient in energy in the ensuing decade." "Report . . ." *op. cit.*, p. 27.

³⁰ Septimiu-Corneliu Pop, "Les relations commerciales entre la Roumanie et la Communauté économique européenne:" Thèse pour le doctorat de spécialité, Université de Paris II, 1977.

Romania remained at near identical levels for 1976, 1977 and 1978 while EC exports to Romania were rising.³¹

Romania was the first state-trading country to negotiate a sectoral agreement with the EC (textiles 1976) and the first to propose a general commercial accord. Both overtures, made in 1975 and 1978 respectively, involved delicate political maneuvering in CMEA sessions, because they coincided with the first formal contacts between the EC and CMEA in spring 1975 and with the 1978 decision by the EC Vice Commissioner and the CMEA Secretary to work toward a framework agreement on institutional cooperation. Romania's Prime Minister walked a diplomatic tight rope at the 1975 CMEA session—giving assent to CMEA—EEC talks but only so long as they “do not affect the competence of the member states of CMEA” which could and should “develop treaties and conclude arrangements, conventions and other agreements with the EEC organs.”³² Again at the 1978 session Prime Minister Manescu insisted on Romania's view that international economic relations were *inter-state* relations—any CMEA—EC agreement should not contain directives for individual members.³³

The concrete results of these diplomatic maneuverings by the Romanian government to increase exports to the EC are rather ambiguous. Romania's textile accord with the Community basically expresses Common Market specifications of quotas for items included in the Multifibers Agreement (and flax). The terms of the accord were not as favorable as those offered Third World countries.³⁴ By rationalizing the multitude of national quotas and setting one EC ceiling, which has been raised each year for some products, Romania gains a more predictable situation. More specifically, the right to be consulted before the EC agrees to impose safeguard restrictions because of a perceived market disruption gives Romania a political bargaining opportunity. The EC *Official Journal*, however, is full of Council decisions granting different member countries' requests for imposing exceptional quotas on Romanian products. Romania has certainly gained political access in Brussels—institutionalized in a Joint Committee (agreement initialed in February 1980)—the first between the EC and an East European government.

Whether or not Romania makes headway in increasing exports to the EC depends not only on overcoming member country reluctance to give serious economic concessions but also on the competition from other exporters. The EC market is extremely attractive and Romania must now compete with other states in the Third World and in CMEA itself which are scrambling for the same market with the same or similar products. In a product by product breakdown of EC imports for 1977, a recent study located East-South competition within SITC category 6—textiles in particular and, secondarily, steels.³⁵ Other

³¹ Romania does retain a small surplus each year. *Europe Information*, December, 1979. The recent Agreement on Trade in Industrial Products promises to extend to Romania all preferences offered GATT partners, to eliminate some quantitative restrictions and to increase other quotas after consultations. See Council of the European Communities, General Secretariat, Press Release, Bucharest, July 28, 1980 (19006/, Presse 113).

³² *Scinteia*, July 5, 1975, p. 5.

³³ *Ibid.*, June 30, 1978, p. 5.

³⁴ *Pop. op. cit.*

³⁵ J. Decaye, “Concurrence Est-Sud sur les marchés de l'ouest: les cas des biens manufacturés.” In Marie Lavigne (ed.), *Stratégies des pays Socialistes dans l'échange international* (Paris: Economica, 1980). Figures were compared to *Anuarul Statistic 1978*. The principal Third World competitors are Brazil, South Korea, India, Taiwan, Hong Kong and then Iran, Pakistan, and Thailand.

CMEA countries have followed Romania's lead and negotiated sectoral arrangements with the EC too. Textile agreement in effect to December 1982 have now been signed with Hungary (11/1978); Poland (1/1979); and Bulgaria (4/1979). Steel agreements were initiated by Czechoslovakia in April 1978, offering a kind of infant-exporter price reduction of 4% on delivery prices of special steels and 6% for ordinary steels without accusation of dumping on the EC market. Similar agreements now exist between the EC and Hungary, Poland, and Bulgaria in addition to Romania.³⁶ Bulgaria has also asked to be included in the General System of Preferences and the EC Council of Ministers agreed (July 24, 1979) with implementation likely for 1981.

Romania's agile foreign policy thus took it off the mark faster than others in the EC race. Conclusion of the Agreement on Trade in Industrial Products (July 28, 1980) may yet give Romania more meaningful liberalisation concessions that we have seen hithertofore. Yet the duplication of products between South and East in some categories, and the duplication of political effort by some East European partners, raises a large question mark in an era of protectionism in the industrialized West (with special concern for steels, textiles and footwear). The Romanian leadership simultaneously pursues several economic strategies which together may compensate for the vagaries of international market conditions, especially for traditional manufactures. It seeks to restructure production at home in favor of chemicals, machinery and equipment; to enhance self-reliance by progressive import substitution; and to increase the share of trade with developing nations. For now, however, looking into the 1980s, the party clearly remains concerned about the twin problems of international markets and indebtedness. In his report to the XII Congress, Ceausescu underscored these concerns:

In 1980-1985 the foreign trade volume will grow by 50-57 per cent . . . Exports will have to increase more sharply, thus providing the necessary means for imports and the coverage of payments due in respect of outstanding credits, with a view to achieving a correct balance of payments.³⁷

B. Domestic Compliance: The Jiu Valley Example

At the end of the 1970's, faced with uncertainties in the international economy, energy and raw materials deficits, indebtedness, and the setback of a major earthquake in 1977, the Romanian Communist Party chose to reinforce orthodox priorities for economic development at home. According to the World Bank Report, the Party's ambitious plans "can be put into effect only by mobilizing more resources, both by increasing the efforts of the labor force and by securing additional savings of production expenditures through greater efficiency".³⁸ Can the regime assume domestic compliance with these new priorities—will industrial workers put in more hours? Will technical and engi-

³⁶ *Europe Information*, December 1979.

³⁷ It should be noted that until now Romania has handled its debt problem rather well. Internal IMF reports indicate that the short term borrowing to cover convertible currency payments had not led to any increase in the debt-service ratio 1976-1979 thanks to good export performance. Of course much of this "performance" was really the reaping of windfall profits after 1974 when world prices for energy products (which make up nearly one third of the value of Romanian exports) rose dramatically.

³⁸ World Bank, *op. cit.*, p. 391.

neering personnel put in more effort to assimilate imported technology? Are appeals to patriotism and to fidelity to the leader adequate substitutes for improved living standards?

In its pursuit of planned economic objectives, the regime will have to worry about the social contradictions intensified by continued deferment of consumer gains, if the protest actions taken by industrial workers—the coal miners of the Jiu Valley—are considered symptomatic. Reports on the Jiu Valley action come from a multitude of international press sources and can only be verified indirectly and partially from Romanian press sources. Most reports agree that some 35,000 coal miners in the Jiu Valley, where some eight mines are located, stopped work in August 1977 to protest the new pension law, unpaid overtime work exacted as part of the effort to make up for losses due to the March earthquake; dangerous working conditions; and inadequate food. Miners are said to have held a government official hostage briefly and to have tried to shout down President Ceausescu who sought to placate them by personal appeals.

It might be said that the regimes's reaction to the Jiu Valley action demonstrates the efficacy of orthodoxy. In the short run, the government was indeed able to contain social protest. The military was dispatched—by the end of August 2,000 soldiers apparently patrolled the valley—while security police infiltrated the workforce (the supposed provocateurs were arrested and another 4,000 miners dismissed). The party used its central role to amend the pension law without attention to constitutional details which require National Assembly approval. The party press publicized the gains achieved by miners under socialism while Ceausescu personally returned to the area to verify that conditions had improved after he dismissed three of the five mine managers. Techniques of coercion, compensation and populism indeed appear to have defused the explosive tensions in the Jiu Valley.

The Jiu Valley protest, although contained, nonetheless retains our attention because it is symptomatic of two fundamental stresses in Romania's orthodox political economy. The attempt to modernize and restructure industry has created new conditions of extreme complexity and interdependencies which would challenge the capabilities of economic managers anywhere. Romania, moreover, seeks to maintain a highly centralized command system and pursue simultaneously high growth rates, industrial modernization; restructuring, and energy self-sufficiency. There is very little margin for error. The proven possibility of disruptive industrial workers' action, particularly in mining, could have tremendous reverberation effects. The regime is counting, for example, on a leading role for the chemical and machine building industries in the 1980-1990 decade. Chemicals will be a major export item—which suggests the need both to reduce exports of hydrocarbon fuels and to find substitute fuels at home so that hydrocarbons can serve as feedstocks for the petrochemical industry. Machinebuilding—the fastest growing industry for the current plan—is of course fed by the high energy consuming metallurgical industry. Not surprisingly, the XXII Congress Directives focus on energy self-sufficiency and look to coal, 85% of it lignite, to replace oil. By the mid-1980's some 60% of total electric power will

come from coal. Jiu Valley repetitions cannot be afforded. As it was, Ceausescu's presentation of the Central Committee report on the 1975-80 plan pointed out that "We still have lags in the achievement of physical production—especially in the mining industry . . .".³⁹

The disaffection of the coal miners also touches a political raw nerve. Radical action by industrial workers is of extreme political sensitivity—unlike the scattered protest action of Romania's intellectual or religious dissidents able to be dismissed by the regime as deviants. In the difficult weeks of choice after the March 1977 earthquake, the party leadership determined not to revise the 1976-80 plan downwards but rather to push for overfulfillment of norms and to continue apace in the 1980s to reach the preestablished goal of modernization: "the multilaterally developed socialist society" by 1990. This push creates tremendous stress in the political system due to the erosion of ideology. Ideological appeals—whether communist or nationalist—no longer have their previous potency given the constant priority on production and the residual role for consumption in planning. Erosion of ideology makes the need to deliver greater material rewards ever more pressing.

C. Contradictions of Orthodoxy in the 1980's

The appearance of contradictions between individual needs and national needs (ascribed by the party) can be more broadly conceived as a contradiction between socio-economic realities and ideology which, if translated into political self-consciousness by Romanians, becomes a contradiction between the masses and the party-state elite. The Romanian party leadership is, however, more than aware of these contradictions. High rates of investment and deferred consumer benefits have been a subject of controversy at least since 1972, as constant justification by official propaganda publications and leadership speeches confirm. The tone of the propaganda can be captured by one citation from the *Romanian Bulletin* which asserted in an article entitled "Race Against Time" (August 1976) that:

In the competition for development, the Romanians had and still have to recover a big handicap . . . it is necessary to further allocate a considerable part of the national income to development, namely some 33 per cent. Any other alternative, whether for the development of the national economy or for raising the welfare of the population is simplistic and flagrantly erroneous.

In addition to offering constant justification for development priorities, the party has introduced compensatory social welfare programmes and modified the pace of industrialization slightly for the 1980's. The way in which these correctives are interpreted—rhetorical or real; meaningful or marginal—will influence the observer's overall appreciation of the socio-political limits to growth in Romania.

In order to compensate for its "Vast and Inspiring Programme for an Additional Rise in Production", the National Party Conference following the earthquake (December 1977) also proposed a new programme "For a More Marked Rise in the People's Living Standard—an Expression of Our Party and State's Permanent Care for Man". A series of promises were made for, to cite only a few examples, in-

³⁹ "Report of the Central Committee . . .", *op. cit.*, p. 21. For the long term energy plans see "Directives . . ." *op. cit.*

creased real wages (32 percent rather than the 20 percent foreseen); improved pensions; controlled consumer prices; educational and recreational facilities; and a reduced working week (44 hours by 1985). The relationship to industrial growth was underscored in Ceausescu's explanatory speech:

In this context I would like to again emphasize the need for every citizen to realize that the programmes for the additional growth of production and higher living standards are an indivisible whole.⁴⁰

Reinvigoration of ideology was sought in the introduction of industrial organization schema which were to institute "Worker's self-management and self-administration of the economic units, of the working people's sharing in the profits".⁴¹

At the XII Party Congress the Central Committee approved a new "Programme of Raising the Standard of Living for 1980-1985 and Continually Improving the Quality of Life." Earlier promises were carried forward after accomplishments were demonstrated. The report claimed for example that "The present food consumption rate in this country stands at 3,240 calories per capita, Romania holding a top place in the world in this respect." For the 1980's, quality of life would be even better—"the improvement of the population's supply with foodstuffs" was promised and "more fresh vegetables and fruit shall be on sale." (Meat is prudently not mentioned.) The Programme was tied to industrial production priorities, thus representing "a scientifically set consumption." The party's line in the past had, after-all, been proven correct:

The higher rate of the development fund in the last five year plan periods has resulted in a faster growth of the consumption fund and in the improvement of the whole people's welfare.⁴²

Combined with the tempering in growth rates in the 1981-1985 plan, these promises of the Great Society demonstrate Romanian leadership pragmatism.⁴³

IV. CONCLUSION

In our review of Romania's performance in the 1970's, we underscored those modifications of strategy and circumstance which make Romania's foreign economic policy look less deviant and its maverick political-security behavior look less dangerous. In our discussion of Romania's perspectives for the 1980's, we focussed attention on some of the stresses which could make the maintenance of political and economic orthodoxy at home more difficult. This emphasis on modifications and stresses may or may not be an exaggeration. It is certainly a necessary corrective for wholly optimistic assessments of Romanian capabilities. In concluding our analysis of Romanian strategies, however, we want to recall both the achievements and the challenges before raising the final question of how best to evaluate future performance.

⁴⁰ "Report on the Fulfillment . . ." *op. cit.*, p. 9.

⁴¹ "Report of the Central Committee . . ." *op. cit.*, p. 8.

⁴² "Draft Programme of Raising the Standard of Living for 1981-1985 and for Continually Improving the Quality of Life." *Romania Documents-Events*, No. 56, Sept. 22, 1979.

⁴³ The share of the development fund rose with each five year plan from 1956 to reach 34 percent for the late 1970's. It will now be reduced slightly to 33-34 percent. Industrial output, which grew at the annual rate of 10-11 percent in the last plan period will now increase by 8-9 percent.

The achievement of the Romanian party-state in bringing the country out from under a crushing heritage of dependence and underdevelopment is extremely impressive. It has forged an industrial infrastructure and integrated the national economy. "Industry contributes 60 percent to the national income and supplies over 75 percent of the machines and equipment needed by the economy."⁴⁴ It has also improved Romania's role in the international division of labor—chemicals, machinery and the products of light industry now account for over half the total export value.

Today, however, new exigencies and challenges raise new questions about Romania's future development. Some of the exigencies are common to all small, relatively less industrialized economies facing the exhaustion of their labor reserves. Marvin Jackson has provided an excellent review of the "new challenges of 'intensive' growth."⁴⁵ Others are quite specific to the state socialist systems of Eastern Europe—in particular the crisis of ideology which, in a highly centralized system, poses an acute challenge to political leadership.

The erosion of ideology thirty years after "the revolution", and the *fait accompli* of major economic transformations which brought gains in social mobility to many, make it that much more difficult today for East European communist parties to cope with circumstances of slowing growth rates. They must either induce further consumer sacrifices, or if they cannot, find compensations. Other East European countries have experimented with other strategies but Romania's party leadership has chosen to maintain orthodoxy. Mary Ellen Fischer's work ably traces the processes of centralization and personalization of power which has reinforced the leading role of the Romanian party.⁴⁶ Nationalism and demagoguery supplement communist ideology: full reliance is placed on unified central planning. Where inducements fail, the regime does not shrink from use of coercion as the Jiu Valley incident shows.

Whether or not orthodoxy still works in the 1980's, we would propose in closing that evaluation of Romania's success should not be limited to the single criterion of whether the party meets its own planned industrialization goals. This criterion, appropriate perhaps at an earlier stage of development, no longer seems adequate. It is time to reverse J. M. Montias's premise in his classic study of *Economic Development in Communist Romania*:

To argue that individual consumption has failed to keep pace with production or that bathroom plugs are now just as hard to find in retail shops as they were eight years ago is beside the point.⁴⁷

The quality of individual consumption is no longer beside the point. The Romanian party-state must generate a general sense of reward for performance if it is to avoid the alienation that provokes industrial workers to withhold their labour force and architects, mathematicians, biochemists, or electrical engineers to choose the risks of illegal emigration over pursuit of their "successful" careers at home.

⁴⁴ "Report of the Central Committee . . ." *op. cit.*, p. 6.

⁴⁵ Jackson, *op. cit.*

⁴⁶ See in particular "Political Leadership and Personnel Policy in Romania, 1965-1976" in Steven Rosefelde, ed., *World Communism at the Crossroads* (forthcoming) and "Participatory Reforms and Political Development in Romania" pp. 217-237 in Jan Triska and Paul Cocks, eds., *Political Development in Eastern Europe* (New York: Praeger, 1977).

⁴⁷ John Michael Montias, *Economic Development in Communist Romania*, Cambridge, Mass.: MIT Press, 1967, p. vii.

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THE IMPACT OF INTERNATIONAL ECONOMIC DISTURBANCES ON THE SOVIET UNION AND EASTERN EUROPE: A SURVEY

By Egon Neuberger, Richard Portes, and Laura D'Andrea Tyson

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Major international economic disturbances during the first half of the 1970's influenced internal economic conditions and policy tradeoffs in countries throughout the world. The sensitivity of individual countries to these disturbances varied as a consequence of differences in their domestic economic and political situation, their involvement in international commodity and factor markets, and their ability to introduce consistent and effective policy responses. Although the economies of Eastern Europe¹ played only a very small role in the sequence of events leading to the world economic crisis of the 1970's, they could not remain isolated from the worldwide effects of this crisis. This paper attempts to summarize a series of studies analyzing the impact of the crisis on the countries of Eastern Europe, most of them presented in a volume of papers on the transmission of disturbances to Eastern Europe edited by Neuberger and Tyson (1980).²

¹ The term Eastern Europe will be used to denote the following countries: Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, the Soviet Union, and Yugoslavia. The term CMEA will be used to denote the above countries excluding Yugoslavia, while the Six will be used to denote the European members of CMEA excluding the Soviet Union.

² This paper reviews the contributions to the transmission problem presented at the Conference on the Impact of International Economic Disturbances on the Soviet Union and Eastern Europe held at the Kennan Institute for Advanced Russian Studies in Washington, D.C. in September 1978, chaired by Egon Neuberger. These contributions have been published in E. Neuberger and L. Tyson, eds. *The Impact of International Economic Disturbances on the Soviet Union and Eastern Europe: Transmission and Response*, Pergamon Press, 1980—Neuberger and Tyson (1980). In preparing the survey we have utilized three papers: Richard Portes, "Effects of the World Economic Crisis on the East European Economies," *The World Economy*, Vol. 3, No. 1, June 1980—Portes 1980, Egon Neuberger and Laura D'Andrea Tyson, "The Transmission of International Economic Disturbances: An Overview," Chapter 1 of Neuberger and Tyson (1980)—Neuberger and Tyson (1980a), and Richard Portes, "External Disturbances and Adjustment in Eastern Europe," Chapter 2 of Neuberger and Tyson (1980)—Portes (1980a).

Since most of the references in this paper are to contributions in the Neuberger and Tyson (1980) volume, they will be identified simply by the name of the author(s). Only references to papers not included in this volume will be cited by author and year.

Readers interested in a more comprehensive treatment are advised to consult the sources listed in the bibliography. This paper represents a highly abbreviated and incomplete survey of this very broad and complex topic.

In order to study the transmission of recent disturbances to the various countries in a coherent way, it is essential to identify the basic elements of the transmission process. The "transmission and response" framework developed in the paper by Tyson and Kenen provides the analytical framework for the comparative study of transmission to countries with different economic systems and different economic conditions. This framework is utilized to organize our discussion.

We will show that the traditional view that centrally planned economies were relatively isolated from world markets and had economic systems capable of insulating them completely from external shocks is much too simplistic. On the other hand, the alternative extreme view that world market disturbances are the dominant factor shaping recent economic developments in Eastern Europe is just as inadequate an explanation.

The analysis in this paper focuses on the key tradeoffs between external and internal economic balance and on the interplay between externally generated forces impinging on each country's economy and internal policy decisions and endogenous economic developments in each country. We show that the transmission process is extremely complicated and that neither extreme view provides a satisfactory explanation of East European economic developments in the 1970's.

METHODOLOGY AND THEORETICAL UNDERPINNINGS

The transmission and response approach presents a five-part framework that distinguishes the numerous factors that shape the transmission process as it applies to a given international disturbance and a given national economy. The first part of the framework analyzes the generation process or the sources of the foreign disturbance under study. In the second part, the various channels of impact through which a disturbance influences an individual country are identified. The third part of the framework focuses on the transformation process or the various features of a national economy that determine the manner and extent to which a foreign disturbance changes the price and quantity signals affecting domestic economic decisions. The subject matter of the fourth part of the framework is the propagation process or the ways in which the initial effects of an external disturbance are spread or propagated internally by the endogenous responses of non-government or private economic agents to these changes. Finally, the fifth part of the framework studies policy responses introduced in reaction to the direct domestic effects of an external disturbance and its internal propagation.

The transmission and response framework subsumes the traditional absorption approach usually used to study the macroeconomic interconnections between the foreign sector and the domestic sector in an individual market economy.³ It can easily be demonstrated that such an approach also applies to the economies of Eastern Europe, provided the relevant definitions are appropriately interpreted. According to the absorption model, we can present the links between trade flows and

³ One of the most important general methodological aspects of the studies reviewed in this paper is their explicit emphasis on the macroeconomics of planned economies, a topic that has generally been subordinated to the study of microeconomic issues in planned economies in the past.

internal macroeconomic variables in any economy in terms of the relation between available resources and internal demand (total expenditures or "absorption"). Resources available for domestic use are given by output plus imports less the amount exported; domestic use goes to one of the mutually exclusive and exhaustive categories of private (marketed) consumption, investment in fixed or working assets (whether private or state-owned), and government expenditure on current period objectives (defense, collective consumption, etc.). Thus, according to the absorption approach we have

$$(1) A = Y + M - X$$

$$(2) A = C + I + G \text{ hence}$$

$$(3) Y - A = X - M = B = Y - (C + I + G)$$

where

Y = output

A = domestic utilization (absorption)

X = exports

M = imports

$B = X - M$ = balance of trade

C = investment

G = current government expenditure.

According to these conditions, any excess of output over domestic use is available for net exports, and any excess of domestic use or absorption over production must be supplied by net imports. Ex post, these relationships are accounting identities. Ex ante, when viewed as equilibrium conditions, these relationships reflect a number of possible economic problems. For example, the excess (possibly negative) of desired or planned output over desired or planned domestic use may be greater than what the economy is able to transfer abroad in net exports for several possible reasons.⁴ In this case, although it is true ex post, that $Y - A = X - M$, ex ante we have $(Y - A)^P > X - M$, where P denotes desired values, so there is ex ante excess domestic supply. The normal consequences of this excess supply are an accumulation of undesired inventories and a revision of plans, leading to an adjustment in all variables.

Perhaps less common in market economies but frequent enough in the planned economies of Eastern Europe is the ex ante imbalance $(Y - A)^P < X - M$ or $(A - Y)^P > M - X$. Here, planned domestic use cannot be met by planned output plus net imports, so there is excess demand domestically. It may be impossible to obtain (or finance), desired imports, at least in the short run, or exports may be unsuitable for diversion to domestic use or impossible to withdraw from commitments to trading partners. Again, the identity between $(Y - A)$ and $(X - M)$ will be satisfied ex post, in the planned economy case usually through informal rationing of consumer goods by queues, or through delays in investment projects because machinery is not delivered (we disregard here and above the possibility that domestic price might change). But ex ante plans will not be satisfied and will therefore eventually change.

Whatever may be the ex ante relationship between $(Y - A)^P$ and $B = X - M$, the existence of an ex post $B \neq 0$ requires financing unless

⁴ For example, foreign demand conditions for exportables may not allow exports to be raised sufficiently, or complementarity in production or use between domestic output and imports may be so strong that cutting imports would adversely affect planned output or planned absorption.

and until there is some economic adjustment to eliminate it. For the planned economy, the question of finance arises only on the international side. There is no domestic financial problem (e.g., financing the government deficit) created by an excess of domestic expenditure over output: the banking system creates credit and emits currency in the required amounts. But the planners must provide for the borrowing or lending abroad that corresponds to $B \neq 0$, and insofar as they find this capital flow undesirable or infeasible, they must adjust.

Adjustment will, in general, involve both macro and micro changes. Thus, reducing an excess of absorption over output so as to shift resources into the foreign sector at the aggregate level, requires not only decisions on how to distribute this shift across categories of domestic final use (C, I, G), but also many micro-level decisions on import substitution and the production of exportables. Moreover, there may be conflict between maintaining macrostability and rational, efficient microeconomic responses to external events.

In addition to the transmission and response framework and the more traditional absorption approach outlined here, the papers by Richard Portes and Thomas Wolf in the Neuberger and Tyson volume (1980) provide further theoretical insights into the process by which external economic disturbances are transmitted to the planned economies of Eastern Europe. Portes (1979)⁴⁴ presents a model of a traditional CPE which is "small" in world markets. The model is based, at least in spirit, on the internal economic institutions and practices of the Soviet Union, the prototype centrally planned economy (CPE) in Eastern Europe. His economy has the typical CPE features of a fixed accounting exchange rate, an automatic system of variable taxes and subsidies, and complete state control over foreign trade and capital flows. Similarly, central control over domestic wage and price determination, money supply formation, and the employment of resources eliminates most of the propagation processes working through demand multiplier effects, real balance effects, and price-substitution effects, leaving only the supply multiplier effects that are identified in the Tyson-Kenen paper and modelled formally in the Portes paper.

Portes focuses on the interrelationship between the goals of internal macroeconomic balance and external trade balance in a CPE with the assumed transformation and propagation structures. By developing a complete formal specification of such an economy, he is able to examine this interrelationship in a precise way to draw some important conclusions about the impact of specific types of disturbances in a particular institutional setting. Many of these conclusions find empirical support and justification in the country studies presented in Neuberger and Tyson (1980). For example, his analysis of the trade offs between competing domestic uses of resources and the implications of such trade offs for labor supply incentives appears in somewhat different guise in Zbigniew Fallenbuchl's discussion of the potential economic and political consequences for Poland of a decline in consumption necessitated by a deterioration in the terms of trade and a consequent drop in domestic absorption. Besides providing a complete and consistent theoretical foundation for the findings of many of the empirical

⁴⁴ Portes (1979) represents a revised version of the Portes paper in Neuberger and Tyson (1980).

papers in the volume, Portes' model serves as a point of comparison with wellknown models of policy trade offs in market economies. Thus his work, like the analysis provided in the Tyson-Kenen paper, indicates the manner and extent to which the theoretical concepts of conventional literature on macroeconomics and international trade are relevant to an understanding of the transmission process in planned economies.

Just as Portes' model captures many of the characteristic features of the pure CPE, so Thomas Wolf's model captures many of the characteristic features of the MCPE, a theoretical construct which Wolf himself has developed to reflect the major thrust of economic reforms in the smaller, trade-dependent economies of Eastern Europe. These reforms have significantly altered the operation of the transformation and propagation processes in many planned economies. Therefore, it is not surprising that the assumptions about these processes are noticeably different in the Portes and Wolf papers. In particular, in contrast to Portes' pure CPE model, the transformation and propagation processes of Wolf's MCPE model allow for direct links between world prices and domestic prices for some goods and for decentralized decision-making in trade for certain specified commodities. Like Portes, Wolf is interested in policy choices and responses in the particular institutional setting he defines. His emphasis, however, is not so much on trade offs between internal and external policy goals as on a comparison of the long-run economic costs of employing different economic strategies in pursuit of the same goals. In particular, Wolf attempts to study the economic costs of adjusting the reforms of the MCPE in either a liberalizing or centralizing direction as a policy response to particular types of external shocks. His theoretical analysis is clearly relevant to the policy and reform dilemmas that confronted the Hungarian and Polish economies in the early 1970's and that are discussed empirically in the papers by Alan Brown and Martin Tardos, Fallenbuchl, and Sarah Terry and Andrzej Korbon-ski. In addition, his disaggregated models distinguish between intra-CMEA and East-West trade flows and indicate some of the many ways in which disturbances arising in world markets can affect intra-CMEA trade relations.

In the final paper of the theoretical section of the Neuberger-Tyson volume, Edward Ames presents a fascinating paper analyzing and contrasting the Tyson-Kenen, Portes and Wolf contributions within the framework of counterfactual history.

A COMPARATIVE ANALYSIS OF THE TRANSMISSION PROCESS⁵

A. Channels of Impact

The transmission and response framework identifies several channels of impact through which external economic conditions influence an individual country. The nature and scope of the economic ties be-

⁵ The papers presented in the Neuberger-Tyson volume paid little attention to the first part of the transmission and response framework, the generation process, which focuses on the issue of how international disturbances in the early 1970s were generated. The analysis in all of the papers rested on the reasonable assumption that these international disturbances were caused by external shocks over which the countries of Eastern Europe had little, if any, control.

tween the given country and the rest of the world determine which channels are important in a given set of circumstances. For all of the economies of Eastern Europe in the early 1970's, the dominant channels were commodity market channels and, to a lesser extent, capital market channels. The significance of each of these channels differed from country to country, depending on such factors as the overall openness of the economy to international trade, the geographic and commodity composition of trade, and the country's willingness and/or capacity to borrow funds on external capital markets.

The greater the openness of an economy, the greater is the probable impact on it from any changes in the world economy. The share of CMEA countries in world trade rose from 4½ percent in 1948 (equal, incidentally, to their share in 1938) to 11 percent in 1962, and has since settled at slightly below that level. Neither these shares, nor the share of trade in each country's national income, can be measured with any precision or comparability, since the internal price structures of each CMEA country deviate greatly from each other, from intra-CMEA trade prices, and from Western world market prices.

It is nevertheless clear that, as in other developed countries, the importance of trade for the CMEA countries has risen steadily, with (partial) output elasticities of import volume around 1.75 since the mid-1950's (Portes, Winter and Burkett, 1980). Hence, although it is generally (but not unanimously) thought that their trade participation is somewhat lower than comparable market economies, the difference is not so great in itself as to reduce significantly their sensitivity to shocks transmitted through trade. But a high share of their trade is still concentrated within CMEA (the extreme case is Bulgaria, with an average for total trade turnover of 76 percent with CMEA partners in 1977, while at the other end, the corresponding figure for Romania is 42 percent).

Indirect comparisons based on measures of per capita imports in 1975, and still subject to severe price and exchange rate limitations, suggest that the GDR is the most open and the Soviet Union the least open economy of the East European countries (Fallenbuchl, Neuberger, Tyson, 1977, Table III). However, the evidence presented in Vladimir Tremml's paper indicates that the Soviet Union is fast becoming an increasingly open economy. Indeed, according to Tremml's calculations, Soviet foreign trade turnover reached some 20 percent of national income in the 1970's.

The question of the trade-income ratio in the Soviet Union is one of the most controversial issues considered in Neuberger and Tyson (1980). Tremml's and Steven Rosefielde's papers and Abram Bergson's comments on Tremml's calculations contribute to our understanding of this important and complex issue. Tremml has produced some very important new evidence challenging the conventional wisdom presented in Rosefielde's paper. This is clearly an issue on which considerably more discussion is required before a definitive answer can be provided.

As far as the commodity structure of foreign trade in the smaller countries of Eastern Europe (the Six) is concerned, two general comments can be made. First, given the predominance of raw materials and other productive inputs in total imports, it is reasonable to expect

that the price elasticity of import demand is quite low and the income elasticity of import demand quite high in these economies. Such elasticity characteristics are usually observed in economies whose imports are heavily concentrated in inputs for which there exists no readily accessible domestic substitutes, at least in the short run. Such is the case in most of the economies of the Six, particularly in their import trade with Western markets. Second, on the export side of the ledger, it is fair to say that the difficulties which these economies encountered in their attempts to maintain or expand export trade with Western buyers in the early 1970's were the consequence of many longstanding institutional problems, the upshot of which was the absence of well-established and reliable export markets in Western countries. Thus, when recessionary conditions hit these countries in 1973-74, East European exporters were faced with a sharp and immediate drop in Western demand.

As Colin Lawson and Peter Wiles point out, because of these general characteristics of their commodity trade, the response of the countries of Eastern Europe to Western business cycles is asymmetric. Although they can accommodate to the effects of Western expansions relatively easily, and indeed may derive some benefit from them, in the absence of readily available foreign credit or foreign exchange reserves, Western recessions may require rapid and perhaps costly changes in the foreign trade plan. For example, the OECD has calculated that the *volume* of OECD imports from CMEA fell 10 percent below trend in 1974 and 15 percent below trend in 1975.

Except for Yugoslavia which ran a persistent and significant deficit in its trade account, and Poland which developed such a deficit during the early 1970's, financed by foreign borrowing, most of the other countries had relatively balanced trade at the onset of the world economic disturbance in 1973-74. With balanced trade and no net foreign currency assets or liabilities, a uniform increase in the prices of all traded goods has no effect on a country's balance of payments (if we disregard potential differential price elasticities of demand for a country's exports and imports). In addition, in a CPE, the price equalization system prevents an impact on domestic prices, so there are no real balance effects or changes in relative prices of tradeables and non-tradeables. Insulation is complete.

A more interesting case is that of a deterioration in the terms of trade. As is well known, no country can avoid an income loss in such a case, no matter what its system. Bulgaria, Poland, the USSR, and probably Romania, experienced improvements in their terms of trade with the West from 1972 to 1976, while Hungary, the GDR, Czechoslovakia, and Yugoslavia suffered significant deteriorations. These results mainly reflect the differential weight of raw materials in each country's exports and imports during the primary product price explosion of the early to mid-1970's. Intra-CMEA prices remained essentially unaffected by world price changes from 1971 until the end of 1974, when the Soviet Union insisted on a change in intra-CMEA pricing policies which had prevented it from taking advantage of the improvement in the world terms of trade for net exporters of raw materials.

However, the resulting changes in intra-CMEA prices were still very moderate compared with price changes on the world market. Edward Hewett estimates that, had it forced an immediate and full shift to world market prices, the USSR could have obtained a terms of trade improvement with its CMEA partners of as much as 40 percent by 1976, in comparison with the 14 percent it actually realized (and the USSR's terms of trade in CMEA trade in 1976 were still worse than they had been in 1960). As we will discuss below in the section on policy responses, the USSR further cushioned the intra-CMEA effects of world price changes by allowing its partners to go into deficit.

Capital markets served as another channel through which changing international conditions affected the individual countries of Eastern Europe. Given existing capital market controls, changes in the terms and availability of foreign credit were the major sources of disturbances through this channel. Initially, but to differing degrees, attempts by each of the East European economies to maintain domestic growth and absorption targets in the face of adverse developments in commodity market trade with the West led to a substantial expansion in foreign borrowing (see the discussion below). Apparently, in the short run the availability of foreign credit was not perceived as a binding constraint. Over time, however, individual countries began to encounter credit limitations. For example, foreign credit sources dwindled sharply for Yugoslavia in 1975 and for Poland in 1976-77. In the long run, the small country assumption proved inappropriate for each of the Eastern European economies borrowing on external credit markets. With a lag, perhaps, foreign lenders adjusted interest rates and credit availability on a country by country basis in response to such indicators as a country's outstanding indebtedness and its debt-service ratio.

Among the countries of Eastern Europe, Yugoslavia is the only one for which external labor market conditions were an important channel of impact. One of the characteristic features of CPE's and MCPE's is the prohibition of international labor migration; the official export of workers from such economies for temporary work abroad is limited in magnitude. In Yugoslavia, in contrast, a sizable number of workers emigrated to the West over the 1968-1973 period, and recessionary conditions abroad caused a significant reversal of migration flows and slowdown in the rate of growth of remittances, an important source of convertible foreign exchange for the Yugoslav economy.

B. The Transformation Structure

According to the Tyson-Kenen framework, the four major components of the transformation structure of a given economy are: the exchange rate system; the system of taxes and subsidies linking the foreign and domestic prices of tradeable goods; the foreign-trade decisionmaking structure; and the set of controls on external capital transactions. Each of these components differs among the economies of Eastern Europe. At one end of the spectrum, the Soviet Union has a transformation structure similar to that usually assumed for the classical CPE and modeled in Portes (1979)—a fixed accounting

exchange rate; an automatic system of variable taxes and subsidies divorcing domestic and foreign prices; and complete central control over all foreign trade and foreign capital market decisions.

At the other extreme, Yugoslavia has a transformation structure that is quite like those of developing market economies—a heavily managed flexible exchange rate system; relatively constant taxes, subsidies, and tariffs linking domestic and foreign prices; decentralization of foreign trade decisionmaking within a set of import and foreign exchange controls that are tightened or loosened in response to the balance-of-payments situation; and rather restricted freedom for foreign borrowing decisions, with strict control over foreign lending decisions.

Somewhere in between the two extremes of the Soviet Union and Yugoslavia are Poland and Hungary, which have transformation structures characteristic of Wolf's MCPE, and the other four East European countries which are much closer to the Soviet transformation structure. In the MCPE's, the exchange rate regime and the tax-subsidy scheme together permit foreign price changes to be reflected in domestic price changes in varying degrees for different commodity groups. For some commodities, the insulation of domestic prices from foreign prices is complete; for others, it is only partial. In the MCPE economies, reforms in the decision-making structure have broadened enterprise discretion in foreign trade decisions for some commodities. Others, however, remain under the strict control of the central authorities. Finally, the reforms have done little if anything to reduce the central control over foreign capital market decisions characteristic of the classical CPE.

As the above comparison of different transformation structures suggests, in the classical CPE, the variable tax and subsidy scheme serves as an automatic "insulation layer" between the foreign prices of tradeables and their domestic wholesale prices. In the MCPE's of Hungary and Poland (and, according to some observers such as Trembl, in the Soviet Union as well) this insulation layer has been weakened and reduced in scope, while in the market economy of Yugoslavia it has been nearly eliminated. In its place, the Yugoslav price control system works to facilitate rather than to impede the transmission of foreign price changes to domestic producer (wholesale) prices for some commodities.

C. The Propagation Structure

The transmission and response approach identifies three basic propagation mechanisms through which the domestic effects of a disturbance are spread or propagated through an economy: demand or supply multiplier effects; real balance effects; and price-wage-substitution effects. In the classical CPE depicted in Portes' (1979) model, only supply multipliers are considered to be of potential significance in the propagation process. Demand multipliers are ruled out on the assumption that the planners continuously adjust production and domestic sources of aggregate demand to maintain the full employment of domestic resources. Real balance effects are similarly ruled out on the assumption that changes in foreign reserves have no impact on the domestic money supply. Finally, price-wage-substitution effects are ruled

out because, even if the insulation layer in the transformation structure permitted domestic wholesale prices of tradeables to change in reaction to foreign price developments, two other insulation layers would prevent the propagation of these changes. The first insulates retail prices from possible changes in the wholesale prices of tradeables (by means of price controls buttressed by variable turnover taxes and subsidies), while the second breaks the possible links between changes in retail prices and wages (by means of central control over wage levels).

As the studies by Rosefelde and Trembl indicate, the propagation process in the contemporary Soviet economy may differ in some respects from that assumed for the classical CPE. For example, Trembl argues that changes in foreign trade ruble earnings affect both the credit base of the state bank and the domestic budgetary situation. Consequently, Trembl's description implies that real balance effects operating through changes in household and enterprise expenditures in response to changes in credit availability cannot be ruled out completely as a potential propagation mechanism; their significance can only be evaluated through future research. Rosefelde's model of enterprise microplanning in the Soviet system suggests that discretionary behavior by both enterprises and households in response to changing policy-generated domestic economic conditions can propagate the domestic effects of an international disturbance.

Households can vary their labor supply decisions and the volume and composition of their expenditures, while enterprises can vary their input and output decisions within the relatively wide limits imposed by the existing plan and in accordance with the incentives of the existing bonus structure. Within the transmission and response framework, these varieties of discretionary household and enterprise behavior can be classified as supply multiplier effects, real balance effects, substitution effects or some combination of the three. Rosefelde rules out an important role for demand multiplier effects, arguing in a manner reflective of the existing literature that the Soviet authorities maintain control over aggregate demand and domestic resource utilization despite variations in international trade flows. He also argues that supply multiplier effects can be ruled out for most practical purposes.

Finally, both the Rosefelde and Trembl studies are consistent with the view that existing price and wage control systems can serve to insulate the Soviet economy from the propagation of domestic price and wage changes in the wake of an external disturbance. As Trembl demonstrates, however, the Soviet authorities sometimes allow or engineer such changes as part of their policy response to changing international conditions. Thus, although in the short run before policy makers have a chance to react to changing world price relations, the mechanistic and automatic insulation layers between wholesale prices, retail prices and wages seem to apply in the Soviet Union and other CPE's, in the longer run, domestic prices may be adjusted in conformance with world prices as part of an active policy response.

In Yugoslavia, demand multiplier effects, real balance effects, and price-wage-substitution effects all play some role in the propagation process, as Tyson and Neuberger (1979) indicate. As suggested above, changes in world market prices pass through the transformation struc-

ture relatively unimpeded in Yugoslavia, and these first-round price effects lead to further domestic price effects through commodity arbitrage and cost-markup channels, except where prohibited by selective price controls. Although there are no enforceable administrative wage controls, social compacts are a mechanism used to moderate wage increases that may be encouraged by increases in the cost of living. The evidence suggests, however, that such compacts were not very successful during the period under consideration.

In their propagation mechanisms, as in most other respects, the Six lie between the two extremes of the Soviet Union and Yugoslavia, although in this particular area they are considerably closer to the Soviet Union. In these countries, as in the Soviet Union, demand multipliers are assumed to be relatively unimportant since the planners, perhaps with some difficulty, as Fallenbuchl argues, attempt to maintain domestic aggregate demand and the full employment of domestic resources. Similarly, in these countries, real balance effects are relatively unimportant to the extent that the potential impact of changes in foreign reserves on the domestic money supply is automatically "sterilized" by the monetary system (Wolf, 1980). The sterilization issue is a rather complex one since changes in foreign exchange reserves might be permitted to affect the money supply, although there is no direct mechanism that does this automatically. To some extent, there might be transmission via the bonus system, and even though authorities try to tax away windfall profits, they are not always fully successful. On balance, we would judge that real balance effects, though perhaps not completely absent, are not very significant.

As far as potential price-wage-substitution links are concerned, the institutional setup of the MCPE allows a partial transmission of world price changes through domestic wholesale prices to retail prices. Under such circumstances, there is the very real danger that a foreign inflationary disturbance will set off a price-wage spiral of the type traditionally associated with market economies. In Poland and Hungary, the authorities rely mainly on wage controls to stop the development of such a spiral, but the evidence in the Brown-Tardos and Fallenbuchl papers suggests that this strategy has not been completely successful. On balance, the Hungarian and Polish experience in recent years indicates that the kinds of dysfunctional price-wage spirals incited by external shocks in market economies are coming to exist in very limited but nonetheless perceptible form in the MCPE's.

POLICY RESPONSES

In analyzing the transmission of disturbances to the Soviet Union and Eastern Europe, a key issue is the nature of the adjustment of these economies to external shocks.⁶ We must recognize both the similarities with and differences from developed market economies (DME's) of the socialist planned economies of Eastern Europe, as well as the differences among the latter. The classification between traditional CPE's and MCPE's is helpful here, but the systemic differences should not obscure other economic characteristics such as size, extent

⁶ For a more detailed analysis of the various contributions in Neuberger and Tyson (1980) in terms of the absorption-adjustment framework, see Portes (1980a).

of raw material base, and overall openness. Nor should we ignore the fact that all the conventional national income identities must apply to CPE's and well as DME's, and so do some of the familiar macro-economic functional relationships, though sometimes in unfamiliar ways. Therefore, adjustment problems revolve around many of the same questions as they do in the West. On the other hand, even the MCPE's have inconvertible currencies, no domestic capital markets, complete control over international capital flows, and a much higher priority for full employment and growth objectives than do the DME's.

Thus, we would expect to find both similarities and differences in the ways in which these economies respond to and adjust to external disturbances.

Policy Responses in Individual Countries

Policy responses can be usefully categorized into several general strategies. First of all, as Wolf suggests, the authorities can adopt a wait-and-see strategy, relying on the existing insulation layers and automatic policy responses embedded in the transformation and propagation structures. For example, a traditional CPE may rely on an automatic price equalization scheme to insulate the domestic prices of tradeable goods from the effects of foreign price changes, while an MCPE may rely on automatic rules of bonus, price and wage formation to determine the domestic price consequences of such changes. In terms of the transmission and response framework, a wait-and-see strategy implies the absence of any explicit policy response. Although such a strategy is usually the one most preferred by policy-makers, the magnitude of economic disturbances and their potential domestic effects made such a strategy an impossible luxury in recent years, except in the short run. It is interesting to note that this conclusion applies to most market economies as well.

Active policy responses can be divided into two distinct varieties: policy actions taken within a given economic system and policy actions that alter existing institutions or features of that system. Although it is difficult to draw this distinction in practice, a useful way of thinking about it is to consider the economic system as a set of equations and to regard systemic reform as a change in the number of equations, the functional form of such equations, or the variables included in a given equation. In contrast, policy actions within a given system are analogous to changes in the parameter values of the included variables.

In order to identify systemic changes introduced in response to the effects of an international disturbance, it is necessary to begin with a clear view of the systemic features of the economy in question. The economic system of the Soviet Union conforms in broad outline to the traditional CPE, characterized by comprehensive planning of resource use, administrative allocation of key factors of production and goods, and comprehensive price control. The Rosefield and Trembl papers are basically consistent with this interpretation and with the conclusion that systemic reform and adjustment were not policy responses of the Soviet leadership in the wake of recent international events. Hungary and, to a lesser degree, Poland conform to the economic system of the

MCPE, seeking cautious partial integration of the domestic economy into the world economy and accepting the desirability of and need for some adjustments in the former in keeping with changes in the latter. In both countries, some recentralization of decision-making power was a systemic adjustment introduced in response to the domestic effects of external disturbances, but in neither case was there a complete reversal of the decentralizing reforms characteristic of the MCPE. Indeed, in the case of Hungary, it seems fair to say that the basic features of the New Economic Mechanism in operation at the time of the disturbances remained intact; and most recently (beginning 1980), the Hungarian authorities have sought to decentralize further along the lines of the development originally intended in the reform project of 1968.

Yugoslavia conforms to what Morris Bornstein has named the Socialist Regulated Market Economy with Labor-Managed Enterprises (SRME-LME). In an economy of this variety, labor-managed firms decide on their participation in foreign trade in response to changes in relative prices, and in line with their objective functions, and the government regulates the economy in aggregate and indirect ways through monetary and fiscal instruments and adjustments of the exchange rate. Tyson and Neuberger (1979) suggest that explicit adjustments in the economic system, as thus defined, were not introduced as policy responses to cope with the domestic effects of the external shocks. On the other hand, it is worthwhile to note that the authorities did enlarge the scope and enhance the effectiveness of some existing direct controls, particularly price controls, that are at odds with the basic characteristics of the decentralized market system.

Bulgaria, Czechoslovakia, the GDR, and Romania, which were not explicitly analyzed in Neuberger and Tyson (1980), generally correspond fairly closely to the CPE model. We shall not deal with policy responses by these countries in any detail, but it is fair to say that none of them changed their economic systems to any significant extent in response to external disturbances.

Systemic change is generally a relatively drastic reaction to external shocks; a more normal reaction is to change various macroeconomic or trade policies. There is no way to insulate completely against terms of trade changes or against shifts in non-horizontal demand and supply curves facing the country, or even against uniform foreign price level changes, if the country's trade is not initially balanced. What a centrally planned economy can do, however, is to control fairly consciously *how* a disturbance is transformed, *how* it is propagated within the system. In particular, the planners can regulate its *distributional effects*. If the planners are sensible, they can thereby avoid some of the dysfunctional endogenous mechanisms that are triggered in market economies by external shocks.

The planners, just as government authorities in DME's, must deal with both internal balance between aggregate demand and aggregate supply, and external balance, i.e., the balance of payments. In terms of the absorption approach discussed earlier, they must deal with both the gap between output and absorption $Y-A$ and its external manifestation $B=X-M$. As in market economies, so in planned economies, adjustment of imbalance will require some combination of policies affecting both gaps, and indeed any single policy will

typically affect both. In market economies, however, policies are usually directed towards domestic and foreign *demand* and their components. Thus we have "expenditure-reducing" and "expenditure-switching" policies for cutting balance of trade deficits, although we know that a measure which reduces A and thus directly reduces expenditures on imports and exportables, will also start a process which somewhat reduces Y (supply), as well; and a policy-switching expenditure from foreign toward domestically produced goods will normally induce some increase in domestic output, and consequently in A .

In CPE's and MCPE's, the planners are more capable of acting directly on the *supply* sides of both gaps (Y and X), and the system is better able to contain the indirect (and often undesired) effects of any policy. On the other hand, CPE planners are unable to use one of the key policy instruments available in market economies—changes in the exchange rate. They can, of course, take some related policy measures, such as lowering their export supply prices in foreign currency, or raising the domestic prices of consumer goods imports; but these do not have the "automatic," across-the-board character of currency devaluation.

On the other hand, the planners need not be as concerned with some of the key financial feedback mechanisms characteristic of macro-economic relationships in market economies. There are no domestic markets for government securities, nor any private debt or equity instruments. Hence the planners need not be concerned with domestic interest rates (except as incentives for household savings) or the effects of government financial policy on domestic investment or international capital flows. Changes in wages and other costs do not affect prices, at least in the short and medium term. Conversely, changes in prices have no direct effect on factor incomes, hence none on demand. Moreover, changes in the demand for goods need not affect their supply and therefore do not affect the demand for labor. Under these conditions, neither external nor internal shocks are likely to start a "wage-price spiral." Thus, the CPE is insulated from external shocks to some extent. But the planners' economic power carries a corresponding responsibility. It is much harder for central planners than for governments in Western developed market economies to use external events as justification for unpopular domestic policies, or to shift blame onto impersonal market forces which it would be neither feasible nor wise to oppose. Their burden is not only their control over the economy, but also their claim to protect it from the maladies of the capitalist market economies and the international capitalist economic system.

One general policy response of the Six to the external disturbances was an attempt to prevent a slowdown in the growth rate of overall domestic absorption as long as possible. In each case, however, the impact of these disturbances, combined with domestic factors, finally forced the policymakers to accept lower growth rates, at least temporarily. Both Hungary and Poland maintained their average growth rates until 1976 when they dropped sharply. The decline continued into 1977 in Poland but was reversed in Hungary. Over the longer run, the lower growth rates projected in the 1976–1980 plans suggest some scaling down of macro expectations in light of more realistic assess-

ments of available options, influenced, in part, by changed international conditions. In Yugoslavia, there was a delayed but sharp decline in the growth rate in 1975–1976 in response to balance-of-payments pressures, but then the growth rate increased in 1977, after an unanticipated current account surplus in 1976. Yugoslavia also projected a slower growth rate for its 1976–1980 plan primarily as a consequence of perceived external constraints.

In evaluating and interpreting different policy strategies and responses, it is essential to recognize that policymakers function within the institutional and historical constraints of a given country. These constraints limit the ability of decisionmakers to frame and implement consistent and coherent policy programs in relatively short periods of time. For example, in Poland, the institutional rigidities of the price control and planning processes made it difficult for the planners to adjust domestic prices quickly in response to foreign price developments. Given these rigidities, Polish policymakers decided to postpone major price increases to the beginning of the 1977–1980 plan period. In retrospect, of course, this policy decision appears unwise, since the concentration of large price increases at a single point in time incited another bout of the kind of worker protest that is beginning to become a tradition in Polish political life.

Another example of how institutional constraints shape policy responses is provided in the description of Hungarian price policy by Brown and Tardos. According to their argument, the continued functioning of the New Economic Mechanism required that the majority of Hungarian enterprises earn a positive profit, since both bonuses and wage funds were administratively linked to measures of enterprise profitability. This profitability requirement was, in their words, a piece of “excess baggage” which the policymakers were forced to carry as they struggled to adjust domestic prices in response to changing relative prices on world markets. The Tyson-Neuberger discussion of monetary institutions and their implications for the sterilization of foreign reserve flows in Yugoslavia provides yet another example of how policy responses were restricted by institutional constraints.

On the other hand, Yugoslav policymakers were probably aided in their efforts by their previous experience with aggregate and selective tools to cope with changing trade offs between internal and external balance. Aleksander Bajt points out that Yugoslav policy actions in response to the 1974–1975 external crisis were largely endogenous in the sense that changes in certain indicators of imbalance quickly and predictably triggered certain specific policy responses that had been employed in the past. In contrast, neither the Hungarians nor the Poles were practiced in the use of stabilization or balance-of-payments policies. Their lack of experience, a legacy of past policy-making tradition in more traditional CPE structures, constrained their ability to frame effective responses in their reformed economic systems.

The implicit or explicit ranking of basic policy objectives was another constraint limiting policy responses in each economy.⁷ For ex-

⁷ Witold Trzeciakowski proposed the following ranking in order of importance of the factors behind the current Polish difficulties: the simultaneous huge increases in investment and consumption; the ineffectiveness of wage policy in providing incentives to productivity; the recession and associated protectionism in the west (fall in foreign demand); and western inflation.

ample, in Hungary and Poland the necessity of maintaining the full employment of domestic resources, at least superficially, ruled out certain anti-inflationary policies from the beginning. Similarly, distributional considerations eliminated certain policy options. In Hungary, Poland, and Yugoslavia, all of which suffered real economic losses as a consequence of world developments, economic policies were shaped, at least in part, by the authorities' desire to distribute the burden of these losses in accordance with accepted standards of equity.

In Eastern Europe, as elsewhere, the ability of political leaders to introduce effective policy responses depended on the prevailing political situation. For example, just as recent bitter conflict over the formation of a social compact in the United Kingdom made an effective incomes policy difficult to achieve, so in Poland the historical legacy of worker protests imposed severe limits on the government's ability to increase prices and control wages. Unlike the Polish government, the Hungarian regime spared no effort to prepare the public for impending price increases. Undeniably, as suggested by Terry and Korbon-ski, the legitimacy of the political leadership and the contemporary political climate were important factors in the success or failure of policy responses in different countries.

Common to the experience of all CMEA countries is the unimportance of rises in the world price *level* for the overall domestic price level. Even in Hungary, little open inflation has been imported. There and even more so in Poland, consumer price increases have reflected the need to limit real consumption and excess demand while money wage growth continues. The money wage increases have partly been intended for incentives, to widen differentials, and to relieve social tensions, but they have also gone beyond the planners' intentions.

Throughout CMEA, recent large price increases for certain specific commodities, well-publicised in the West and often interpreted as evidence of the inability of central planning and CMEA to protect the Eastern countries from world inflation, are the consequence of quite different factors. They are basically responses to *relative* price distortions made increasingly absurd and untenable by both external and internal pressures. The increases of prices for gasoline, fuels and energy are overdue and perhaps still inadequate. In general, the objective of price adjustments has been to cut some specific imports or release supplies of certain goods for export, as well as to reduce some subsidies whose income distributional justification has become weaker as overall real incomes have risen. Yet, despite domestic price increases for certain important commodities, available evidence suggests that even Hungary, the most flexible of the MCPE's, has not been completely successful at adjusting the domestic relative price structure in accordance with changing world price relationships.

As far as policy responses affecting foreign economic relations are concerned, several types of policy measures were adopted by each country in Eastern Europe, including those aimed at reducing the degree of openness of the economy or modifying the geographic and/or commodity structure of trade. As far as participation in commodity markets is concerned, the evidence suggests that there was some decrease in the rate of growth of imports, and hence in the aggregate income elasticity of demand for imports in Hungary and Poland. At

least in the Polish case, however, it is possible that this decrease was the consequence of the import-substitution strategy introduced before the 1973-1974 disturbances. In neither Hungary nor Poland did the absolute level of imports (measured in either nominal or real terms) decline as it did in Yugoslavia in 1975 in response to the imposition of stricter import and foreign exchange controls.

As shown by Brown-Tardos and Fallenbuchl, Hungary and Poland were unable to reorient their export and import trade to CMEA countries in response to changing conditions on Western markets. In Poland, the share of CMEA countries in total exports dropped slightly between 1972 and 1976, while the share of CMEA countries in total imports dropped noticeably. In Hungary, the share of CMEA countries in both exports and imports apparently did not decline between 1972 and 1976. Unfortunately, however, because intra-CMEA trade prices rose more slowly than world market prices during the period under consideration, it is difficult to draw any definite conclusions about actual changes in the geographic orientation of trade flows from data on nominal export and import shares.

Overall, the evidence presented in the country studies and in the contribution by Edward Hewett, suggests that a major reorientation of imports from the more expensive non-CMEA sources to the relatively cheaper CMEA sources was not a feasible policy option for any of the smaller economies of Eastern Europe. This does not deny, however, that CMEA trade exerted a stabilizing influence at least as regards changes in the terms of trade and in the overall inflation of the prices of tradeable goods. In summary, the evidence indicates that although the Soviet Union was prepared to accept a delayed and partial adjustment of intra-CMEA prices to world levels, it was not prepared to increase its exports to CMEA countries to the extent necessary to substitute for more expensive Western sources of the same commodities.

In addition to the moderating impact of the slower growing prices of raw materials in intra-CMEA trade, and Soviet credits, the availability of Western credits during this period played a major role in permitting the Six to moderate the immediate impact of world disturbances on their economies. The highly competitive Western effort to find markets for capital goods, spurred by the Western recession, caused both the availability and terms of credits to be favorable to CMEA countries. OECD data indicate that from 1973 onwards, officially supported export credits to CMEA have accounted for about 20 percent of total OECD export credits to all countries (although CMEA takes only 4 percent of total OECD exports), and about 75 percent capital goods exports to CMEA in 1973-1977 were financed by official export credits with a term longer than a year. Total new officially supported export credit commitments by OECD exporters on signed contracts with CMEA rose from \$4.0 billion in 1973 to \$6.6 billion in 1974, \$5.7 billion in 1975, \$7.2 billion in 1976, and about the same in 1977. None of these data include the very substantial amount of Western bank lending without official support or guarantees which has accompanied export contracts won by the banks' domestic customers.

The gross hard currency debt of the seven CMEA countries rose to close to \$70 billion by the end of 1978. This large debt means that

debt servicing is a major problem for some of the countries. Hungary and Poland, for example, must have had to use 30–35 percent of their earnings from exports to the West in 1978 simply to pay the interest on their debts. The relatively short-dated maturity structure of the debt also presents short-run liquidity problems. Moreover, none of the debt is risk capital, and much of it carries variable interest rates. This is indeed another channel of transmission of Western economic conditions. The six-month Eurodollar rate (LIBOR) rose from 5.4 percent at end-December 1976 to 12.3 percent at end-December 1978; add an average spread of around 1 percent, say, and one finds that the interest burden on outstanding Eurodollar loans more than doubled in that period. Although the corresponding Western inflation reduces the longer-run real burden of repayments of principal, the size of debt relative to GNP is now considerable in some countries. Overall, Poland's debt problem is most serious, while Bulgaria, Hungary, and the GDR all are also in difficulty.

The availability of Western credits and the willingness of the Soviet Union to allow its CMEA partners to run a deficit in their trade account (the aggregate trade deficit of the Six with the Soviet Union rose to \$2 billion by 1977) permitted the planners in the Six to adopt a wait-and-see policy temporarily. Thus, they were not forced to adopt extreme systemic or other policy measures to cope with the external disturbances. The Eastern countries have for the most part chosen *financing rather than adjustment*. Adjustment is *painful*: for four of the CMEA countries, just to eliminate their trade deficits with the West would require shifting 2–3 percent of GNP into net exports, and to this must be added the interest burden of accumulated debt. And with no unutilized resources (ignoring what might be released by improving efficiency), output growth cannot be accelerated, so adjustment requires reducing the growth of absorption (and consequently that of output, to some extent).

Adjustment is *difficult*: it is difficult to convince politicians or consumers to lower their aspirations and expectations. Even in a centralized economy, it is hard to control lower-level pressures for more investment, more wage funds, more imported materials and equipment. It is hard to sell more in the West, especially in a generalized crisis, when you have a bad image (partly justified) for quality and after-sales service, and when your attempts to compensate by cutting prices provoke charges of dumping (and you cannot achieve the same result by a competitive exchange rate devaluation). And finally, adjustment is, of course, *not necessary* if finance is freely available at reasonable terms.

Obviously, hard currency financing is only a temporary expedient and cannot postpone adjustment permanently. While external financing is available, the country can continue to avoid difficult policy choices, and in many cases this has meant a continuation of policies which give little promise of long-run success.

Yugoslavia, on the other hand, had already accumulated a large hard currency debt before 1974. Thus, although the authorities initially sought to maintain the fast pace of output growth, while letting domestic relative prices adjust to world price changes, they found that Western lenders were unwilling to finance the resulting trade deficits (with the prospect of more rapid domestic inflation and exchange rate

depreciation). Thus unlike the CMEA countries, Yugoslavia was forced to move earlier (in 1975) to deflationary macroeconomic policies, while broadening the scope of price controls.

Intercountry Policy Responses

Allen Lenz and others have raised the critical issue of the impact of external disturbances on political and economic relations within the CMEA bloc. Were they predominantly centrifugal or centripetal? This is the central theme of William Zimmerman's and Edward Hewett's contributions. A main point of these studies is that intra-CMEA economic ties acted to mute the impact of worsening world market conditions on the smaller members of the bloc and reinforced centripetal forces within the bloc. In this sense, the Soviet Union's willingness to accept only a partial and lagged increase in raw material prices within CMEA and to extend additional credits certainly exercised a stabilizing influence in Poland, Hungary and the other members of the Six. Apparently, political considerations and goals motivated the Soviet Union to give up some of the potential gains it could have derived as a net exporter of raw materials. As Zimmerman indicates, Soviet concern about the possible political ramifications of economic weakness in the smaller countries of Eastern Europe actually gave the latter some bargaining power. On a more general level, the importance of political motives in the international economic relations of the Soviet bloc is stressed in the paper by Colin Lawson and Peter Wiles. They argue that such motives play a significant role not only in intra-CMEA relations but also in the relations of the bloc with other countries. Moreover, their evidence suggests that the politically motivated economic decisions of the bloc sometimes produce destabilizing effects in other countries.

The overwhelming consensus of the viewpoints expressed in contributions to Neuberger and Tyson (1980) is that despite the undiminished importance of East-West economic relations, recent world market disturbances tended to solidify intra-CMEA economic and political ties. The Soviets have used their enhanced economic bargaining power within the bloc to maintain the economic dependence of the smaller countries and to encourage greater intra-bloc interdependence. They have attempted to accomplish these objectives not so much by shaping the terms and quantities of intra-CMEA trade flows as by tying continued supplies of raw materials to East European participation in coordinated investment and production projects in the Soviet Union.

CONCLUSIONS

Some of the major conclusions of the various studies of the transmission of external disturbances to the Soviet Union and Eastern Europe covered in this survey are:

1. Central planning with its insulation layers has, to a considerable extent, insulated most of the CMEA economies from world market disturbances. This was particularly true of insulation from open increases in prices and wages, although this success was bought at some cost in terms of foregone microeconomic efficiency.

2. The stagflation in the West increased the difficulties facing CMEA countries in their hard currency exports but, at the same time, provided them with an unprecedented availability of hard currency loans. The latter gave the planners breathing room and permitted them to pursue a wait-and-see policy for a while, thereby delaying difficult adjustment policies.

3. The terms of trade shifts in the 1970's had very different impacts on the various countries in Eastern Europe. The Soviet Union and Poland clearly benefited, while Hungary, East Germany, Czechoslovakia, Yugoslavia and some other countries suffered serious losses.

4. Although there was no shift in trade away from the West and toward intra-CMEA trade, it is clear that centripetal forces within CMEA gained strength as a result of the world market disturbances.

5. In general, the economic difficulties facing the Soviet Union and Eastern Europe are more the consequences of internal pressures and past policy choices than the consequence of the impact of world market disturbances.

6. Finally, reviewing the evidence presented in the various studies we have discussed in this paper, it is clear that recent world market disturbances have had many and varied effects on both individual countries in Eastern Europe and on their external economic and political relationships. When all is said and done, however, the surprising conclusion is not how much has happened but how little of a fundamental nature has really occurred.

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CMEA INTEGRATION: THEORY AND PRACTICE

By Paul Marer and John Michael Montias*

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INTRODUCTION

This contribution is intended to be useful to three audiences: (1) readers who are not experts on the economic system of the East European countries or on the Council for Mutual Economic Assistance (CMEA) and would like to obtain an overview of CMEA's institutions, practices, and current policies (parts I and II); (2) specialists familiar with the East European economies and integration who would like to explore in greater detail certain aspects (who may turn to the annotated guide to the English-language literature on CMEA integration, in the appendix); and (3) economists, economic geographers, political scientists, and others interested in the definition, conceptualization, and attempted measurement of economic integration among planned economies and in the relevance of West European integration concepts to Eastern Europe (part III). Although the materials in the sections complement each other, each part is self-contained and may thus be read independently of the other parts.

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This contribution is based on the authors' essay in *East European Integration and East-West Trade* (Marer and Montias), published earlier this year and often follows its wording closely. The main differences between the two contributions are:

Sequence of presentation: Parts I, II, and III in this study correspond roughly to the earlier study's appendix, part III, and parts I and II, respectively.

This study's appendix, "Survey of the English-Language Literature on CMEA Integration and Related Topics," is a new contribution.

The present study includes: several topics not included in the earlier contribution, some revisions, recent developments, and references to publications not available for the previous study.

Most of the large number of (often lengthy) footnotes in the earlier study have been replaced here with a simple reference system incorporated in the text, which shows only the author's name and date of publication if more than one work is cited by the same author. Page citations are given only for direct quotes. The reference citations are to a comprehensive bibliography which has been newly added.

I. INSTITUTIONAL ARRANGEMENTS IN THE CMEA

A. Membership and Affiliation

Four types of affiliation with the CMEA are possible: full membership, associate membership, non-socialist "cooperant" status, and "observer country" status. In addition, several countries have been identified as "interested" in some form of affiliation.

Ten countries had *full membership* at the end of 1979. Six nations which formed the CMEA in January 1949: the USSR, Bulgaria, Czechoslovakia, Hungary, Poland, and Romania (Albania had joined about a month later but has taken no part in CMEA's activities since 1961); the GDR (1950), Mongolia (1962), Cuba (1972), and Vietnam (1978). Members can decide whether to participate or not in CMEA programs according to the "interested party" provision of the CMEA charter.

Associate membership status governs the affiliation of Yugoslavia since 1964, participating in 21 of 32 key CMEA institutions as if it were a full member.

Non-socialist cooperant status has been granted to three countries: Finland in 1973 and Iraq and Mexico in 1976. Since these countries have no foreign trade plans and their governments cannot conclude agreements on behalf of firms, cooperant countries do not participate in the work of CMEA organizations. Each country has mixed commissions, composed of government and business representatives, which sign various kinds of "framework" agreements with CMEA's Joint Commission on Cooperation, especially established for this purpose. The agreements are subsequently "accepted" by the relevant permanent commission of the CMEA but the implementation is up to the interested CMEA country (ies) and cooperant country firms.

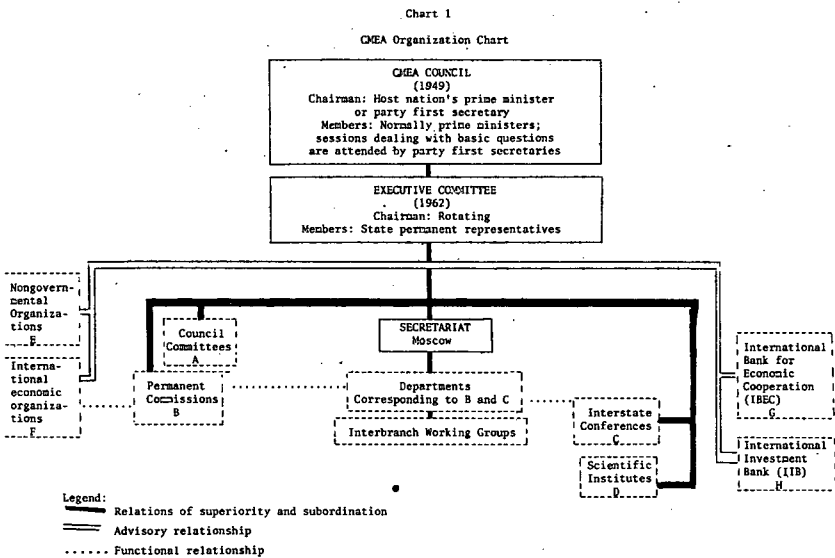
Observer status appears to be a designation applied to a mixed group of Communist or Communist-leaning governments. The group's

composition changes from time to time, depending mainly on political developments. At one time, for example, the People's Republic of China and North Korea were "observers." At the end of 1978, Afghanistan, Angola, Cambodia, Ethiopia, Mozambique, and South Yemen had negotiations under way with the CMEA to explore the possibility of a Yugoslav-type associate membership. Occasionally, some countries in this group are invited to attend CMEA Council sessions as observers.

Interested country appears to be a designation for a group of less developed countries whose composition has also changed over time. For example, Egypt, Chile under Allende, and Bangladesh were interested countries at an earlier period. At the end of 1978, seven less developed countries reportedly had an interest in the possibility of a Finland-type cooperant status: Guyana and Jamaica, with which official talks were said to have been under way, and Angola, Colombia, Costa Rica, India, and Venezuela, which were said to have been considering the matter.

B. Main Organizations

CMEA's main policy and administrative organizations and the linkages among them are shown in chart 1.



The CMEA Council is the organization's supreme policymaking body; each full member has one vote. The Council is convened about once a year; sessions deciding important matters are usually attended by the party first secretaries. The Council's recommendations must be approved by each country, after which bilateral or multilateral agreements or treaties must be signed as a basis for implementation.

The Executive Committee is the executive body of the Council. It

proposes statements and recommendations to be considered by the Council, supervises the work of all other CMEA bodies, and monitors the implementation of CMEA agreements and treaties. It meets at least once every two months.

The *Secretariat*, located in Moscow, carries out the day-to-day operations of the CMEA. It has a large, multinational staff headed by a citizen of the USSR. Many of its departments correspond in name and function to those of the various special-purpose Council committees and permanent commissions (see below); other departments are responsible for interbranch coordination, arranging interstate conferences, and other functions.

The key line functions of the CMEA are performed by three *Council* committees, set up in 1971, and a large number of *permanent commissions*, most of them established during the 1950's and 1960's. The *Committee on Cooperation in Planning*, comprised of the chairmen of the central planning bodies of the member countries, comes close to being a supranational planning agency for dealing with specific economic problems. This committee is the main CMEA body responsible for the coordination of the five-year and long-term plans of the member countries. It has a special permanent working group on energy. The other two *Council* committees are the *Committee on Scientific Technological Cooperation* and the *Committee on Cooperation in Material and Technical Supply*, each dealing with problems suggested by its name.

The *permanent commissions* are generally organized along branch lines, but some are responsible for functional areas, such as health, statistics, currency, standardization, and so on.

In addition to these organizations, the CMEA also has two regional banks (see below); a large number of scientific institutes; interstate conferences on *ad hoc* problems; intergovernmental commissions dealing with specific issues; and many conferences of non-governmental organizations which maintain loose ties to CMEA organs. It has been estimated that more than 100,000 persons are involved directly in carrying out various CMEA functions and sponsored activities.

Of special interest in connection with CMEA integration are the few production enterprises jointly owned by firms in member countries. We were able to identify from CMEA sources nine such enterprises:

1. *Haldex* (1959; Katowice, Poland) between Hungary and Poland: extraction and processing of coal waste products.

2. *Agromash* (1965; —) between Hungary and Bulgaria: producing machinery for vegetable and fruit harvesting and processing.

3. *Intromash* (1965; —) between Hungary and Bulgaria: producing specialty equipment for transport machinery and equipment used in factories.

4. *Druzhiba* (1972; Zawiercie, Poland) between the GDR and Poland: production of cotton yarns.

5. *Erdenet* (1973; Erdenet, Mongolia) between the USSR and Mongolia: mining and processing of copper and molybdenum ores.

6. *Service* (1976; Zielona Gora, Poland), a subsidiary of *Interatominstrument* (see below): maintenance of nuclear-technical equipment imported by Poland.

The fact that only a few, relatively small-scale, jointly owned enterprises had been established during the past two decades reflects the financial and other institutional obstacles that hamper cost-accounting and profit-sharing. Many of the existing arrangements are little more than repayment in kind for the other side's deliveries of capital assets (usually on credit) and current inputs. These joint enterprises may thus be regarded as domestic enterprises of the country in which they are located, with several special provisions regarding credit obligations and direct foreign trade rights [Brus, p. 168].

After the adoption of the *Comprehensive Program* in 1971 (see below), and in accordance with the trend toward enhancing the role of large industrial units (associations) in individual countries, a new type of organization was created, the so-called International Economic Association (IEA). Their purpose was the concrete coordination of joint economic activities in research and development, production, service, and foreign trade. IEA's have a looser organizational structure than the joint enterprises: They,

... retain their domestic status as enterprises (or associations) and they settle with their foreign and domestic partners in accordance with general rules, earmarking some funds for meeting the cost of the headquarter's [operations]. The main novelty of this form is apparently the delegation to [them] of the authority to negotiate specialization agreements and to conclude contracts instead of [arranging these] at governmental level [Brus, p. 169].

We were able to identify from various CMEA sources nine IEA's:

1. *Interatominstrument* (1972; Warsaw) by the six European members of CMEA except Romania; cooperation in research, production and sales of nuclear-technical equipment, with authorization to trade with third countries.
2. *Interatomenergo* (1973; Moscow) by the seven European members plus Yugoslavia: cooperation in research, planning, construction and supply of nuclear power plants.
3. *Assofoto* (1973; Moscow) between the USSR and the GDR: joint planning in the photo-chemical industry.
4. *Intertextilmash* (1973; Moscow) by the seven European members plus Yugoslavia: cooperation in research, production and sales of textile machinery, with trade with third countries to be authorized "in the future."
5. *Mongolsovtsvetmet* (1973; Ulan Bator) between the USSR and Mongolia: coordination of prospecting, mining and processing of nonferrous metal ores.
6. *Interkhimvolokno* (1974; Bucharest) by the seven European members plus Yugoslavia: cooperation in research, production and sales of chemical fibers.
7. *Domokhim* (1974; Moscow) between the USSR and the GDR: joint planning in domestic (household?) chemical products, with company sales outlets in the founding countries.
8. *Intertalonpribor* (1974; ———) by the seven European members of CMEA; cooperation in measuring instruments.

9. *Interport* (1974; —) between Poland and the GDR: apparently cooperation involving port facilities in the two countries.

The IEAs are legal entities of the country in which their headquarters is located; they are thus not organs of the CMEA, although they do have a close working relationship with CMEA bodies, especially the permanent commissions.

To begin operations, certain assets are put at the disposal of the IEAs and they are expected eventually to become self-financing by the revenues and profits generated in their operations. According to a comprehensive Western study of IEA's, none of them has yet attained full solvency [Ginsburgs, p. 14].

The significance of the joint enterprises and the IEA's lies in the possibility that they may provide the legal and experimental basis for creating socialist multinational corporations, which potentially could play an important role in CMEA integration. To be sure, the consensus of Western opinion is that the difficulties of determining accurately costs, prices, and meaningful exchange rates, as well as other problems, such as differences in applicable legal norms and tax statutes among the countries, greatly limit the scope and operation of the IEA's, which can *not* be considered socialist multinational enterprises [Lavigne]. Concluded another Western observer:

Due to their small number, their mostly very limited functions and their special financial and currency arrangements, the [joint enterprises and the IEAs] are not to be considered as a new qualitative element of international cooperation within CMEA. . . . It is unlikely that, in the foreseeable future, an autonomous initiative could be taken by [them] for developing new mechanisms of integration which would involve a limitation on the member countries' sovereignty. On the contrary, an improvement of methods and forms of CMEA integration will have to create the conditions for a better functioning of the IEAs [Machowski, pp. 194-95].

While legally not a part of the formal CMEA structure, the two regional banks must be discussed in conjunction with other CMEA institutions.

The *International Bank for Economic Cooperation* (IBEC) was established in 1964 by the full members of the CMEA to perform bookkeeping operations arising from commercial transactions among the members, to issue trade credits and thereby promote multilateralism within the region, and to carry out financial operations with banking institutions outside the region. IBEC's statutory capital was set at 300 million transferable rubles (TR)—an artificial unit of account described in the following section. Each country's quota was determined in proportion to its share in intra-CMEA trade. But since loanable TR's can be "created" only through an export surplus in intra-CMEA trade, and since all members cannot be net exporters simultaneously, it is not clear how, or whether, the paid-up capital in TR's has actually been transferred to the Bank, as prescribed, by all members.

IBEC performs as planned its intra-CMEA bookkeeping function and has been expanding considerably the volume of transactions with Western banks in convertible currencies, but it has not been able to promote multilateralism within the bloc in any significant way.

The *International Investment Bank* (IIB) was established in 1971 by the full members of the CMEA to help finance investments in the member countries, including the joint CMEA projects. Statutory capital was set at 1 billion TR, 30 percent payable in convertible currency, the rest in TR. Each country's quota is proportional to its share in intra-CMEA trade. As in the case of IBEC, how the IIB "creates" loanable TR funds is not clear. The fundamental issue is that when the Bank issues paper credits in TR's, what freedom does the recipient country have in choosing the investment goods it needs from the other CMEA countries to build a project? This point has not been clarified in the CMEA literature. One possibility is that a member's TR quota subscription takes the form of a hypothetical (or tentative) list of pledged investment goods; the other is that a granting of IIB credits must be preceded by successfully concluded negotiations between the prospective debtor and creditor countries, specifying the investment and repayment commodities that will be shipped, including all terms and conditions. In either case, the mobilization of TR credits must be exceedingly difficult.

In recent years, the IBEC and the IIB have both borrowed substantial convertible currency sums from Western financial institutions. It has been shown that the convertible-currency operations of these two CMEA banks have tended to facilitate regional integration, while the intended original main purpose of these institutions, promoting CMEA integration through the introduction and increased use of the TR, has not been achieved [Brainard].

C. The Price Mechanism in Intra-CMEA Trade

CMEA countries employ a different pricing mechanism in East-West trade and in intra-CMEA trade. With partners outside the bloc, they trade at current world market prices. While prices in intrabloc trade are linked to Western world market prices of an earlier period, according to various formulas periodically agreed upon since shortly after World War II. There is bargaining in the CMEA not only about the kinds of goods as well as the quantities to be traded but also on prices, because it is difficult to find "the" world market price. Different capitalist markets can be taken; price quotations may vary from actual prices because of rebates, quantity discounts, and so on, or may differ as between particular buyers and sellers due to quality factors, the effects of tariffs and other trade barriers, conditions of payment, and transport and insurance costs, all difficult to isolate. And since intra-CMEA prices are based on average world prices for a commodity over a period of years, the process of averaging multiplies the large choice.

The essence of price-determination in CMEA trade was pinpointed by a leading Soviet specialist on the CMEA:

The exporter will naturally propose prices that are advantageous to him or that at any rate cover his production costs. In the price selection process, the importer is also guided primarily by the level of his production costs. Thus, in negotiations, both sides cite prices that satisfy their notions of effectiveness of exchange and subsequently arrive at some variant as a result of "bargaining" [Mitrofanova, p. 9].

Formally, the basis for setting prices in intra-CMEA trade has taken the following course. During 1945-50, prices were based on current capitalist world market prices. The period 1951-53 was the era of "stop prices," when negotiators relied on the latest prices in effect before 1950, to avoid the distorting effect of inflation due to the Korean War. During 1954-57, a situation existed in which "stop prices," their adjusted version, and current world market prices existed side by side, creating much friction.

The 1958 ninth session of CMEA in Bucharest adopted the following new rules of price determination: (1) Average 1957-58 world market prices would be introduced in 1959; (2) prices would remain fixed for several years, except for new or improved products; (3) the so-called "half-freight principle" was adopted, under which the importer pays the equivalent of 50 percent of the hypothetical transport cost from the recognized world market center for that commodity to its own border; and (4) clarified what constitutes acceptable documentation of the world market price in bilateral negotiations.

Average 1957-58 world market prices remained in effect until about 1965. For 1965-70, average world prices of 1960-64 were used; for the 1971-75 period, the agreement was to base intra-CMEA prices on average world prices of 1965-69. However, in early 1975, prices were revised, at Soviet insistence, one year ahead of schedule. For the year 1975 only, prices were based on average world prices of the preceding five years for most goods and for the preceding three years for a few commodities, notably oil. The world market price explosion of the mid-1970's also prompted the CMEA countries to change their method of price formation, replacing the principle of keeping prices fixed for five years with a moving average formula: intra-CMEA trade prices are now revised annually on the basis of world prices of the immediately preceding five-year period.

II. IMPACT OF THE ECONOMIC SYSTEM, POLICY, AND THE ENVIRONMENT ON CMEA INTEGRATION

A. Economic System and Integration

The foreign trade activities of a traditional centrally planned economy (CPE) are determined or influenced by the following institutional arrangements:

(1) In each country, production and trade levels are set by highly placed officials in the party or in the government and carried out by the ministerial hierarchies concerned. Plans—sets of *ex ante* production and trade decisions slated to be carried out in a given period by producers and foreign trade enterprises (FTE's)—are geared to a system of interlocking material balances. Decisions are implemented via orders that come down through hierarchic lines. Information about the environment of producers is transmitted chiefly from subordinates to superiors in the hierarchies.

(2) FTE's, subordinated to the Ministry of Foreign Trade, buy output from producers for export and sell imports to producers and wholesalers. The monobank in each country, on behalf of the FTE's,

pays producers for goods exported and charges consumers for goods imported in local currency. The producer of export and the user of import deal with the FTE's only, so he is isolated from the foreign buyer of his export or foreign supplier of his import. Managers of producing enterprises and FTE's are subject to material incentives for fulfilling physical output or foreign trade plans, for cutting down on production costs, and in certain instances for carrying out other assigned tasks. Given this system, quality and orientation toward the needs of the user often leave much to be desired. Observes a Hungarian author:

It occurs that the technical parameters of Soviet machines and equipment and their cost norms, (i.e., cost of operating the machines) are less favorable than those of the most up-to-date Western ones. This is known already before the purchase and necessitates compromises on the part of consumers [Schweitzer, p. 326].

(3) Export and import transactions entered into by the FTE's with non-CMEA countries are valued according to current world market prices, and settled in a convertible currency; with CMEA countries transactions are valued according to an agreed upon set of past ("historical") world market prices and settled in TR's. The TR is an artificial accounting unit which takes a world market price expressed in a convertible currency and translates it into rubles at the prevailing official exchange rate for the ruble.

(4) The official exchange rates of the individual CMEA countries in terms of convertible currencies or vis-a-vis the transferable ruble are set arbitrarily and may not reflect or even approximate the equilibrium exchange rates based on the purchasing power of the currencies or some other equilibrium concept. FTE's, therefore, must keep two sets of books in domestic currency: one expressing the value of transactions with foreign buyers and sellers translated into domestic currency via the official exchange rate, and the other expressing the value of transactions with domestic sellers of exports and users of import according to the domestic prices fixed (to some degree arbitrarily) by the domestic authorities in the country. The "gain" or "loss" on foreign transactions reflected by the difference in the two sets of books is settled automatically with the state budget, a procedure known as "automatic price equalization."

(5) Within the CMEA, representatives of each country negotiate the pattern of specialization in production with other CMEA members either bilaterally or multilaterally. The exchange of goods among countries is almost always agreed upon bilaterally. Prompted by the domestic planning system in the CMEA countries, which is based on "material balances," trade negotiations in the CMEA focus mainly on the type and quantity of goods each country wishes to import. When negotiating the quotas to be included in the five-year agreements, it is necessary to forecast domestic demand for all kinds of machinery as far ahead as eight years because plan coordination in the CMEA begins three years before the current plan period ends. Practically speaking, this is a difficult situation, not designed to facilitate the ready matching of product specifications in the exporting and importing countries.

(6) Bilateralism discourages economic integration in several ways. One reason is that barter deals tend to be struck to keep bilateral ac-

counts in approximate balance. Any surplus demand beyond an exporter country's planned supply must be purchased outside the CMEA. It is for this reason that the value of a given surplus or deficit with one CMEA partner, expressed in transferable rubles, is indeterminate and cannot be used automatically to offset deficits or surpluses with other CMEA partners. Lack of convertible currency sometimes leads to egregiously inefficient decisions. Hungary, for example, has a chemical complex whose operation requires a large quantity of salt. About 35 miles from the complex, across the border in Romania, is one of Europe's largest salt mines. But Romania ships the salt to the United States and other countries where it gets paid in convertible currency while Hungary imports salt from Algeria because that source doesn't require a direct outlay of scarce hard currency. Sometimes such problems are solved by agreeing to settle certain intra-CMEA trade transactions in convertible currency, a growing tendency which may be favorable to bloc-wide integration insofar as it mitigates the integration-reducing effects of bilateral clearing accounts.

(7) There is no mechanism in the CMEA for joint risk taking. Risks inevitably arise when a country undertakes an investment to build export capacity for the CMEA (or to the world) market. Demand in the CMEA (as in the world market) may fluctuate due to technological or other factors or because central planners in partner countries change their minds regarding imports. The risks of specialization for the CMEA market fall relatively more heavily on the smaller East European countries than on the U.S.S.R. because the former can specialize in only a relatively few products so their risks are concentrated, while the U.S.S.R. produces and specializes in many products, so its risks are spread more widely.

Since the early 1950's, when the above described "pure" foreign trade system was in force throughout the bloc, partial reforms had been implemented at various times and in varying degrees by all CMEA countries and comprehensive reforms were introduced in Hungary in 1968 [Marer, 1980]. Have economic reforms changed the basic mechanism of foreign trade within the CMEA?

Three types of partial reform measures may be identified: reforms in the planning mechanism, in the foreign trade monopoly, and in the domestic price and exchange rate systems.

The essence of planning reforms is a reduction in the number of quantitative plan targets set by the central planner, leaving some flexibility to the ministries and producing enterprises to determine the composition of output. Decisions to incorporate a line of production, an investment project, an export or an import commitment into the plan may be based on, or justified by, calculations of costs and returns made with the aid of domestic or foreign-currency prices. Yet, the essential features of traditional material balancing and central supply allocation have remained unchanged in all countries except Hungary.

Reforms in the monopoly of foreign trade were prompted by a recognition that the functional separation of foreign trade from domestic production is inefficient. Various schemes have been introduced, therefore, to make FTE's and producing enterprises more equal partners, including the granting of foreign trade rights to selected industrial firms. Still, the fundamental lack of interest of producing enterprises

in earning more foreign exchange by improving the quality of products or by finding new export items has not changed.

Reforms in the domestic price system were undertaken so that prices would reflect more accurately production costs, including the cost of imports. But because there is no consensus in these countries on how to set prices to reflect both costs and relative scarcities, or on how long prices should remain fixed, and because strong vested interests oppose any major price change, prices tend to be arbitrary and still play only a small allocative role. Various reforms were also undertaken to forge a more meaningful link between domestic and foreign prices. Exchange-rate-type coefficients are permitted to influence, to a greater or lesser degree, some export and import choices. But given the shortcomings of the domestic price systems and the mechanisms under which taxes mop up the greater part of enterprise profits and wipe out the bulk of its losses (bankruptcies are not permitted), these modifications in the price mechanism do not have a substantially different effect on enterprise decisions than automatic price equalization did under the traditional system.

Hungary's comprehensive economic reform in 1968 abolished detailed plan instructions to enterprises; based prices on factor costs while allowing some prices to be flexible to reflect demand also; and established more realistic exchange rates to link foreign and domestic markets operationally. But the influence of the market is still circumscribed by the monopoly power of many enterprises, which remain protected from foreign competition, and by the pervasive use of direct and indirect instruments of state intervention.

We conclude that, notwithstanding the introduction of partial reforms in all CMEA countries since the late 1950's and the nurturing of the comprehensive reform that has been evolving in Hungary since 1968, the "traditional" foreign trade mechanism is still essentially intact, at least, as far as trade within the bloc is concerned. What forces are generated by the "system" for and against CMEA integration?

First, the system places on producers constraints that are not conducive to integration with foreign markets. Since producing for the foreign market is more difficult as a rule than supplying the domestic market, most firms are fundamentally disinterested in exports. The enterprise is ordered to export to fulfill the plan rather than to make a profit; the firm's existence in most cases is not threatened in any fundamental way by its inability to export or to compete efficiently with imports. Since most exporting firms also produce for the domestic market, even when managerial bonuses are tied to foreign exchange earnings, the maximum bonus can usually be achieved more easily by skillful bargaining with the planning authorities or by fulfilling the domestic plan than by gearing up for exports.

Even when nominal bonuses for exports expansion are substantial, the marginal rate of taxation of personal income is so high in some countries that the de facto export incentive is insignificant. These generalizations seem to be valid even for the majority of Hungarian industrial producers. There are exceptions, to be sure, in all CMEA countries: enterprises that have a long tradition of producing for

foreign markets (e.g., pharmaceuticals in Hungary, optical equipment in the GDR, ships in Poland) or enterprises whose top management is entrepreneurial and has strong lobbying power to obtain the resources necessary to produce for export. (This does not mean, of course, that these firms earn their foreign exchange efficiently.)

The information system in the CMEA countries is much too coarse to enable the policymaking hierarchy to make fine-tuned specialization and trade decisions based on any small differences in relative scarcities between their country and the economies of the other CMEA members. To illustrate: In the late 1960's, when Poland and Czechoslovakia agreed to produce tractor parts and components for each other's markets, there was so much uncertainty and debate about what each part or component was worth that they finally entered into a barter agreement in which 10 kg. of exports was exchanged for 10 kg. of "similar type" imports. The uncertainty about whether this kind of specialization yielded gains or losses was a factor in the decision to abandon this specialization agreement.

East European economists themselves stress the problem of insufficient information. For example, while it is in Hungary's macroeconomic interest to import more of the right kind of machinery from the U.S.S.R., machinery purchases are impeded by insufficient information about import possibilities, which a Hungarian economist explains this way:

[Hungarian] engineers designing the technical documentation of investments are usually familiar with Western technologies and new technological achievements. Western firms promote their articles in the socialist countries . . . through catalogues, leaflets, agents, advertising, and purposeful participation [in] fairs and exhibitions. . . . Hungarian engineers have much less information on the achievements of socialist countries, among them [those] of the Soviet Union. Information is often obsolete [which] . . . results in prejudice, misbelief, and fallacies here, just as it does everywhere.

[Because traditionally] central organs of the [importing] countries specify the machine imports necessary for investments and conclude the trade agreements . . . in the Soviet Union less importance is attached to informing the user enterprises of the socialist countries. Lively marketing and promotion activity is judged important mainly in relation to Western markets. Critiques appearing in the Soviet press blaming foreign trade organs for lack of export promotion usually emphasize the necessity of improving activities only on Western markets [Schweitzer, p. 332].

Decisionmakers in the CMEA countries probably do not perceive the necessity of evening out differences in relative scarcities among countries. They are moved to action by perceived shortages and deficits in the availability of goods or by calculations of costs and returns showing a conspicuous advantage in engaging in certain lines of exports or in replacing expensive domestic production by imports. Neither the material balances (which at least ensure a modicum of consistency between input and output decisions) nor the calculations comparing foreign exchange prices with domestic costs (based ultimately on administered prices) can supply accurate guidelines for specialization and trade policies.

Investment to expand export capacity may occur because exports are necessary to pay for imports or, in the case of the less developed members of CMEA, because exports in certain "modern" branches of

manufacturing are prestigious. There is no *a priori* reason to believe that the resulting investments will be efficient in volume or in composition. For example, about ten years ago Bulgaria decided to specialize in electronic pocket calculators. It started to export calculators to Hungary (probably also to other CMEA countries) for 100 TR each. Finding the price too high, Hungary attempted import substitution and started to produce calculators. But since it found that the value of components it had to import from the West was \$15 and that it could import the finished product for about the same price, Hungary stopped production and began to import calculators from Hong Kong [Pecsi, p. 318].

For many decisionmakers in CPE's, every imported good is a "deficit item," and any branch of domestic production that can be expanded to replace it is a worthy candidate for investments. While there may be no policy of "import-substitution across the board" handed down from the highest levels of the government, such an attitude is fostered for balance-of-payments reasons, by a misperception of scarcity, and by a fear that dependence on inputs imported from socialist partners may jeopardize fulfillment of the plans in case of supply breakdowns. Diversification of production to hedge against the vicissitudes of supply may be just as rational a response to this source of uncertainty at the national level as it is at the enterprise level. This pattern of enterprise behavior in CPEs is conventional wisdom in the East European and Western literature on the topic.

Unless the import supply of a product can be nailed down through a CMEA-sponsored specialization agreement supplemented by an enforceable long-term contract with the exporting country, it is likely that the one-time "shortage" will sooner or later disappear as a result of a capacity-expanding investment in the importing country. But, paradoxically, attempted import substitution cannot reduce the imports of the relatively small countries of Eastern Europe, only transforms their composition. If previously the country was importing commodities that have been replaced with new domestic capacity, then the new import requirements will consist of goods made necessary by the process of import substitution itself.

This discussion of systemic considerations leads us to the conclusion that decisions by branch ministries, industrial associations, or enterprises are unlikely to move the system in the direction of intrabloc comparative advantage and may well move it in the opposite direction. An active integration policy must be conducted at the top to combat tendencies toward isolationism in the lower levels.

B. Economic Policy and Integration

Given the economic system in the CMEA countries and the system-determined mechanism of foreign trade in the bloc, what *integration policies* are pursued by members of the CMEA? First we will discuss the evolution of key policy recommendations for integration, especially those by the Soviet Union, and the concrete measures taken up to now to implement them. Next, we will call attention to certain *domestic policies* of the CMEA countries which affect regional integration outcomes directly or indirectly.

1. INTEGRATION POLICIES IN THE CMEA

The economic system previously described perpetuates the fundamental lack of interest of producers in becoming integrated with customers and suppliers in other countries. For this reason, the integration policies of member countries must focus on the mechanism of state-to-state relations rather than on domestic economic policies which would make CMEA integration more attractive to producers and consumers. That is, integration must be planned by the state at the highest level and imposed on the ministries, trusts, and enterprises. This is recognized by a Hungarian observer who writes:

In general, the special requirements of consumers are enforced only in those particular cases when the central organs themselves exercise pressure on producers to take them into account [Schweitzer, p. 327].

Tracing the efforts during the three decades of CMEA's existence to find policies acceptable to all members reveals how difficult it is first to reach agreement about specialization, then to find a workable CMEA mechanism, and finally to implement agreed policies effectively in each country. Linked closely with alternative policies on specialization, suggestions for reforming the CMEA mechanism have ranged from proposals for a supranational authority which would create the traditional institutions of central planning at the regional level, to those favoring greater reliance on market mechanisms.

The best known proposed integration policy was that advocated by the Soviet Union during 1962-64 for CMEA to become a supranational organ. The Soviets proposed that CMEA should make decisions and allocate resources *ex ante* rather than to try to coordinate *ex post* the decisions taken by the national planning authorities. This proposal brought to the surface the fear of the comparatively small East European countries that bloc integration under a supranational authority would mean more and more domination by the U.S.S.R. The most uncompromising stand against this type of integration was taken by Romania, whose ruling party issued its famous 1964 statement, which brought the conflict to world attention:

. . . forms and measures have been proposed such as a joint plan and a single planning body for all member countries. . . . The idea of a single planning body for all CMEA countries has the most serious economic and political implications. The planned management of the national economy is one of the fundamental, essential, and inalienable attributes of sovereignty of the socialist state . . . transmitting such levers to the competence of superstate or extra-state bodies would turn sovereignty into a meaningless notion [cited in Montias, 1967, p. 217].

In the face of Romania's firm stand—and perhaps remembering that intensified pressure on Albania just a few years earlier had led to that country's defection from the bloc—the USSR decided not to press its proposals.

The 1964-70 period was one of much discussion, debate, and experimentation in each CMEA country about needed reforms in the traditional centrally planned economic system. In addition, the proposals usually contained suggestions to reform the CMEA mechanism also. One such proposal, most clearly articulated by Hungarian economists, favored a greater reliance on market mechanisms for socialist integra-

tion. The advocates of this approach predicted better prospects for the realization of gains from regional specialization and for the maintenance of greater national autonomy. Other proposals, including those by Soviet economists, favor planned integration relying on the traditional concepts and institutions of central planning [McMillan].

After the Czechoslovak events of 1967-68, it became more urgent for the Soviet Union to promote the cohesiveness of the CMEA network through which it could maintain its dominion without resorting to coercion. The Soviet Union probably also wanted a system of regional integration that would place external limits on the economic reforms undertaken by any East European country. At the same time, this system would better compensate it than the then current CMEA price and trading system for becoming an increasingly large net supplier of energy and raw materials to Eastern Europe. (See discussion of this issue in the next section.) Accordingly, Soviet economists began to float new proposals in the late 1960s. Realizing that supra-national planning was not politically feasible, they thought that it could be approximated, nevertheless, through joint planning of the regional economy's key sectors.

The outcome of this debate was the 1971 *Comprehensive Program* for socialist integration. Although the document appears to be a compromise between those advocating market mechanisms and those favoring a joint planning approach, the emphasis since 1971 has been clearly on joint planning and the initiation of joint investment projects in priority sectors. Aspects of the *Comprehensive Program* which stress the market approach to socialist integration, such as its timetable to introduce a degree of convertibility into CMEA currency relations or to establish direct, autonomous trade links among enterprises in the different countries, appear to have been more lip service, or perhaps a recognition of need rather than a statement of resolution [McMillan].

With respect to the latter point, a reform proposal that was codified in the *Comprehensive Program* is the classification of traded goods into three categories: "Important commodities" with fixed quantities in physical terms; "fixed value quotas" with physical contents to be negotiated subsequently between buyer and seller; and "non-quota goods." It was envisioned by the reformers that trade at least in the third category would encourage direct export-import links between autonomous producer and user enterprises. But due to the many institutional obstacles, the trade flows in this third category have remained small—about 2 percent, some say between 2 and 5 percent of intrabloc trade—so that the reformists' hopes were not realized:

It [is] clear that any extension of enterprise autonomy would remain meaningless as long as the functions of COMECON money continued to be passive, subordinated to barter-type exchange. In turn, the activation of money [would] require major changes in the system of exchange rates, . . . in domestic prices and [in the economic management system] [Brus, p. 167].

To reduce the fears of the East European countries about compulsory supranationalism, one important compromise recognized by the *Comprehensive Program*, which appears to have become a permanent feature of the CMEA, is the "interested party principle." This permits member countries to participate only in those CMEA projects or programs in which they have a material "interest."

Three types of activities contained in the *Comprehensive Program* have been stressed: improved plan coordination, cooperation in long-term "target" programs, and joint CMEA investment projects. With respect to the first two, it is difficult to learn from the CMEA literature how much has been agreed upon in principle only, whether comprehensive and detailed blueprints for implementation have yet been accepted, or the extent to which implementation of these programs is under way. Our understanding about the status of these activities at the end of 1979 is the following:

Improved plan coordination.—The old way was that "coordination" began when for all practical purposes the national plans had been completed and the pattern of investment (formally not subject to coordination) already decided. Coordination used to mean little more than exchanging background information preparatory for bilateral trade negotiations. Improved plan coordination today means that the procedure begins earlier (three years before the end of the current quinquennium) so that there is at least the possibility that, as a result of discussions, a member country's investment plans would be altered [Brus]. Moreover, a 1973 agreement specified that each country must include a special section in its national plan document for 1976–80, elaborating the specific economic details of its integration measures. The special sections consist of two parts:

(1) A listing of resources allocated for the construction of CMEA joint projects and of the reciprocal commodity deliveries resulting from the projects; and

(2) A listing of resources devoted to the construction and operation of domestic industries which have bilateral or multilateral specialization agreements with the other CMEA countries and the reciprocal commodity deliveries resulting from these agreements.

Plan coordination thus appears to involve a standardization of economic information concerning projects that involve a long-term linking of two or more CMEA economies. This should facilitate a better assessment of what is really going on in the CMEA and checking the bilateral and multilateral consistency of national plans, but it does not appear to affect the substance of CMEA integration. One knowledgeable observer concludes that:

It is difficult to say in what sense this attempt at [improved] plan coordination was more successful (as it was claimed) than the previous ones, and especially what was the practical value of even improved *ex ante* coordination in view of wide divergencies between planned and actual performance in [several] COMECON countries. . . . Nothing new apparently emerged in the methods of coordination of the 1976–80 five-year plans, which anyhow had to undergo serious modifications at a late stage because of volatile economic conditions on a world scale and increased tensions in East European economies [Brus, p. 173].

Cooperation in long-term target programs.—This involves selected sectors and key projects of major importance, where coordination takes a more binding and all-embracing form. The blueprint for this type of cooperation reportedly consists of [Trend]:

1. Joint forecasting for 15 to 20 years of production, consumption and trade trends to identify prospective shortages and surpluses;

2. Coordination of medium- and long-term plans for the sector's main branches of production and key commodities;

3. Joint planning of the production of selected key commodities, and joint research and development programs; and

4. Continuous exchange of information of planning experiences.

It has been agreed that cooperation in long-term target programs should encompass five sectors: fuels, energy, and raw materials; machine building; industrial consumer goods; agriculture, especially feedstuffs; and transportation. Joint planning of production has been agreed on in principle for selected commodities.

Implementing these programs would appear to involve substantial further investments by the East European countries in the USSR. At the 32nd CMEA session in Bucharest, in mid-1978, the Soviet Union was still urging the rapid formulation of concrete plans in the first three of these sectors, so that implementation could begin with the next five year plan (starting in 1981). Thus, it appears that cooperation in long-term target programs has not yet advanced very far beyond general statements of goals and intent.

Joint CMEA investment projects.—These represent the major new form of CMEA activity. About a dozen such projects are being implemented during the current (1976–80) five year plan, most of them located in the U.S.S.R. The biggest by far is the Orenburg gas pipeline; other large ones include asbestos mining facilities at Kiembayev, a cellulose plant at Ust Ilim, and an electric power transmission line between the U.S.S.R. and Hungary. The planned value of joint CMEA projects in 1976–80 was 9 billion TRs (approximately \$14.5 billion), about half financed by the U.S.S.R., the other half by the East European countries. The contribution in this volume by McMillan and Hannigan that follows this study describes in detail the range of these projects, their place in CMEA integration, and how the projects are initiated, planned, financed, and implemented. They also examine the impact of these joint projects on the economies of the participating countries, present a case study of the Orenburg project, and consider prospects for the 1980's.

Our understanding, briefly, of the role of the joint projects is as follows: Since the *Comprehensive Plan* was accepted, the Soviet Union has been pressing the other countries to participate in such projects, pointing out that its territory has the natural resources which most of these joint projects are designed to exploit or transport, and that these investments represent partial compensation for supplying its CMEA partners with energy and raw materials—hard goods which today the Soviets can readily sell to Western countries for convertible currency.

The East European countries argue, on the other hand, that investing in the so-called CMEA joint projects—which take the form of the delivery of labor, capital and consumer goods, and the provision of technical know-how for projects located on Soviet soil—are not necessarily economic from their point of view. They cite the high manpower and hard-currency costs of these projects, the low interest rates received, and the disadvantageous terms of repayment, made in kind, yet valued in continually depreciating TRs as intra-CMEA prices follow the rise of prices on the world market. The East European

countries recognize, however, that these liabilities must be juxtaposed with assurance that the promised supplies will be available in the future.

2. DOMESTIC POLICIES AFFECTING INTEGRATION

While the system determines or narrowly confines the channels through which policies can be implemented, and the environment imposes restrictions on each country's set of possible actions, there are still many options to policymakers to give effect to their preferences on matters of integration. First, the preferences of the highest authorities in the various CMEA countries and the policies that they inform differ a good deal with respect to the nature and the extent of specialization that they are willing to accept. Bulgaria, has specialized in exports of agricultural products, both raw and processed, as far as was compatible with her goal of rapid industrialization. In contrast, Romania has neglected her agriculture until quite recently to press all available resources into industrial expansion. Within the industrial sector, Romania and Bulgaria also differed in that the former insisted on "balanced, complex, multisided development," meaning that no branch of industry was to be sacrificed for the sake of reaping the advantages of specialization, whereas the latter was distinctly more willing to go along with CMEA-wide specialization.

Not all members of CMEA has the same preference, relative to the other goals they may pursue, for promoting the economic interests of CMEA as a whole. In more recent years, the Soviet Union at times appears to have forsaken its short-term economic advantage, for example by its willingness to become an increasingly large net supplier to Eastern Europe of oil and other "hard goods" at a time when those commodities could have been sold more advantageously on the world market. To be sure, policies on such matters involve difficult-to-quantify trade-offs between a country's economic and political objectives and may well involve economic or political *quid pro quos* between the Soviet Union and the countries in Eastern Europe. For example, there may well be a link between the GDR's economic and military assistance to countries in sub-Saharan Africa and the level, the composition and the prices of goods it trades with the U.S.S.R. To establish this point more firmly, however, would require more information and study.

The attitude of individual CMEA members toward trade and industrial cooperation with Western countries, and their reliance on Western credits, differ considerably. The share of the industrial West in the total trade of the European CMEA countries ranges from about 20 percent for Bulgaria to almost 50 percent in the case of Romania and Poland. Only Romania and Hungary permit equity joint ventures within their borders with Western corporations; Poland allows only small-scale joint ventures in certain sectors [Marer and Tabaczynski]. The acceptance of Western credits, or the active search for them since the early 1970's, range from avid in the case of Poland and Bulgaria, to eager in the case of Hungary, the GDR, and Romania, to cautious in the case of Czechoslovakia. Western credits facilitate the expansion of trade with the West, both through an immediate rise in imports by the credited nation and an eventual rise in exports to repay the loans.

In spite of these differences within the CMEA, there was a substantial expansion of all CMEA countries' trade with the West during the 1970's. Increasing reliance on imports from the West—whether energy, raw materials, semimanufactures, grain, technology, or consumer products—reflects the growing unavailability (in adequate quantities or quality) of products most in demand from CMEA suppliers, which is a consequence of the economic system, as well as the easy availability of Western credits, and new policies by the CMEA countries.

The relationship between East-West trade and CMEA integration can be both complementary and competitive. Complementarity obtains, for example, insofar as the enlarged scale of production for the East European countries, prompted by export-specialization for the CMEA market, may facilitate production for the Western market also. At the same time, the inflow of Western goods, technology, and managerial know-how can give an impetus to product specialization in the CMEA. Some imports from the West and a few of the industrial cooperation agreements with Western firms are motivated in part by the desire of the smaller East European countries to be designated the sole (or at least principal) supplier of machinery or other products under CMEA specialization agreements. For Western corporations, the possibility of penetrating the entire CMEA, especially the Soviet market through industrial cooperation with an East European partner can be an important commercial motive.

These kinds of complementarities are illustrated by the 1972 agreement between the U.S. firm International Harvester and the Polish firm BUMAR to jointly manufacture crawler tractors in Poland, as shown by the case study on this project presented in this volume [Garland and Marer].

Examples of complementarity between East-West commerce and CMEA integration should not suggest that the two are typically complementary and mutually reinforcing. Many examples can illustrate just the opposite. The CMEA countries have no common, agreed upon strategy regarding the purchase of Western technology or regarding industrial cooperation with Western firms. This causes unnecessary duplication of effort among them. For example, during the first half of the 1970's, every European CMEA country bought polyvinyl chloride (PVC) technology from the West and planned to export a large part of the output to pay for the import. Lack of coordination in the CMEA, inadequate CMEA-wide planning for domestic utilization of the output, and long delays in putting the plants on stream (during which worldwide overproduction had cut the world price of PVC by nearly half) have resulted in excess production capacity and cutthroat competition to sell PVC for convertible currency.

East-West trade and CMEA integration can be competitive in other respects also. The substantial expansion of the CMEA countries' trade with the West during the 1970's has created economic links that cannot easily be severed. The large indebtedness of the CMEA countries to the West mortgages a significant share of East Europe's future exports to the West, with self-evident consequences for CMEA integration.

C. Environmental Variables and Integration

1. REGIONAL FACTORS

The most remarkable aspect of the environment of CMEA, in contrast to the European Community's (EC), is the disparity in size, resource endowment, and political power among its members. The Soviet Union accounts for roughly two-thirds of the population and aggregate GNP of the bloc and it is endowed with over nine-tenths of its crude oil, gas, and iron ore resources.

As well endowed as the Soviet Union is, there is a deficit supply in the communist bloc in natural resources, minerals, foodstuffs, and other primary commodities. This is in part a consequence of forced industrialization, which required a growing quantity of these resources for domestic industries and for exports, and the wasteful use of materials in production. The deficit is caused in part also by the fact that primary commodities can be traded more easily outside the bloc for convertible currencies, and in part because in the CMEA they are underpriced relative to manufactured products (as compared to world market prices). This relative underpricing—much less pronounced since 1975 than before—is the outcome of the bargains struck by the individual CMEA members in bilateral and multilateral negotiations, and hence of the policies underlying the negotiating stance of each member. But once prices have been decided on, the relative scarcity of "hard goods" and abundance of "soft goods" become exogenous (i.e., part of the environment) for each CMEA member.

Countries relatively well supplied with natural resources, or which are net exporters, are pressed by those that cannot provide them with these scarce "hard goods." The former, chiefly the Soviet Union but also to a lesser extent Poland and Romania, hold the trump cards. They exert bargaining power by tying their deliveries of primary products to sales of soft goods, chiefly manufactured commodities that for one reason or another the purchasers would not otherwise have wished to buy.

The disparities in the levels of industrial development of CMEA members is another factor inhibiting integration. One might expect that the faster growth of the least advanced members (Bulgaria, Romania) and the gradual evening out of levels of development in the bloc—a matter on which CMEA's ideologists are given to boasting—would tend in the long run to reduce the importance of this impediment to integration. This, however, is by no means certain, in view of the "brute-force" nature of the development of the latecomers to industrialization. As long as the technological gap between the more and the less advanced members of the bloc persists, the former will not, in general, abandon lines of production to the latter and become dependent on suppliers that may not be capable of meeting their requirements. The technological gap, in general, is not likely to narrow as rapidly as disparities in GNP per capita.

The enlargement of the CMEA by the incorporation of Mongolia in the early 1960's, Cuba in the early 1970's, and Vietnam in 1978 (Laos, Afghanistan, and Cambodia during the 1980's?) makes integration

more difficult, for political and institutional reasons, even if these countries play only a marginal role in CMEA specialization agreements. Given their locations, their membership would appear to serve principally Soviet foreign policy interests, according to which the East European countries are called upon to subsidize these less developed allies of the U.S.S.R.

A critical environmental factor for CMEA is the low mobility of factors of production between the socialist countries, especially within Eastern Europe proper. The initial decision not to open Eastern Europe to the free movement of labor and capital may be traced to Soviet policies imposed on East European clients in the early postwar period. This actively discouraged forming deep commercial ties among the East European countries. But those policies eventually became a part of the CMEA economic environment. With few exceptions there have been no significant transfers of labor within the bloc. In addition, these economies do not take advantage of low-cost foreign labor from countries outside the bloc, such as the EC imports from Portugal, Spain, Greece, Turkey, and Yugoslavia.

Until recently, capital exports from one CMEA nation to another have also been small and were often determined *ex post*, when credits were granted to finance an unplanned imbalance in (visible and invisible) trade flows, or on the basis of political considerations. An example of the latter is the flow of Soviet credits granted to several East European countries to finance their deteriorating terms of trade with the U.S.S.R. after 1975, when energy prices were raised. Such Soviet credits, agreed upon by leaders at the highest levels, often cannot be utilized fully by the East European countries because the goods they need the most, energy and raw materials, are not available and what is readily available (e.g., standard machinery, watches, cameras, and so on) is not wanted. In recent years, large credit transactions have been initiated under the so-called joint CMEA investment projects discussed earlier.

According to the neo-classical theory of international trade, given differences in factor endowment in a group of countries, low factor mobility should be conducive to even greater intensity of trade than if factors were free to move. But under conditions where intra-industry trade, which is not particularly related to specific factor endowments, predominates, lack of mobility is likely to impede trade rather than promote it. CMEA integration, no matter how defined, would move to higher levels if energetic measures were taken to transfer labor and capital across frontiers to those uses where they might be expected to be most productive on the margin. But such transfers are impeded by the inability to calculate reliably the benefits and costs of such integration measures.

2. INTERNATIONAL FACTORS

Let us now turn to the impact of events external to the region on CMEA integration. The rapid growth of trade with the West during the 1970's has made the East European countries, and to a lesser extent the Soviet Union, increasingly sensitive to international economic disturbances, such as the OPEC-triggered energy crisis, rapid world

inflation, and Western recession. OPEC's action in 1973-74 increased the opportunity cost to the Soviet Union of supplying energy and raw materials to Eastern Europe, thus intensifying pressure for the U.S.S.R. to reorient its export supplies to the West. Although the actual reorientation was modest because of political considerations, it has forced the East European countries to rely more and more on alternative sources for energy and raw materials, which is clearly disintegrative. However, to the extent that the world market price explosion increased the cost of Soviet energy and raw materials to Eastern Europe (although with some time lag), the East European countries have had to export more to the U.S.S.R. to finance their deteriorating terms of trade. They also had to become more willing to invest in the large energy and raw material projects located in the U.S.S.R. Both of these outcomes may be viewed as integrative, even though the cost-benefit calculations on the joint projects are unclear and the terms of investment participation in dispute.

Perhaps the most important effect of world events since 1973 on CMEA integration was the impact of developments on the international financial markets. Large OPEC surplus funds had to be recycled just when the deep Western recession reduced corporate demand for loanable funds, creating large excess liquidity on the world financial markets. The recession also induced Western governments to subsidize the financing of their country's exports. These developments, combined with the new political environment created by detente, brought about a situation in which exceedingly large private and official credits were made available by the West to the CMEA countries. At the end of 1979, the gross indebtedness of the six East European countries and the U.S.S.R. to the West was about \$70 billion, the net indebtedness (subtracting the assets of the CMEA countries held in Western banks) was in excess of \$60 billion [Zoeter]. Because of the availability of these credits, the extraordinarily rapid expansion of imports from the West was not, in our view, at the expense of CMEA integration (induced as the expansion was though in part by the shortcomings of CMEA.) Intra-bloc trade continued to expand during this same period, although at a slowed rate.

The impact of CMEA's large indebtedness on the future of CMEA integration is exceedingly difficult to assess. Much will depend on the productivity of the borrowed resources in terms of generating hard-currency exports. Although the debt may continue to rise—some experts foresee the possibility that it may well double during the 1980s—the need to service the debt mortgages resources. As the ability of the CMEA countries to import from the West is impaired, now or eventually, by the requirements of debt service, this may give an impetus to an improved intrabloc division of labor.

There is another environmental consideration: Successive international crises—political, like those relating to events in Afghanistan, or economic, relating to the growing difficulties that CMEA countries are encountering on Western markets due, among other reasons, to protectionism—are supporting those in Eastern Europe who argue that the CMEA, but especially the Soviet Union, offers a more stable and more easily accessible market and source of supply than does the West.

No simple generalization can be made about the impact of the external economic environment on CMEA integration. The expansion of East-West commerce has set in motion both centrifugal and centripetal forces in the CMEA; their strength and impact differ from time to time and from country to country.

D. Future Prospects

Where does the CMEA stand today, as it begins the fourth decade of its existence, and what are its prospects for the 1980s?

It is our impression that, once again, the CMEA has reached an impasse. No significant initiatives appear to have been taken in recent years to conduct intra-CMEA economic relations more efficiently. Coordination of national plans and joint planning focus on the last stage of production for key commodities, without much attention to the interconnectedness of production with other branches. While there are a number of highly visible CMEA mining and transport projects, these undertakings can be justified for the most part on the basis of resource endowment or engineering capacities. Even on these projects there is much dispute between the host and the investing countries about who is contributing how much and how equitable are the repayment arrangements. Joint projects in manufacturing, which must be based on commercial considerations and supported by cost calculations and financial arrangements acceptable to all parties, have not yet materialized on any significant scale. Successful CMEA integration, i.e., increased specialization in manufacturers, requires uniform valuation criteria among the countries. This in turn will become possible if and when, in every CMEA country, domestic price relatives of tradeables approximate prices on the world market and national currencies become convertible. As a minimum, the prices and exchange rates used to make decisions on CMEA specialization must simulate world market prices and equilibrium exchange rates.

There are two key determinants of the future of CMEA integration: First, the course of domestic economic reforms in the individual CMEA countries is important because the fundamental systemic constraints limiting CMEA integration are rooted in the domestic institutions of CPEs, whether traditional or partially reformed. Second, the attitude of the U.S.S.R. is important because the policies of the East European members of the CMEA are to some extent constrained by the policies adopted by the organization's most powerful member. The more developed East European countries are fundamentally much less conservative about comprehensive economic reforms than the U.S.S.R. This is so not only for political reasons but also because the role of foreign trade is relatively small in the Soviet economy. A further reason is that in the U.S.S.R. the best-trained individuals, particularly in fields involving contracts abroad, can be found near the top of the party and government hierarchies, whereas in Eastern Europe the disparity in the quality of technical-managerial personnel is not so pronounced. This reduces in Eastern Europe the risk (from the point of view of the system's directors) of allowing middle-management to engage in foreign operations [Ginsburgs, p. 35]. These considerations help explain why Soviet leaders are less willing to tamper with the country's do-

mestic economic mechanisms or move toward currency convertibility, which would necessitate changing domestic prices. For East European countries, on the other hand, improved efficiency of foreign trade, including a more effective CMEA integration, is very important, although the constellation of economic and political forces supporting and opposing comprehensive reforms differs from country to country. Paradoxically, one of the reasons why the issue of improved regional integration is pressing on all members is the rising cost of energy and their large indebtedness to the industrial West, which make it imperative for all countries to use their resources and to trade more efficiently.

Given all the obstacles that must be overcome to achieve integration in today's environment and in the framework of a central planning system that is not conducive to this end, in the long run there appear to be only two ways of cutting the Gordian knot. One option is the imposition of supranational authority over the members whereby policies working for integration would be ordered by the "center." Although Moscow probably prefers this solution, Kremlin leaders know that the Soviet Union incurs significant political costs when it uses force overtly to gain its ends. This gives the East European states some room for maneuver. The second option is comprehensive economic reforms, a key component of which must be economic (as opposed to administrative) decentralization, a reform in the price mechanism, and the introduction of currency convertibility. At the very least, the evaluation of proposed CMEA projects and specialization agreements must be based on generally accepted cost-benefit calculations, even if the CMEA trade and financial mechanism remains unchanged for the time being. An intermediate solution might lie in an initiative by an East European subgroup of CMEA to undertake comprehensive domestic economic reforms and simultaneously to move toward subregional integration. In any event, the key to the choice lies in the politico-economic preferences of the leaders in the U.S.S.R. They will choose among these options to achieve more rapid and far-reaching integration if and only if the gains they expect from this "common good" outweigh the expected political losses they are likely to suffer under any alternative course.

III. THEORIES AND MEASUREMENTS OF CMEA INTEGRATION

A. Economic Integration Defined

Economic integration has traditionally been equated with the division of labor in a geographical region, although it is usually not made clear what minimum level of trade would justify speaking of integration. More recently, economic integration is said to consist not only of the internationalization of the markets for goods and services but also for those of capital and labor, technology and entrepreneurship, money and credit, as well as of the supporting economic institutions.

The institutional aspects of integration are not possible to measure with statistical indicators, but their effects will presumably be reflected in the level and composition of trade and other kinds of measurable economic links among members of a regional group. In discussing integration in the CMEA East European economists tend to focus on institutions that foster or hinder integration; Western

economists, by contrast, seek statistical measures of commercial ties among countries belonging to any regional group.

B. Can Integration in Eastern and Western Europe Be Compared?

What are the key differences and similarities between capitalist and socialist type economic integration? Can the Common Market of Western Europe and the CMEA be compared? To be sure, characterizing the Common Market countries as "capitalist" and the CMEA countries as "socialist" is an oversimplification. There is significant state ownership and control over the means of production in the Common Market as well as a degree of supranational planning. Conversely, market-type relations can be found both in the domestic economies of individual CMEA countries and also in their relations with each other. Still, the basic features of the two integration groups justifies characterizing them as essentially market-oriented or centrally planned.

The fundamental *difference* between market-oriented and centrally planned economic integration can be found in the institutions facilitating or hindering integration. In Western economies, in spite of the expansion of the public sector and other deviations from perfect competition, the bulk of international commerce is conducted by private enterprise, seeking profit opportunities wherever it can find them. Hence, a reduction or elimination of barriers to the movement of goods, factors of production, and money across national boundaries goes a long way toward integration. By contrast, once the market is replaced by central planning, all movement of goods and factors within the region (as transactions with outsiders) requires an explicit action by the governments involved. The integration of CPE's demands, therefore, more overt management and thus a more elaborate bureaucratic structure.

The fundamental *similarity* between market-oriented and centrally planned economic integration is that the purposes behind efforts to integrate tend to be similar: (1) better division of labor (i.e., improved specialization) desired as a source of economic growth; (2) economic discrimination in favor of members; and (3) enhanced political power for the integration group. The stronger countries (the United States in the OECD, the U.S.S.R. in CMEA) usually hope that closer economic ties will lead to closer political ties and eventually to political unification; weaker countries seek the benefits of being associated with a strong group but resist any significant loss of national independence and freedom of action in the international arena.

Focusing on market-type economies, sophisticated statistical indicators have been developed by Western economists and political scientists to measure aspects of integration from the point of view of a single member of a group or for a group of countries vis-a-vis other groups or the rest of the world. The indices that can measure commercial ties can refer either to the *conditions* or to the *effects* of integration. Among the conditions are those that have the power to affect *mobility* (defined as elasticity in response to stimuli). One statistical approach to measurement is to quantify the obstacles to the free movement of goods or factors of production within a region. Among the *effects* are actual movements of goods and services, factors of production, technology, and money: One statistical approach is to measure

changes in the level and composition of trade; another is to focus on changes in the relative prices of goods or of factors of production within a region.

Statistical measures of integration, which we will discuss in greater detail in the next section, tend to give meaningful insights when applied to the same country or a group of countries over time. Less meaningful are attempts to compare integration among countries or groups of countries at any given moment. The reason is that it is so difficult to hold "all other things constant."

Among the important variables that will influence comparative outcomes are the economic size of the countries (regions) and the size disparities within the groups, level of development, resource endowment, distance from main suppliers and key markets, the economic policies pursued (such as import substitution vs. export expansion), the political objectives and relations of the countries within an integration group, and the group's economic and political relations with the rest of the world. It is not possible to isolate simultaneously the effects of these and other variables on integration outcomes because the statistical sample of integration groups is limited. No union of countries can therefore be compared meaningfully with the EC, which itself is undergoing continuous transformation as new members are added and political conditions in the member countries change.

In addition, attempted comparisons of the integration outcomes of market and planned economies, i.e., the EC vs. the CMEA, encounter special difficulties. One is the problem of calculating identical statistical measures for both groups. For example, if the CMEA is viewed as a Western-type custom union because its members discriminate against outsiders, this would be reflected in the CMEA countries' preference for higher-priced or lower-quality domestic or bloc suppliers. That is, the CMEA aggregates its preferential trading area by implicit quotas rather than by preferential tariffs or explicit quotas. Moreover, even when it is possible to calculate nominally identical measures for the EC and CMEA, institutional differences can undermine the validity of parallel statistical interpretation. Rather than indicating successful integration, a relatively large volume of intra-bloc trade, such as during the 1950's, may only reflect underlying systemic or externally imposed commercial and financial barriers to extra-regional trade.

To be sure, meaningful statistical comparisons of selected aspects only of EC and CMEA integration can be made [see Fallenbuchl, 1980]. But comprehensive statistical measures are not readily available to compare the degree of integration of the EC and the CMEA. Our efforts in the next section will therefore be limited to the conceptualization and measurement of economic integration in the CMEA.

C. Concepts and Measures of CMEA Integration

The economic integration of socialist countries may be viewed from the vantage point of the authorities in these nations, as they perceive the problem, or as Western economists would envisage it, in theory or in practice. In this section, we present both points of view, along with some appropriate methods of measuring progress toward integration.

1. APPROACHES BY CMEA AND WESTERN ECONOMISTS

The perception of CMEA policymakers as to what might represent progress toward integration is undoubtedly more subtle and complex today than what it was two or three decades ago. At that time it was generally believed that any decision tending to increase trade among CMEA members at the expense of trade with non-members promoted bloc integration, which was deemed to be a good thing. An indicator of such progress widely used at the time was the percentage of each member's total trade carried on with other members of the bloc. Viewed thusly, the integration of the communist bloc reached its high point in the 1950's, when every member of the CMEA, including the Soviet Union, conducted a larger part of its trade with other members than it does today, even though the organization itself was dormant. Lack of opportunities to trade outside the bloc, largely due to the Western strategic embargo, contributed significantly to this apparent integration.

Today, CMEA policymakers concerned with the pace of integration would place considerable weight on the "deepening" of the intra-CMEA division of labor, that is, on increased specialization within branches and on "vertical" specialization by two or more countries contributing inputs, components, or final assembling capability to manufacture a product. "Deepening," of course, does not necessarily increase the share of intra-CMEA trade in the total trade of the bloc. Two CMEA members, each agreeing to specialize in a particular line of production, may find that as their output and exports of the specialized products expand, their imports from the West needed to sustain the increased output have to be stepped up *pari passu*. Gains in real income due to specialization may also lead to larger imports from non-member countries.

Countless books and articles published in the CMEA countries on specialization approach the statistical measurement of integration by citing increases in the absolute volume of trade, the share of trade turnover accounted for by CMEA partners, the number of signed bilateral and multilateral trade and specialization agreements, or the share of trade accounted for by various (usually poorly defined) specialization or industrial cooperating agreements. That is, the statistical indicators most often relied upon to show integration tend to be based on supply data. No reference is made, as a rule, to conditions that must be met or states that must be reached to have achieved some acceptable or desired level of (static or dynamic) integration among the CMEA countries. A representative review article presenting the kinds of evidence CMEA economists often rely on to measure CMEA integration is one by a GDR economist which has appeared in a leading Soviet journal, also available in English [Morgenstern].

A more sophisticated measure of integration sometimes used by CMEA economists, as well as by the United Nations' Economic Commission for Europe, is the "delta coefficient," which is the ratio of a region's actual share of intrabloc trade to its hypothetical share. The ratio is calculated on the assumption that intrabloc trade is proportional to the region's share in total world exports and imports [UN]. To illustrate with hypothetical figures: if the EC were to account for 35 percent of total world exports and 30 percent of total world im-

ports, then the hypothetical share of intra-EC trade would be 10.5 percent of world trade (35 percent \times 30 percent). If the actual share were, say, 15.75 percent, the "delta coefficient" would be 1.5 ($= .1575 \div .105$).

According to a variant of this measure developed by an Austrian economist, where delta coefficients are scaled on the basis of their maximum attainable level (the maximum would be achieved if all the trade of a region were intrabloc), the highest degree of integration of CMEA occurred in 1955 and again in 1962, and it has been declining up to 1975 (the last year included) [Fink]. But, in our view this and other related measures of integration are only very approximate indicators of the extent to which a bloc of countries trading in a protected common market has achieved specialization according to its members' comparative advantage. One reason is that a bloc's share in world trade may be depressed by a policy of systematic "trade aversion" on the part of its member countries, or by discrimination against the bloc by outsiders. Yet, net "trade creation" in intrabloc exchanges may not be large enough to compensate for the drop in trade with the rest of the world. In such a case, the delta coefficient would rise without any increase in intrabloc specialization taking place. Stating the problem differently: if the EC's higher foreign trade intensity than that of the CMEA, measured by trade/GNP ratios, is not properly considered, the delta coefficients will underestimate the trade integration of the EC and overstate that of the CMEA [Baufeldt and Walter].

There is a more fundamental problem, however, with any type of indicator that relies on changes in trade shares among members of a preferential group. A decrease in the share in the face of an increase in the absolute volume of intrabloc trade surely does not indicate a decline in regional integration, just as an increase in the share in the face of a stagnating or declining volume of intrabloc trade does not signal an increase in integration. Thus, the decline in the CMEA's delta coefficients between 1971 and 1976 was almost certainly due to increased Soviet and East European trade with the West rather than disintegration of CMEA. Moreover, the requirement of bilateral balancing within the CMEA encourages tied trade and re-exports, so that even changes in the absolute volume of intrabloc trade may not necessarily indicate a corresponding change in the degree of integration.

An interesting Western approach to the measurement of integration, avoiding reliance on changes in trade shares and explicitly taking into account domestic output and import demand, has been developed and applied to the CMEA by French economists [Israelewicz]. It measures the changes over time of a country's "degree of involvement" ("d") in the regional or international economy by individual or groups of products.

Specialization is measured by

$$d = \frac{Y}{D}$$

where

Y = domestic output of a commodity (group)

D = effective domestic demand, i.e., domestic output less exports plus imports

If $d < 1$, it indicates that domestic demand is met by an excess of imports over exports; if $d > 1$, domestic demand is satisfied and exports exceed imports. Increased specialization over time (among countries) is found if a country's "d's" tend to increase over time (or more rapidly than those of other countries) for the region's, or the world's, most progressive products.

Applying this method of calculation to a sample of 31 industrial products accounting for about 20 percent of the U.S.S.R.'s (and a somewhat higher percentage of the East European countries') exports of manufactured products, the study found specialization within the CMEA to be "a very slow process," with Poland being the most and the GDR being the least specialized. The U.S.S.R., was omitted in this comparison as a special case due to its size [Israelewicz].

Another promising approach is to compare actual trade within a bloc with potential trade, which is econometrically estimated on the basis of the distance between trading countries, their relative populations, and GNP's. Natural-resource endowments and industrial structure are other factors influencing potential trade that should be included but are usually omitted from these "gravity models." This is the route chosen by Hewett [1976], who analyzes differences in the foreign trade outcomes between centrally planned and market economies. One difficulty these models face, as Hewett stresses, is how to allow for the impact on potential trade of the preferences of policy-makers for trading with partners in the bloc rather than with outsiders. Moreover, the potential is generally estimated from coefficients derived from the trading records of Western economies, which themselves are far from exploiting the full advantages of interindustry specialization.

The neo-classical approach to the definition and measurement of integration differs radically from those just examined. An example will illustrate the approach. Consider first a set of economies where all investment and output decisions are strictly consistent with the familiar requirements of "efficiency in production," yet trade among them limited by artificial barriers (tariffs, quotas, exchange controls). Suppose that all impediments to trade among them—though not necessarily with the rest of the world—were removed. In the framework of the neo-classical paradigm, a necessary and sufficient condition for complete integration of this "bloc" would be that the relative prices of any pair of goods in every member country should be the same (adjusted for transportation costs). A *process of integration* would then consist in moving from an initial state, where relative prices differed significantly in each country, through a series of states, each marked by a convergence of relative prices compared to the last. Any temporary divergences in relative price trends due to exogenous events would eventually have to be reversed, i.e., the trend toward equalization of relative prices in each country would have to be resumed as integration proceeded.

Among CPE's (or, for that matter, among market economies where the state interferes with production or investment decisions), convergence toward equal price relatives is a necessary but not a sufficient condition for integration because government planners may order,

or induce, levels of output or investment projects that are inconsistent with comparative advantage.

How can one tell whether a country is investing along the lines of comparative advantage? Consider two countries, A and B, both producing some amounts of goods x and y in the presence of restrictions on trade. Let coal-intensive good x be produced relatively cheaply in A and oil-intensive good y be produced relatively cheaply in B. When trade is facilitated by the removal of restrictions, A moves toward an output-mix richer in x and B toward a mix richer in y . The scarcities (or the shadow prices) of x and coal increase in A relative to the scarcities (or the shadow prices) of y and oil. The profitability (in terms of shadow prices) of producing x and coal increase in A, that of producing y and oil increases in B. To be consistent with comparative advantage, investments and other resources must gravitate toward x and coal in A and toward y and oil in B. If, instead, prior to the removal of trade restrictions, large investments had flowed toward y and oil in A and toward x and coal in B, the same relative scarcities of these two pairs of goods might also have been attained in both countries, at which point no trade would take place even in the absence of restraints. If investment decisions are systematically made with an eye to equating relative scarcities within each country, then members of the bloc would cease engaging in any mutual trade, and perfect dis-integration would result.

Let us now examine the problem of measuring progress toward integration along these lines. In the light of our definition of an integration process, price and quantity indicators should be used to measure changes in the degree of integration. But in CPE's, prices and costs generally diverge from marginal rates of transformation in production (due, among other factors, to low capital charges and to large differences in the extent of indirect taxes and profits levied on various goods). Moreover, wholesale accounting and retail prices have not had much influence on the planners' choice of tradeable goods, nor have the prices of exports and imports been reflected systematically in wholesale and retail prices. In this situation, changes in the relative prices of goods would be difficult to use to give even an impression of the extent to which relative scarcities within CMEA have tended to converge or to diverge over time.

On the quantity side, the question is how to measure the convergence or divergence of relative outputs among countries over time. The method we suggest is analogous to the measurement of changes in the distribution of incomes or wealth using the Lorenz curve approach. Take as an example the statistics of production of metal-cutting lathes, which we assume to be available for all countries in CMEA in comparable measurement units. What is the percentage of the total CMEA output of these goods in a given year represented by the smallest producer (say, Bulgaria) or of the two smallest producers, and so forth, until the entire output is accounted for? The results may be plotted on a Lorenz curve, with the number of states shown on the abscissa and the cumulative shares of total output they represent on the ordinate. Of interest then would be the changes in the position of the curve observed through time. Clearly, progress toward integration will be marked by greater "inequality" or a larger coefficient of vari-

ation, that is, by each curve lying farther from the 45 degree line than the last.

To see what the results of a systematic study with this measure might yield, we selected a sample of 14 products from the CMEA statistical yearbooks. Data availability limited the samples to relatively highly aggregated products, such as lathes, tractors, and so on (see table 1). According to our definition, a movement toward specialization would show a more unequal distribution of production, i.e., the smallest three or four producers accounting for a declining share of total CMEA output over time. As could have been predicted, this indicator of integration during 1950-76 shows dis-integration among CMEA members for most products, largely because the countries that produced the smallest relative outputs during the 1950's (Bulgaria and Romania) have increased their shares of total bloc output over time. Table 1 reveals that during 1950-60, a trend toward specialization is found only for 3 out of 13, during 1960-70 for 4 out of 14, and during 1970-76 for 5 out of 14 products.

TABLE 1.—INDICATOR OF PRODUCT SPECIALIZATION IN CMEA: HAS THE DISTRIBUTION OF PRODUCTION LEVELS AMONG CMEA MEMBERS¹ BECOME MORE UNEQUAL?

Product	1950-60	1960-70	1970-76
Investment goods:			
Tractors.....	Yes.....	No.....	No.....
Railway cars.....	No.....	Yes.....	Yes.....
Buses.....	No.....	No.....	Yes.....
Lathes.....	Not available.....	No.....	No.....
Intermediate goods:			
Pig iron.....	No.....	No.....	No.....
Steel.....	No.....	No.....	No.....
Synthetic fertilizer.....	No.....	No.....	No.....
Consumer products:			
Shoes.....	No.....	No.....	No.....
TV sets.....	No.....	Yes.....	No.....
Radio sets.....	Yes.....	Yes.....	Yes.....
Textile fabrics.....	No.....	No.....	No.....
Cigarettes.....	Yes.....	Yes.....	Yes.....
Agricultural products:			
Butter.....	No.....	No.....	Yes.....
Meat.....	No.....	No.....	No.....

¹ The CMEA as here defined includes the U.S.S.R. and the 6 East European countries of Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, and Romania.

Source: Based on production data in physical units reported in various CMEA statistical yearbooks. The method of calculation is described in the text.

This particular application of the proposed measure is far from ideal, if only because we cannot rest a generalization about CMEA integration or dis-integration on 14 arbitrarily chosen and quite aggregated products. There is also the following conceptual problem. One usually thinks of increased specialization as one country *expanding* output at the expense of other countries; but if one country *reduces* output to let several other countries expand production a little, might that not also be construed as a move toward increased specialization? This is in fact what we found in the case of tractors: During 1960-76, Hungary and the GDR were both giving up the production of this item (their absolute production figures were declining), yet during the same period, the combined shares of the four smallest CMEA producers were rising, so that the statistical results cannot give an unambiguous answer.

We computed the coefficient of variation of the percentages of output of the 14 commodities represented by the different members of CMEA. (The greater the coefficient, the greater in principle the degree of integration.) To refine this measure, which is strongly influenced by the large share of the U.S.S.R. in the total CMEA output of most of these commodities (close to two-thirds), and to detect whether subregional integration might be taking place among the six East European countries, the coefficient of variation is shown both including and excluding the Soviet Union.

The results in table 2 do not contradict the conclusions reached earlier. First, in every instance, the coefficient of variation is significantly greater, as expected, among the CMEA seven than among the CMEA six (which excludes the U.S.S.R.). Second, for the CMEA seven, between 1950 and 1960 the coefficient declines or remains essentially unchanged for 9 out of 14 commodities, between 1960 and 1970 again for 9 out of 14 commodities, and between 1970 and 1976 for 11 out of 14 products. The picture is somewhat different if we focus on the six East European countries only. Between 1950 and 1960, the coefficient declined or remained essentially unchanged for 13 out of 14 commodities (the single exception is tractors); between 1960 and 1970, it again declined or remained practically unchanged for 13 out of 14 commodities (except for cigarettes). Between 1970 and 1976, the coefficients increased for about half of the commodities sample, indicating that there may have been a movement among the six countries toward specialization, although a significant increase is found only for TV and radio sets. Our tentative conclusion is that "disintegration" appears to have been taking place in the CMEA between 1950 and 1970 as the less developed countries installed capacity to produce many products that were previously the monopoly of the more industrialized members, but after 1970 this trend appears to have been halted and some specialization decisions implemented.

These statistical results illustrate the problem of quantifying the proposed measure of integration. One may argue, for example, that working with more disaggregated products, which would distinguish, say, lathes of various dimensions and degrees of automatic control, might show more positive results on specialization, since individual members of CMEA are more willing to agree to specialize in narrowly defined than in broadly defined product groups.

A method of measuring progress toward integration in terms of prices and outputs may also be devised on the basis of index-number theory. First, calculate for certain benchmark years the aggregate output (GNP or industrial production, depending on whether only specialization in industrial goods is of concern) for any pair of countries A and B in CMEA, using, alternatively, the prices of A and B to measure the aggregate. It is well known that the ratio of country A's output to B's will be larger when B's prices are used to weight the outputs of both A and B than when A's prices are used, if and only if the relative outputs of the two countries are inversely correlated with their prices. Otherwise, the result will be reversed [Ames and Carson].

If the ratio in question, measured at two points of time with the same sets of prices drawn from A and from B, marks an increase, it will

TABLE 2.—INDICATOR OF PRODUCT SPECIALIZATION IN CMEA: COEFFICIENT OF VARIATION OF PERCENTAGES OF OUTPUT LEVELS FOR SELECTED COMMODITIES, 1950-76

Product	CMEA-7 ¹				CMEA-6 ²			
	1950	1960	1970	1976	1950	1960	1970	1976
Investment goods:								
Tractors.....	2.06	1.97	2.08	1.97	0.75	1.11	0.95	1.00
Railway cars.....	1.68	1.31	1.42	1.46	1.16	.92	.81	.93
Buses.....	1.86	1.92	1.64	1.59	1.62	.80	.80	.84
Lathes.....	1.42	1.41	1.45	1.54	1.04	.83	.42	.35
Intermediate goods:								
Pig iron.....	2.07	1.97	1.98	1.94	.93	.75	.64	.61
Steel.....	1.92	1.90	1.87	1.82	.76	.70	.58	.61
Synthetic fertilizer.....	1.49	1.37	1.56	1.64	1.98	1.51	.87	.78
Consumer products:								
Shoes.....	1.63	1.59	1.53	1.43	.74	.54	.51	.48
TV sets.....	1.71	1.57	1.88	1.73	2.44	.85	.38	.0
Radio sets.....	1.36	1.62	1.80	1.59	.79	.67	.60	.67
Textile fabrics.....	1.51	1.64	1.64	1.62	.55	.47	.44	.45
Cigarettes.....	1.46	1.58	1.45	1.42	.45	.47	.57	.64
Agricultural products:								
Butter.....	1.73	1.64	1.64	1.60	.98	.90	.86	.90
Meat.....	1.24	1.41	1.42	1.26	.89	.62	.55	.53

¹ U.S.S.R. and the 6 East European countries.

² 6 East European countries only.

Source: See table 1.

denote a trend toward greater integration. This is because the constancy in prices ensures that a rise in the ratio implies a greater divergence (variance) between the quantities produced in A and B. To check whether prices have converged in a given period, a calculation may be made of the output ratio in the two countries at the beginning and at the end of the period, using beginning-of-the-period and end-of-the-period prices and keeping quantities constant. Needless to say, there is an underlying assumption that the quantities and prices entering the ratio in each period are a representative sample of all the outputs and of all the prices in each economy.

The neo-classical framework for analyzing specialization and integration (in which the ideas developed in the foregoing pages are rooted) has lately come under attack among Western economists. One of its chief drawbacks is that it has little to say about the extraordinarily rapid growth of intra-industry exchanges and about the related phenomenon of balanced trade within sectors and even within sub-sectors in trade among developed market economies.

In many developed countries the share of foreign trade in GNP has increased only moderately. Yet the intensity of trade *within* practically all *industrial* sectors has increased drastically, in some cases by some 50 to 100 percent during the last decade. The reason for this apparent paradox is that the composition of GNP of many industrial countries has shifted from high-trade to low-trade sectors, mainly from manufacturing to services, public services in particular [Lindbeck].

What explains the success of increasing intra-industry and the failure to deepen inter-sectoral specialization after the elimination of tariffs? Balassa's explanation for the EC focuses on product differentiation and strong promises to protect existing industries. He finds that the elimination of tariffs has led to increased exchanges of consumer goods and specialization in narrower ranges of machinery

and intermediate products. "The increased exchange of consumer goods is compatible with unchanged production in the consumer goods industries of each of the participating countries while changes in product composition can be accomplished in the framework of existing machinery and intermediate products industries" [Balassa].

Focusing on the effect of successive tariff reductions among GATT countries, Hufbauer and Chilas explain the failure to deepen intersectoral specialization in terms of the process of bargaining for the mutual concessions that paved the way for the expansion of trade among these developed nations. They argue that the negotiators, in the framework of GATT, swapped tariff concessions, which had to be more or less balanced to receive domestic support from the industries that were likely to be affected. Often the consent of a powerful firm could be obtained for an import that might threaten its sales only if a countervailing concession could be secured for one of its exports.

With regard to the protection of domestic industries, the situation within CMEA seems to be analogous, particularly as regards the mutual trade of its East European members. CMEA negotiations on reciprocal deliveries take place within specialized commissions, one for each industrial sector like machine-building, chemicals, textiles, and so forth. In this framework, concessions are likely to be "balanced." There is little chance that one country will concede an export surplus to one or more other members in the goods under the jurisdiction of one commission in counterpart for the opportunity of running a surplus in the goods subject to negotiation in another commission.

Trade in machinery within the CMEA illustrates the point. Table 3 shows the share of machinery in the total imports and exports of individual CMEA countries and that of the bloc, with and without the U.S.S.R., for three 5-year periods between 1960-64 and 1970-74. We find that trade in machinery has grown much faster than in other products, especially among the six East European countries, where in just ten years the share of machinery in their mutual trade had increased from about 40 percent to 54 percent. The main reason for this is the rapid increase in the machinery exports of the less developed countries, especially those of Bulgaria and Romania, and also of Poland, principally to the more developed markets of the GDR and Czechoslovakia. Thus, the large export and import surpluses of the 1950's and 1960's in intrabloc trade in machinery, and in the corresponding offset categories of raw materials and foodstuffs, have diminished over time as "tied" reciprocal deliveries became the framework for trade within the CMEA.

Intra-industry trade among developed nations cannot be explained satisfactorily by specialized factor endowment or by any of the standard theories of the neo-classical paradigm. Neither can its advantages be measured in terms of the familiar gains-from-trade arguments. The explanations now being looked into by theorists run in terms of economies of scale and product differentiation in imperfectly competitive markets, while the advantages of trade without specialization may be attributed to the broadening of consumer choice, the limitation of the power of oligopolies, and the enlarged possibilities for the transmission

TABLE 3.—SHARE OF MACHINERY IN INTRA-CMEA TRADE, 1960-74
[5-yr arithmetic average percent]

Country	Imports			Exports		
	1960-64	1965-69	1970-74	1960-64	1965-69	1970-74
U.S.S.R.-----	47.7	48.6	49.8	28.4	31.8	34.7
Eastern Europe:						
Less developed:						
Bulgaria-----	52.7	51.8	51.1	21.6	31.3	40.8
Romania-----	40.9	44.6	51.8	20.7	25.1	32.8
Medium developed:						
Hungary-----	36.3	35.9	40.2	44.8	42.9	44.8
Poland-----	39.7	44.0	45.4	41.8	50.1	52.7
More developed:						
German Democratic Republic-----	21.2	31.3	40.4	55.3	58.3	59.9
Czechoslovakia-----	31.9	35.6	38.9	51.3	57.9	58.9
CMEA-7-----	38.6	42.4	45.7	38.4	42.4	45.7
CMEA-6 (excludes U.S.S.R.)-----	41.2	48.9	54.3	40.3	48.9	54.2

Source: Jan Vanous computer printouts from Project CMEA-FORTRAM Data Bank of Foreign Trade Flows and Balances of CMEA Countries, 1950-75 (Vancouver: Department of Economics, University of British Columbia).

of technology [Hufbauer and Chilas]. It can hardly be claimed that expansion of balanced intra-industry trade, so characteristic of exchanges among both Eastern and Western nations, promotes the type of integration that reduces or eliminates differences in relative scarcities among trading partners, at least to the same extent as intersectoral trade might be expected to. In our view, despite the advantages that we have listed, its potential for facilitating growth or increasing consumers' welfare is definitely inferior to what we would associate with a freer type of trade.

APPENDIX

SURVEY OF THE ENGLISH-LANGUAGE LITERATURE ON CMEA INTEGRATION AND RELATED TOPICS¹

This appendix annotates and cross-references a selective list of *books* published in the Soviet Union, Eastern Europe, and in Western countries; *articles* published in the West; and *special studies* included in a series of compendia on the U.S.S.R. and Eastern Europe issued by the Joint Economic Committee of the U.S. Congress. The survey is not comprehensive. Its main limitations are: (1) With a very few exceptions, only publications in the English language are included. (2) With respect to the literature originating from the CMEA countries, principally *books* (including edited volumes and document collections) are listed, supplemented by a few articles from two English-language journals published, respectively, in Hungary and Poland.² (3) With respect to *articles and special studies*, the principal focus is on those published in the West, without claiming to have listed everything important. For example, much of the large literature on CMEA integration written from the perspective of political science, economic geography, or law has been omitted. (4) Generally excluded also are works that focus on just one CMEA country or on just one segment of CPE trade, such as East-West or East-South commerce. (5) Items that should have been included may have escaped attention.

There is a need to build current research on earlier works, which students and scholars often find difficult to do because the relevant literature is scattered in many different types of journals, publishers, and volumes of collected studies. The purpose of this survey is not to overwhelm the reader with the longest possible list of publications but to guide those wishing to undertake further research on

¹ We would like to thank J. van Brabant for helpful suggestions on a draft of this appendix.

² *Acta Oeconomica* (Budapest) and *Oeconomica Polona* (Warsaw).

some aspect of CMEA integration and related topics. Listed are several bibliographies which provide a more comprehensive guide to the CMEA literature. Moreover, most of the other publications listed in our selected bibliography contain their own extensive reference citations.

The appendix is divided into three sections. Section A presents a chronological guide to the English-language books published by Western and Eastern economists between 1950 and 1980, supplemented by a few books published in French and German. Section B cross-references each publication listed in the bibliography under one or more topic. Section C contains a two-part bibliography: Part 1 on CMEA integration and part 2 a short list of additional works cited in the main text.

A. Chronological Guide to the Literature by Western and Eastern Economists

No major work of significance appears to have been published, in English, on socialist integration for almost a decade-and-a-half after the CMEA was established in 1949. This probably reflects the dormancy of the organization and that of foreign trade in general in the socialist countries, as well as the economic and political isolation of the U.S.S.R. and Eastern Europe from the West. For almost ten years thereafter, several books have appeared in English, but all of them were written by Western economists. During 1971-75, a spate of books appeared, in the West and in Eastern Europe, apparently marking the beginning of a period in which economists from the CMEA countries attempted to communicate with their counterparts in the West by publishing books in English. This increased openness of communications continued during the second half of the 1970's.

Focusing on publications by Western economists, it is of course not surprising that American and British authors dominate the English-language literature. It is more interesting to note that of the 16 books authored or edited by experts from the CMEA countries found by our admittedly incomplete search of the literature, seven originated in Hungary, seven in the U.S.S.R. and two in other CMEA countries. The significant contribution of Hungarian economists to the English-language literature on CMEA integration can probably be traced to the country's strong tradition in economics and the relative obscurity of the Hungarian language which compels their experts to present their views (not only to the West but to the East also) in a language more readily accessible than Hungarian.

The pioneering work on CPE foreign trade, including integration, is the book by Pryor [103], which describes the role and main institutions of CPE trade (i.e., planning, organization, criteria for decision-making, how prices are set), the theory and practice of conducting foreign trade, and prospects for reforming the traditional CPE foreign trade system.

The first book devoted entirely to socialist integration was the 1965 study by Kaser [52], tracing the evolution of the CMEA and highlighting the achievements and problems of integration; a second and revised edition was published in 1967.

In 1968, two comprehensive volumes that are still basic works on CPE foreign trade were published. One is by Wiles [139], a most wide-ranging contribution to the field, containing not only economic but also historical, sociological, political, and philosophical treatments of the subject. Particularly interesting is the discussion of Soviet and East European trade theories (based on Marx's doctrine of non-equivalent exchange, which Wiles criticizes strongly); his views on bilateralism; his reconstruction and analysis of the balance of payments of selected CPE's and their balance of payments adjustment process; and the use of trade as an instrument of peace or warfare.

The other 1968 volume, edited with an analytical introduction by Brown and Neuberger [26], is based on a conference on International Trade and Central Planning at the University of Southern California in Los Angeles, sponsored by the Joint Committee on Slavic Studies of the American Council of Learned Societies and the Social Science Research Council. The purpose of the Conference was to initiate a systematic study of centrally planned foreign trade, a neglected field in the West up to then. Among the key issues discussed were the level and structure of CPE trade, the institutional mechanism of trade, commercial policies, the balance of payments adjustment process, and future prospects. Concerning the *level* of trade, it was concluded that trade-income ratios of CPE's tended to be lower than in "comparable" market economies, but the ratios of CPE's tended to rise more rapidly. CPE's tend to curtail nonessential imports but increase rapidly essential imports to break bottlenecks created by rapid indus-

trialization under taut central planning. Furthermore, primary product exports with low import content are gradually replaced by industrial exports that are highly import intensive, which re-enforces the rapid rise of imports.

Concerning the *commodity structure* of trade, it was concluded that rapid, forced industrialization has created increasing difficulties of selling exports for convertible currency, re-enforced by a neglect of agriculture which has reduced the availability of goods for exports and increased the demand for imports. In the Brown-Neuberger volume one of us (Montias) explored the relationship between investment and trade cycles with a simulation model. It was revealed that the concentration of investment in heavy industry, especially in machinery, led over time: (1) to a decline in the share of machinery in the less developed CMEA countries' imports from the more advanced CMEA countries; and (2) to the contraction of exportable surpluses of raw materials and foodstuffs required in increased amounts for their domestic economy and to pay for Western imports. These developments, in turn, have created difficulties for the more advanced CPE's, such as Czechoslovakia and the GDR, which depended so heavily on their partner's demand for machinery.

Concerning the *balance-of-payments adjustment mechanism*, Hoeffding provided an empirical analysis of the Soviet Union's response, in its trade with the West and in its trade within the bloc, to a grain-import-induced severe CC balance-of-payments problem. Holzman presented a theoretical discussion of BOP adjustment under central planning. One of his conclusions was that in relations with the West, a CPE's chief method may be adjusting the price it charges for exports and the domestic price of imports—measures that can be viewed as surrogates for exchange rate depreciation in Western countries with CC's—while in trade with other CPE's, external imbalances tend to be corrected via adjustments in the quantities traded.

Turning now to books published in the early 1970s by CMEA economists, one of the first major works in English is by the Hungarian economist Kiss [53]. An interesting feature of the book is a detailed review of the Western literature on international trade, which takes up nearly a third of the volume, but with little discussion of its relevance to CPE trade. The rest of the book describes the organizational, economic, and financial arrangements in the CMEA and sketches some interesting ideas on the relationship between domestic economic reforms and reforms in the CMEA trade and financial mechanism.

Another volume is a collection of 11 essays by Hungarian specialists in foreign trade, edited by Vajda and Simai [129]. Several of the essays are pioneering as far as discussions by East European experts are concerned, although there are few attempts to formulate testable hypotheses. One contribution especially relevant is Berend's frank review of the political and economic conditions prevailing at the time the CMEA was established. His analysis shows that during the interwar period, East European integration was hampered by unhealthy rivalry, including high tariffs; early postwar integration attempts were thwarted by Soviet rejection of the concept; while more recent tries have floundered on unrealistic forms of proposed integration and on central planning. Other contributions of particular interest to Western economists include Augustinovic's use of input-output methods to analyze the relations between the commodity composition of foreign trade and economic structure, and Tardos' discussion of linear programming models for guiding the economy toward efficient resource allocation through trade.

Another Hungarian volume is by Ausch [5]. After presenting some historical information on the early years of CMEA's integration efforts, it focuses on the role of prices in the CMEA. The book's main contribution is showing how and why the shortcomings of the CMEA price system create bilateralism, and why this hinders an effective division of labor among the countries. One of the first English-language publications of papers presented by economists from the member countries at a CMEA conference on "The Nature and Problems of the CMEA Market" was edited by Kiss [54].

Among the major books by a Soviet economist translated into English in 1973 is a treatise by Maximova [87], a leading specialist on questions of capitalist and socialist integration. Although her book is mainly a Marxist critique of capitalist integration, it includes chapters on the Marxist definition of integration and on socialist integration.

Appearing in the same year and focusing only on socialist integration is another work by a leading Soviet specialist, Senin [112]. The author examines

the theory and methodology of the international socialist division of labor, forms of integration, and the ways and means of achieving it. The work is of considerable interest as an authoritative statement of the Soviet position on the issues as of the late 1960s; it has been translated into several East European languages. Other, more descriptive or polemical works were also published in English in the U.S.S.R. during the first half of the 1970's, including [3] and [8].

Turning now to Western contributions appearing around this period, a treatise by Boltho [14] discussed the theoretical criteria and practical planning methods of foreign trade decisions in Eastern Europe.

Statistical data on the foreign trade of the CMEA countries plus Yugoslavia has been compiled by Marer [78], presenting some 300 pages of statistical tabulations and a detailed discussion of the problems of standardizing CPE foreign trade data. The work describes the CMEA and the principal Western trade nomenclature systems, the practical difficulties of their reconciliation, and the problems that impair the comparability of CPE trade data over time and across countries within and outside the bloc. Building on this effort, Vanous has created and continuously updates a computerized Data Bank of Foreign Trade Flows and Balances of the Seven CMEA Countries, available on printouts or computer tapes to any interested user.³

Two Western contributions focused on the foreign trade prices and terms of trade of the CMEA countries. Marer [79] describes how foreign trade prices and price levels are determined in CPE trade and provides estimates for various countries and time periods of prices at which CMEA countries trade with each other and with the West. Taking world market prices as a reference point, he finds that during the 1950's and 1960's intrabloc prices were relatively high. The foreign trade price mechanism in intrabloc trade was explored in even greater detail by Hewett [41]. After reviewing the Eastern and Western literature on the topic, Hewett undertakes, on the basis of original methodology, an empirical analysis of intra-CMEA prices and terms of trade. He describes the influence of prices on intra-CMEA trade flows, the various price reform proposals by economists of the member countries, and analyzes the institutional reasons why even the most reasonable-sounding CMEA price reform proposal could not be implemented.

A descriptive, chronological account of new proposals made, the official positions taken at various times and contexts, and the compromises reached regarding CMEA integration between 1967 and 1971, can be found in Schaefer [110]. Van Brabant's treatise [131] analyzes the advantages and disadvantages of CMEA bilateralism, stressing that there is some rationale for it, given the growth strategy and economic model typical of CPE's. He compares the results of a bilateral trade policy with what could have been obtained by a multilateral trade policy. Although a reliable quantitative estimate of the benefits and costs of bilateralism eludes the author, van Brabant's analysis provides theoretical and practical insights into many aspects of the problem. Further attempts to quantify the costs of bilateralism can be found in studies by Brada ([20], and [21]), which also represent Western applications of foreign trade models developed in Eastern Europe by Trzeciakowski [127] and Tardos [123].

One of the most significant contributions to the field is Holzman's 1974 collection of his own essays [44], written mostly during the preceding decade. The volume covers a significant body of theoretical contributions to the field during this period, including discussion of the foreign trade adjustment mechanisms of CPE's; the relationship between trade and growth; the question of autarky vs. integration of the planned economies on their regional market and vis-a-vis the world market; and commercial policies of CPEs (bilateralism, protectionism, dumping, and economic warfare). Several chapters focus on the history, institutions, and performance of the foreign trade of the U.S.S.R.

A comprehensive introductory college text by the same author [45] reviews in non-technical terms Soviet and East European foreign trade theory, foreign trade institutions and practices, and examines the postwar trade policies of these countries in their East-East, East-West, and East-South setting.

A pioneering attempt to examine the validity of trade patterns predicted by conventional economic theory for the trade of the U.S.S.R. with partners in and outside of the CMEA is the work of Rosefielde [107].

³ Project CMEA-FORTRAM, Department of Economics, University of British Columbia, 2075 Westbrook Mall, Vancouver, B.C. V6T 1Y2, Canada.

Turning again to works by CMEA authors, a polemic attempt to compare socialist and capitalist integration by a Soviet international lawyer is Kuznetsov [60]. More scientific are some other works by Soviet experts: A collection published by the Academy of Sciences of the U.S.S.R. [118], by Bogomolov [13], and by three authors [61]. A comprehensive review of the Eastern and Western literature on socialist and market integration was published in 1976 by Palankai [100]. Very useful for a Western reader is a 600-page collection of key documents on CMEA integration, published in Moscow [94].

There was a rare opportunity for leading economists from the East and the West to engage in a productive dialogue on economic integration at the Fourth Congress of the International Economic Association, held in Hungary in 1974, whose theme was economic integration among countries. Two proceedings volumes were published. The first, edited by Machlup [73], contains 13 of the principal invited papers and nearly 50 comments by leading specialists from East and West. The second volume, edited by Simai and Garam [115], is comprised of 38 shorter contributions by specialists from East and West. As is typical of proceedings of these type, the quality of the contributions is uneven in both volumes. Nevertheless, these proceedings provide an excellent opportunity to sample, in English, the views on integration of foreign trade specialists from many countries, including even the perspective of a specialist from Mongolia. Another collection of studies presented at a Western conference on CMEA integration was published in the same year [80].

A study published in 1976 summarizes the various rationales and theories of economic integration and then describes and contrasts the institutions and practices of the European Economic Community and of the CMEA [19]. A 1977 book by van Brabant [132] on the institutional and theoretical aspects of the CMEA financial system focuses on such topics as the largely unsuccessful attempts in the CMEA to multilateralize intrabloc transactions, the organization and functions of CMEA's two regional banks, the role of exchange rates, details of monetary reform proposals by experts from the CMEA countries, and the problems and prospects of their implementation.

One of the most comprehensive attempts to evaluate critically the limited progress so far of CMEA integration and to put forth reform proposals is by the Hungarian economist Peci [101]. Another pioneering and highly theoretical work, attempting to provide a realistic optimization model for planning a socialist economy, with emphasis on the planning of foreign trade, is the book by Polish economist Trzeciakowski [127].

A comprehensive review of the institutions and economics of CMEA integration, containing much original material and interpretation, can be found in the French-language works of Lavigne, especially [64]. Austrian and German specialists have also contributed comprehensive studies in German, including [4], [12], [49], and [65].

Another recent conference and a volume based on it has examined the sensitivity of individual CMEA countries and that of the CMEA as a group to major international economic disturbances during the 1970s: the energy crisis, inflation, and recessions [97]. The studies analyze the key trade-offs between external and internal economic balance, concluding that the sensitivity of individual CMEA countries to these disturbances has varied as a consequence of differences in their domestic economic and political situation, their involvement in international commodity and factor markets, and their ability to introduce consistent and affective policy responses.

We have edited a book [85] which traces its origin to a 1976 conference on East European Integration and East-West Trade. It was sponsored by the Joint Committee on Eastern Europe of the American Council of Learned Societies and the Social Science Research Council—a tenth anniversary follow-up to the conference on International Trade and Central planning cited earlier.

Let us therefore compare and contrast the publications that resulted from the two conferences. In the earlier volume, edited by Brown and Neuberger [26], there was an emphasis on what is different and unique about centrally planned foreign trade, as is appropriate for a new and emerging field of study. The contributions in the more recent volume seek to find both similarities and differences between CPEs and market-type economies, revealing that CPEs have important features that make it possible to compare them with nations outside of Eastern Europe. The contributions also recognize that the CPEs themselves should be increasingly differentiated—by size, level of development, historical

and political tradition, and the extent of modifications in the traditional CPE system that nations may undertake in individual fashion.

A further distinction between the two works is that while most of the contributions in the Brown-Neuberger volume tended to be descriptive of CPE foreign-trade institutions and policies, necessary at an early stage of research, many contributions in the more recent volume are analytical and theoretical, made possible by the fact that the authors could build on the earlier, and by and large still relevant, descriptive contributions. One aspect is the inclusion in our volume of several econometric studies, whereas there was neither a firm enough theoretical foundation nor adequate statistical information to attempt econometric work ten years ago.

Concerning future prospects, the only issue that received considerable attention in the earlier volume was the question of economic reforms, including reforms in the foreign-trade sector. It was recognized, especially by Grossman, that balance-of-payments problems would provide pressure for reforms in Eastern Europe, but not in the U.S.S.R. Yet it was felt, notably by Bergson, that CPE's would probably not move rapidly toward improved efficiency either in their domestic or in their foreign-trade sectors because serious obstacles, identified by Neuberger as "legacies of a Soviet-type CPE," remain against economic decentralization-type reforms. In retrospect, ten years later one finds the prediction quite accurate, except in the case of Hungary which in 1968 did introduce major reforms.

It is interesting to note that no one even raised the possibility ten years ago that one policy option the CPE's might have is to borrow heavily from the West. Looking ahead, it is not difficult to predict that the large indebtedness, especially of the East European countries, will remain critically important in shaping not only East-West trade but also CMEA integration.

With respect to some of the specific contributions in the recent volume, it includes an essay by the editors on CMEA integration, which is an earlier version of the main text of this contribution. Hewett attempts to measure and explain differences between centrally planned and market economies in their foreign-trade behavior and outcomes, i.e., trade level, direction, and structure. Two short essays by political scientists Abonyi and Sylvain critically examine the relevance of political science theories on international integration to the experience of CMEA. Caporaso contrasts the difference between EC and CMEA in terms of the historical, political, and socio-economic conditions present when the respective regions began their integration efforts and deduces conclusions regarding comparisons involving the EC and CMEA. Wolf develops a framework for analyzing the short-run, macro-economic adjustments of both conventional CPE's and "modified" CPE's such as Hungary to external economic disturbances, such as inflation or changes in terms of trade.

Brainard's contribution focuses on the CMEA financial system. Fallenbuchl compares industrial policy in the CMEA and the EEC; that is, national and supranational efforts to promote industrial growth by encouraging structural changes in the branch or geographic composition of an industrial sector, focusing on the steel industry. Vanous presents an econometric model of intra-CMEA foreign trade, an interesting attempt to combine the rudiments of a theory of the key determinants of intrabloc trade with an empirical testing of the model. Further contributions view integration from the perspective of individual members of the CMEA.

While much progress has been made in the analysis of CMEA trade, some areas remain relatively unexplored: (1) There have been very few studies of East European integration by individual industries. Fallenbuchl's study of trade and specialization in steel products in [34] is one of the rare exceptions. *Intra allia*, a careful study of agricultural specialization in CMEA would fill an important gap. (2) Integration by subregions of the CMEA area—e.g., the Danubian basin, the "Northern tier"—has also been neglected. (3) We know far too little about the relation between technical progress and trade. When an innovation occurs, either in the West or in a socialist country, how is it diffused among CMEA countries? Once a CMEA member begins to produce a new product, does it usually manage to secure a monopoly in the bloc? Does it relinquish this monopoly once the product has become technologically less novel and attractive? In other words, is there a "product cycle" in CMEA, as there is in the West, such that less advanced countries eventually take over the production of technological novelties from the pacesetters who, in turn, begin to produce new things? In

the absence of a product cycle, we would expect growing parallelism. The only English-language publication known to us in this general area—the compendium of papers edited by Wasowski in 1970 [137] (in which the contributions by Richard Judy and Alexander Woronjak focused on the diffusion of technologies among CMEA countries), but the book is now, at least in part, outdated. (4) Finally, there is still much to be done before we understand fully the relation between East-West and intra-CMEA trade. The study of this problem has been impeded until now by the fact that most CMEA countries did not publish CTN breakdowns by geographic area, so that we had no precise data on the shares of developed market and of centrally planned economies in any given CMEA country's imports by commodity categories. As these data become more abundant and begin to enter Western data banks, scholars will have an opportunity to analyze foreign-trade decisions in greater depth. We will then know, or have a better sense of, how any given CMEA member copes, for example, with a bad harvest and a decreased ability to export farm products: Which exports will it increase and to what countries to make up the shortfall? What imports coming from which countries will it curtail? Such analytical exercises would also shed light on the constraints individual CMEA members must observe in redeploying their trade in the wake of any unexpected event due to the fixed nature of certain long-term contracts, especially with CMEA partners but also with certain less developed countries.

Anyone interested in a survey of what we do and do not know about socialist economic integration should find the most recent book by van Brabant [133], currently in press, useful.

B. Cross-Referencing of the Bibliography by Topics

1. *East European integration during the interwar period*
[5], [89]
2. *History of CMEA integration*
[5], [10], [26], [32], [44], [51], [52], [53], [64], [85], [89], [90], [101], [103], [110], [117], [126], [129], [132], [139]
- 2a. *Political Perspectives on CMEA integration*
[1], [2], [10], [59], [110], [117], [122], [129], [139]
3. *CMEA: General descriptive and analytical works*
[3], [26], [32], [41], [44], [45], [52], [53], [64], [85], [101], [103], [115], [116], [117], [126], [131], [132], [133], [138], [139]
4. *Theory, practice, and institutions of CPE foreign trade*
[5], [15], [19], [26], [39], [41], [44], [45], [52], [53], [64], [81], [85], [91], [101], [103], [107], [112], [115], [116], [117], [126], [129], [131], [132], [133], [134], [139], [141], [149]
5. *CMEA institutions (see also 3 and 4)*
[14], [19], [26], [32], [41], [52], [64], [85], [104], [117], [126], [132], [133], [139]
6. *Plan coordination/joint planning in the CMEA*
[3], [14], [18], [26], [32], [41], [44], [52], [72], [85], [101], [103], [112], [115], [116], [117], [126], [129], [131], [132], [133], [139], [149]
7. *Legal perspectives on CMEA integration*
[37], [60], [77], [94], [104], [111], [120], [121]
8. *Mobility of factors of production (see also 23-29)*
[32], [44], [52], [53], [67], [72], [101], [115], [132], [133], [138], [139]
9. *Standardization (technical or statistical)*
[46], [51], [78], [117], [138]
10. *Theoretical perspective on CMEA integration*
[19], [26], [41], [44], [52], [53], [73], [74], [81], [82], [89], [91], [101], [107], [112], [115], [129], [131], [132], [133], [134], [139]
11. *Marxist theory of trade and integration*
[3], [13], [14], [26], [64], [73], [74], [100], [101], [103], [112], [115], [139]
12. *Views of economists from the CMEA countries on integration and related topics*
[3], [8], [9], [13], [54], [60], [62], [73], [85], [87], [88], [93], [100], [101], [112], [115], [129], [149]
13. *Views on specialization and comparative advantage in the CMEA*
[5], [20], [21], [26], [32], [33], [44], [53], [64], [73], [85], [93], [99], [100], [101], [103], [107], [112], [115], [117], [118], [126], [129], [131], [132], [133], [138], [139], [149]

14. *Theory and measurement of integration—general*
[19], [26], [44], [73], [74], [81], [85], [101], [115], [129], [132], [133], [139], [143], [145], [148]
15. *Comparing the CMEA, the EC, and other integration efforts*
[2], [19], [22], [23], [26], [34], [42], [43], [44], [48], [60], [73], [74], [85], [87], [107], [114], [115], [139]
16. *Statistical measures of integration: CMEA and other*
[22], [23], [26], [34], [36], [42], [43], [48], [82], [85], [93], [102], [115], [128], [131], [133], [134], [139], [143]
17. *Statistical measures of the level and composition of intra-CMEA trade*
[4], [22], [23], [26], [33], [41], [42], [43], [44], [53], [56], [58], [78], [82], [92], [101], [103], [107], [115], [129], [131], [134], [139], [151]
18. *Econometric studies of intra-CMEA trade*
[26], [41], [42], [43], [92], [98], [107], [129], [131], [134], [151]
19. *Linear programming, optimization, and other trade models*
[14], [20], [21], [123], [127], [129]
20. *Foreign trade prices in intra-CMEA trade*
[5], [28], [41], [44], [52], [56], [57], [58], [66], [78], [79], [88], [101], [103], [107], [117], [125], [129], [133], [139]
21. *Terms of trade in the CMEA*
[28], [41], [44], [58], [66], [79], [103], [117], [125], [129], [139]
22. *Bilateralism vs multilateralism in the CMEA*
[5], [26], [41], [44], [45], [53], [73], [79], [85], [101], [103], [115], [117], [129], [131], [132], [133], [139]
23. *Sectoral integration (24-29)*
[52], [73], [98], [101], [113], [115], [133], [138], [147], [149]
24. *Joint CMEA projects*
[11], [12], [72], [85], [101], [113], [117], [126], [132], [133]
25. *Joint enterprises in the CMEA: International Economic Associations*
[5], [37], [40], [56], [58], [63], [64], [75], [85], [101], [115], [117], [126], [130], [132], [133]
26. *Monetary integration balance-of-payments adjustment, convertibility*
[5], [22], [26], [44], [46], [47], [53], [63], [69], [70], [101], [105], [109], [115], [117], [126], [129], [132], [133], [135], [136], [139], [141], [142]
27. *CMEA banks*
[22], [38], [50], [117], [132], [133], [135], [136], [142]
28. *Tourism in the CMEA; invisibles*
[139], [142], [150]
29. *Scientific-technical cooperation*
[28], [51], [53], [101], [112], [115], [117], [137], [138], [139]
30. *Soviet economic relations with Eastern Europe and other CMEA countries*
[5], [10], [41], [44], [56], [58], [59], [75], [76], [80], [103], [122], [124], [139], [146]
31. *Relationship between CMEA integration and East-West commerce*
[144], [71], [81], [84], [85], [92], [96], [97], [101], [107], [110], [115], [134], [139], [151]
32. *Relations between the CMEA and the EC*
[7], [97], [117], [140]
33. *Relations between the CMEA and less developed countries, OPEC*
[55], [86], [115], [138]
34. *Reforms in CPE foreign trade and in the CMEA mechanism*
[14], [16], [25], [26], [27], [41], [53], [85], [101], [115], [133], [129], [132], [139]
35. *Bibliographies*
[26], [31], [83], [133]

C. Bibliography

PART 1. CMEA INTEGRATION

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POPULATION ESTIMATES AND PROJECTIONS FOR EASTERN EUROPE: 1950-2000

By Godfrey Baldwin*

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INTRODUCTION

This paper presents population projections by age and sex for the eight Communist countries of Eastern Europe—Albania, Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Poland, Romania, and Yugoslavia. Population trends are described very briefly in the first section of the text. The sources, methods, and assumptions employed in making the projections are discussed in the second section. The text tables present the results of the projections in summary form, some derivative data, and figures relating to the fertility and mortality assumptions. Detailed results for the eight countries combined and for each country individually are given in the appendix tables. Table I gives total population on January 1, and July 1, absolute numbers of births, deaths, and natural increase, and the corresponding rates per 1,000 population for every fifth year of the period 1950 to 2000 and for each year of the period 1975 to 1985. Table II shows the projected distribution of the population by sex in 5-year age groups for every fifth year of the period 1980 to 2000. The numbers of persons by sex in the pre-school, primary school, working, and retirement ages for every fifth year of the period 1980 to 2000 are given in tables III, IV, V, and VI, respectively.

POPULATION TRENDS, 1950 TO 2000

The following discussion of population trends in Eastern Europe is very brief. More detailed discussions are given in earlier articles and reports by the Foreign Demographic Analysis Division.¹ This section

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¹The most recent published projections for these countries by this Division were presented in Godfrey Baldwin, "Projections of the Population of the Communist Countries of Eastern Europe, by Age and Sex: 1975 to 2000," International Population Reports, Series P-91, No. 25, Washington, D.C., July 1976, and in Godfrey Baldwin, "Population Estimates and Projections for Eastern Europe: 1950 to 2001," in U.S. Congress, Joint Economic Committee, "East European Economies Post-Helsinki," Washington, D.C., U.S. Government Printing Office, 1977.

will highlight the population trends and the changes in the current projections by this Division compared to those presented previously.

The population of the eight countries of Eastern Europe increased by 23.9 million between 1950 and 1975. This represents an average annual growth rate of 0.8 percent (table 1). The rate declined during the fifties and early sixties but it hasn't changed very much since the mid-sixties. Most of the earlier decline was due to a decline in the birth rate. For the region as a whole, the birth rate dropped from about 26 births per 1,000 population in 1950 to 17 per 1,000 in 1965 (table 2). Since 1965 the rate has fluctuated around 17-18 per 1,000. This relatively stable rate is in contrast to the generally falling birth rates in most of Europe after 1965. The higher rate in Eastern Europe has been due, in part, to programs designed to increase fertility which were instituted by the governments of several of these countries.

The crude death rate for Eastern Europe declined from 12 deaths per 1,000 population in 1950 to 9 per 1,000 in the mid-sixties and then increased slightly to above 10 per 1,000 in the late seventies. The slight increase in the crude death rate has been due to the gradual aging of the population although the decline in the age-specific mortality rates has also been slower since the mid-sixties. The trend in the natural increase rate reflects the changes in both the birth rate and the death rate. The natural increase rate for Eastern Europe declined from 14 per 1,000 in 1950 to 8 in 1965 and it has remained around 7-9 per 1,000 since 1965.

According to the projections presented in this report, the population of Eastern Europe is expected to number between 145 million and 156 million by the year 2000 (table 3). The principal determinant of the size of the future population will be the trend in fertility. Four fertility trends are postulated for the projections: high, medium, low, and constant. The amount of population growth expected during the period 1975-2000 is about the same for the medium and constant series. They show absolute increases of 21 and 22 million, respectively, and both indicate an average annual rate of 0.6 percent for the 25-year period. The high series implies an absolute increase of more than 26 million and an average annual rate of 0.7 percent, whereas the low series postulates an increase of only 16 million and an average rate of only 0.5 percent yearly.

Since migration after 1979 is assumed to be negligible for each country, the projected growth rate for any particular year is simply the difference between the corresponding birth and death rates. The projected birth, death, and natural increase rates for 1980, 1990, and 2000 are shown in table 4. The crude birth rate is projected to remain around 17-18 per 1,000 for the high series, decline slightly to between 15 and 16 per 1,000 for the medium and constant series, and decline to below 13 per 1,000 for the low series. The crude death rate for all four series is expected to remain near 10-11 per 1,000 throughout the projection period. These trends result in a stable rate of natural increase for the high series, slightly declining rates for the medium and constant series, and a moderately declining rate for the low series.

The growth rates for most of the eight countries were low to moderate (i.e., 0.5 to 1.3 percent) during the 1950-75 period (table 1). Albania and the German Democratic Republic were the exceptions.

Albania's average annual rate of 2.7 percent was more than double that of any of the other countries. The higher rate for Albania was due to a much higher birth rate. Even though fertility has declined in Albania during the last 25 years it is still considerably higher than in the other countries. The German Democratic Republic was the only country among the eight to have a smaller population in 1975 than in 1950—due primarily to emigration, which was enormous prior to the building of the Berlin Wall in 1961. Since 1950, all of the countries except Albania have experienced at least one period of significant net emigration, but the German Democratic Republic was the only country where migration was the most important factor in population change. Net emigration from that country between 1950 and 1975 amounted to around 2.5 million persons, or more than 13 percent of the 1950 population. The German Democratic Republic was also the only country that experienced a natural decrease during any year after 1950. The number of deaths for this country exceeded the number of births for every year from 1969 through 1978. The number of births has increased during recent years and the total for 1979 was slightly greater than the total number of deaths for that year.

The future population trends for the individual countries vary considerably depending on the assumed level of fertility and on the age-sex structure. Albania is expected to have by far the largest relative growth. The medium series projection for that country indicates an average annual growth rate of 2.0 percent between 1975 and 2000, compared to 0.8 percent for Poland and Yugoslavia, the countries with the next highest rates (table 3). The medium series rates for the remaining countries vary from 0.1 percent for the German Democratic Republic to 0.7 percent for Romania. In the other series all of the projected rates for the period 1975–2000 except those for Albania are between 0.0 and 1.0 percent. The rates for Albania range from 1.8 to 2.3 percent.

The current projections for these countries are generally a little lower compared to the previously published projections prepared by the Foreign Demographic Analysis Division. For Eastern Europe as a whole the total population for the medium series is 2.3 million or 1.5 percent lower at the end of the century, the total for the high series is 5.3 million or 3.3 percent lower, and the total for the constant series is 2.6 million or 1.7 percent lower. The projected figure for the low series is slightly higher—0.6 million or 0.4 percent. For the individual countries all of the projected totals for the year 2000 are lower except those for the German Democratic Republic and those in the low series for Czechoslovakia, Poland, and Yugoslavia. All four series for the German Democratic Republic show higher figures for the end of the century although even the total for the high series is still below the 1950 population for that country. The higher population figures for the German Democratic Republic are due primarily to the higher fertility levels assumed compared to the levels assumed for the previously published projections for this country. For the other countries, the assumed levels of fertility are lower, and consequently the projected population totals are also generally lower.

Selected age-sex characteristics in 1950, 1975, and 2000 are presented in table 5. The age distributions for the latter year vary according to

the projection series because the size of the total population and especially the size of the under 15 age group are strongly dependent upon the projected level of fertility. The higher the level of fertility the higher the proportion of young people and the lower the proportion of old people. Albania, which stands out from the other countries in this respect, has a much younger population, as is clearly reflected in the percentage distributions by major age groups and in the median ages.

SOURCES, METHODS, AND ASSUMPTIONS

The projections presented here supersede all others for these countries prepared previously by the Foreign Demographic Analysis Division. The data incorporated in these projections are for the most part those that were available as of March 1980, but some later information has been used. The cohort-component method was used in making the projections. This method involves carrying forward a reported or estimated age-sex distribution on the basis of various assumptions concerning the components of population change (i.e., births, deaths, and migration). For all of the countries, migration was assumed to be insignificant during the projection period.

Whenever possible, official age-sex distributions were used for the base population, but for some countries it was necessary to use estimated or adjusted distributions. The January 1, 1972, base population for Albania was derived from data reported for earlier years, including census data for 1955 and 1960. For Bulgaria, the population by single years of age and sex reported for January 1, 1971 was updated to January 1, 1979 and adjusted to accord with the population by 5-year age groups and sex reported for the latter date. For the other countries official distributions by single years of age were used without modification. The base date for the German Democratic Republic and Hungary was January 1, 1979; the date for Romania was July 1, 1978; for Poland it was January 1, 1978; for Czechoslovakia it was January 1, 1976; and for Yugoslavia it was July 1, 1975. For each country, the base population was survived to January 1, 1980 using reported and estimated data on fertility, mortality, migration, and total population for the intervening years.

Four series of projections incorporating alternate fertility assumptions were prepared for each country. The constant series assumes that fertility will remain at the estimated 1979 level throughout the projection period. The other three series were designed to give a reasonable range of possible future trends in fertility. The assumptions for each series were formulated in terms of gross reproduction rates.² The rates assumed for 1980 and 2000 are given in table 6; the rates for the intervening years were obtained by linear interpolation. For each country, recently reported or estimated female age-specific fertility rates were adjusted to yield the number of births for 1979. For each series and each year these adjusted fertility rates were multiplied by the ratio of the assumed gross reproduction rate to the 1979 gross reproduction rate to give the projected age-specific fertility

² The gross reproduction rate is defined as the average number of daughters that would be born to a woman during her reproductive lifetime if a given set of birth rates by age of mother remains in effect.

rates, which, in turn, were applied to the female population in the reproductive ages to give the projected number of births.

The anticipated fertility levels are related to the estimated gross reproduction rates for 1979. For example, the estimated 1979 rate for Albania, 1.95, was very high; consequently, all of the series except the constant series postulate a decline in the gross reproduction rate by the end of the century. On the other hand, the 1979 rate for the German Democratic Republic, 0.91, was low; therefore, increases are assumed for the high and medium series and only a slight decline is assumed for the low series. The 1979 rates for the other six countries were between the rates for the German Democratic Republic and Albania, and the assumed changes in the gross reproduction rate are also intermediate between the two extremes.

For all of the countries except Albania, the gross reproduction rate was assumed to reach a level of 1.25 for the high series, 1.05 for the medium series, and 0.85 for the low series by the end of the century. The assumed levels for Albania were 1.65, 1.35, and 1.05. If mortality is low, a gross reproduction rate of 1.05 would cause the population to grow at a slow rate.

Only one assumption was made about the future course of mortality, namely that it will decrease slowly throughout the projection period. It was arbitrarily assumed that the decline in mortality would be equivalent to an increase of 2.5 years in life expectancy at birth between 1979 and 2000. This assumption would appear to be reasonable, given the current levels of life expectancy in these countries. The model life tables prepared by Coale and Demeny³ were used in these projections. The tables are divided into four families, each representing a different pattern of age-specific mortality, based on the mortality experience of various countries of the world. For present purposes, the families selected were those that most closely matched estimated 1979 survival rates by age for each sex. The rates for 1979 were estimated by adjusting survival rates derived from reported mortality data, by age and sex, to yield the number of deaths for 1979.

The selection of the family of life tables was made separately for males and females, and it was therefore possible that the tables used for a given country could come from two different life table families. Two sets of survival rates were derived for each sex from the selected family of tables. The level of mortality represented by the first set was such that the implied life expectancy was equal to the estimated 1979 life expectancy as calculated from the adjusted survival rates for 1979. The level of the second set was such that the implied life expectancy was 2.5 years higher than that for 1979. The differences between the two sets of age-specific survival rates were then added to the estimated survival rates for 1979 to produce the survival rates for 2000. The life expectancies associated with the survival rates for 1979 and 2000 are shown in table 7. Survival rates for the intervening years were calculated by interpolating between the rates for 1979 and those for 2000. These rates were used to calculate the numbers of survivors by age and sex for each year in the projection period.

³ Ansley J. Coale and Paul Demeny, "Regional Model Life Tables and Stable Populations," Princeton, N.J., Princeton University Press, 1966.

TABLE 1.—TOTAL POPULATION AND AVERAGE ANNUAL PERCENT CHANGE—8 EASTERN EUROPEAN COUNTRIES: 1950 TO 1975

[Absolute numbers in thousands as of Jan. 1; figures may not add to totals shown due to rounding]

Country	1950	1955	1960	1965	1970	1975	Average annual percent change					
							1950-55	1955-60	1960-65	1965-70	1970-75	1950-75
Eastern Europe.....	105,504	111,081	116,105	120,690	125,104	129,415	1.0	0.9	0.8	0.7	0.7	0.8
Albania.....	1,199	1,359	1,581	1,841	2,105	2,375	2.5	3.0	3.0	2.7	2.4	2.7
Bulgaria.....	7,228	7,461	7,829	8,178	8,464	8,710	.6	1.0	.9	.7	.6	.7
Czechoslovakia.....	12,340	13,024	13,608	14,097	14,309	14,738	1.1	.9	.7	.3	.6	.7
German Democratic Republic.....	² 18,388	¹ 17,929	¹ 17,114	17,004	17,075	16,891	-.5	-.9	-.1	.1	-.2	-.3
Hungary.....	9,293	9,767	9,961	10,140	10,322	10,509	1.0	.4	.4	.4	.4	.5
Poland.....	24,613	¹ 26,959	¹ 29,384	¹ 31,123	¹ 32,400	¹ 33,789	1.8	1.7	1.1	.8	.8	1.3
Romania.....	16,204	17,181	18,319	18,980	20,140	21,141	1.2	1.3	.7	1.2	1.0	1.1
Yugoslavia.....	16,240	17,402	18,308	19,328	20,290	21,262	1.4	1.0	1.1	1.0	.9	1.1

¹ Revised estimates to account for discrepancies between the official estimates and census results.
See notes to tables I-D, I-E, and I-G.

² Census of Aug. 31, 1950.

TABLE 2.—VITAL RATES—8 EASTERN EUROPEAN COUNTRIES: 1950 TO 1975

[Rates per thousand population]

Rate and year	Eastern Europe	Albania	Bulgaria	Czechoslovakia	German Democratic Republic	Hungary	Poland	Romania	Yugoslavia
Birth:									
1950	25.5	38.9	25.2	23.3	16.5	20.9	30.7	26.2	30.2
1955	24.1	44.5	20.1	20.3	16.4	21.4	29.2	25.6	26.9
1960	19.9	43.4	17.8	15.9	17.2	14.7	22.6	19.1	23.5
1965	17.1	35.2	15.3	16.4	16.5	13.1	17.5	14.6	21.0
1970	17.2	32.5	16.3	16.0	13.9	14.7	16.8	21.1	17.8
1975	¹ 18.0	¹ 29.9	16.6	19.6	10.8	18.4	19.0	19.7	18.2
1976	¹ 18.1	¹ 29.7	16.5	19.2	11.6	17.5	19.6	19.5	18.2
1977	¹ 18.0	¹ 29.4	16.1	18.7	13.3	16.7	19.2	19.6	17.7
1978	¹ 17.7	¹ 29.1	15.5	18.4	13.9	15.7	19.1	19.1	17.3
1979	¹ 17.6	¹ 28.8	15.3	17.8	14.0	15.0	19.5	¹ 18.6	17.1
Death:									
1950	11.9	14.2	10.2	11.5	11.9	11.4	11.6	12.4	13.0
1955	10.3	15.1	9.0	9.6	12.0	10.0	9.6	9.7	11.4
1960	9.5	10.4	8.1	9.2	13.7	10.2	7.6	8.7	9.9
1965	9.3	9.0	8.1	10.0	13.5	10.7	7.4	8.6	8.8
1970	10.1	9.3	9.1	11.6	14.1	11.6	8.2	9.5	8.9
1975	¹ 10.2	¹ 7.7	10.3	11.5	14.3	12.4	8.7	9.3	8.7
1976	¹ 10.2	¹ 7.6	10.1	11.4	13.9	12.5	8.9	9.6	8.5
1977	¹ 10.2	¹ 7.5	10.7	11.5	13.5	12.4	9.0	9.6	8.4
1978	¹ 10.4	¹ 7.4	10.5	11.6	13.9	13.1	9.3	9.7	8.7
1979	¹ 10.4	¹ 7.3	10.7	11.5	13.9	12.8	9.2	¹ 9.9	8.6
Natural increase:									
1950	13.6	24.7	15.0	11.8	4.6	9.5	19.1	13.8	17.3
1955	13.7	29.4	11.1	10.7	4.4	11.4	19.6	15.9	15.5
1960	10.4	32.9	9.7	6.7	3.5	4.5	15.0	10.4	13.6
1965	7.8	26.2	7.2	6.4	3.0	2.4	10.0	6.0	12.2
1970	7.1	23.3	7.2	4.4	-2	3.1	8.6	11.6	8.9
1975	¹ 7.7	¹ 22.2	6.3	8.1	-3.5	6.0	10.2	10.4	9.5
1976	¹ 7.9	¹ 22.1	6.4	7.8	-2.3	5.0	10.7	9.9	9.7
1977	¹ 7.7	¹ 21.9	5.4	7.2	-2	4.3	10.1	10.0	9.3
1978	¹ 7.3	¹ 21.7	5.0	6.9	0	2.6	9.8	9.4	8.6
1979	¹ 7.2	¹ 21.5	4.6	6.4	.1	2.2	10.4	¹ 8.7	8.6

¹ Estimated.

TABLE 3.—ESTIMATED AND PROJECTED TOTAL POPULATION AND AVERAGE ANNUAL PERCENT CHANGE—8 EASTERN EUROPEAN COUNTRIES: 1975 TO 2000

[Absolute numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Country and series	1975	1980	1985	1990	1995	2000	Average annual percent change					
							1975-80	1980-85	1985-90	1990-95	1995-2000	1975-2000
Eastern Europe:												
High.....	129,415	134,007	139,257	144,382	149,857	155,633	0.7	0.8	0.7	0.7	0.8	0.7
Medium.....			138,531	142,567	146,577	150,435		.7	.6	.6	.5	.6
Low.....			137,804	140,751	143,297	145,246		.6	.3	.4	.3	.5
Constant.....			138,610	142,793	147,054	151,276		.7	.6	.6	.6	.6
Albania:												
High.....	2,375	2,650	2,966	3,320	3,698	4,084	2.2	2.3	2.3	2.2	2.0	2.2
Medium.....			2,942	3,256	3,578	3,887		2.1	2.0	1.9	1.7	2.0
Low.....			2,918	3,193	3,457	3,691		1.9	1.8	1.6	1.3	1.8
Constant.....			2,972	3,351	3,777	4,234		2.3	2.4	2.4	2.3	2.3
Bulgaria:												
High.....	8,710	8,846	9,066	9,278	9,525	9,794	.3	.5	.6	.5	.5	.5
Medium.....			9,025	9,173	9,331	9,482		.4	.3	.3	.3	.3
Low.....			8,983	9,067	9,138	9,170		.3	.2	.2	.1	.2
Constant.....			9,024	9,172	9,329	9,477		.4	.3	.3	.3	.3
Czechoslovakia:												
High.....	14,738	15,282	15,781	16,242	16,776	17,445	.7	.6	.6	.6	.8	.7
Medium.....			15,700	16,044	16,418	16,863		.5	.4	.5	.5	.5
Low.....			15,619	15,846	16,060	16,283		.4	.3	.3	.3	.4
Constant.....			15,709	16,083	16,511	17,039		.6	.5	.5	.6	.6
German Democratic Republic:												
High.....	16,891	16,740	16,971	17,330	17,701	18,032	-.2	.3	.4	.4	.4	.3
Medium.....			16,890	17,119	17,328	17,466		.2	.3	.2	.2	.1
Low.....			16,809	16,907	16,955	16,902		.1	.1	.1	-.1	0
Constant.....			16,818	16,945	17,036	17,041		.1	.2	.1	0	0
Hungary:												
High.....	10,509	10,710	10,826	10,920	11,096	11,360	.4	.2	.2	.3	.5	.3
Medium.....			10,778	10,802	10,878	11,003		.1	0	.1	.2	.2
Low.....			10,730	10,683	10,660	10,647		.0	-.1	-.1	-.1	.1
Constant.....			10,772	10,777	10,821	10,895		.1	0	.1	.1	.1
Poland:												
High.....	33,788	35,382	37,326	39,042	40,641	42,317	.9	1.1	.9	.8	.8	.9
Medium.....			37,114	38,527	39,738	40,907		1.0	.7	.6	.6	.8
Low.....			36,902	38,012	38,835	39,498		.8	.6	.4	.3	.6
Constant.....			37,124	38,570	39,836	41,084		1.0	.8	.6	.6	.8
Romania:												
High.....	21,141	22,135	23,008	23,868	24,940	26,049	.9	.8	.7	.9	.9	.8
Medium.....			22,889	23,572	24,385	25,155		.7	.6	.7	.6	.7
Low.....			22,770	23,275	23,830	24,263		.6	.4	.5	.4	.6
Constant.....			23,002	23,838	24,866	25,910		.8	.7	.8	.8	.8
Yugoslavia:												
High.....	21,262	22,262	23,313	24,382	25,479	26,552	.9	.9	.9	.9	.8	.9
Medium.....			23,193	24,074	24,920	25,672		.8	.7	.7	.6	.8
Low.....			23,072	23,767	24,361	24,793		.7	.6	.5	.4	.6
Constant.....			23,189	24,056	24,879	25,597		.8	.7	.7	.6	.7

1 Revised estimate to account for discrepancies between the official estimates and the census results. See note to table I-G.

TABLE 4.—PROJECTED VITAL RATES—8 EASTERN EUROPEAN COUNTRIES: 1980, 1990, AND 2000

[Rates per thousand population; see text for an explanation of the series]

Rate, series, and year	Eastern Europe	Albania	Bulgaria	Czechoslovakia	German Democratic Republic	Hungary	Poland	Romania	Yugoslavia
Birth:									
High:									
1980	18.3	29.4	15.9	18.4	15.7	15.3	20.4	18.3	17.9
1990	17.3	29.2	15.9	16.6	16.3	14.8	17.2	18.3	17.6
2000	17.8	25.3	17.1	18.6	15.5	17.5	17.8	18.5	17.3
Medium:									
1980	17.4	27.9	15.2	17.5	15.0	14.6	19.4	17.4	17.1
1990	15.6	26.5	14.3	15.1	14.7	13.3	15.5	16.6	15.9
2000	15.3	21.7	14.7	16.1	13.3	15.1	15.4	16.0	15.0
Low:									
1980	16.6	26.5	14.4	16.7	14.2	13.9	18.5	16.5	16.2
1990	13.9	23.7	12.8	13.5	13.1	11.8	13.9	14.8	14.2
2000	12.7	17.8	12.1	13.4	11.0	12.5	12.8	13.3	12.4
Constant:									
1980	17.5	29.4	15.2	17.5	14.2	14.6	19.4	18.3	17.1
1990	15.9	31.3	14.3	15.6	13.5	12.9	15.8	18.0	15.8
2000	15.8	28.8	14.6	17.1	11.7	14.1	15.8	18.0	14.7
Death:									
High:									
1980	10.4	7.3	10.8	11.5	13.8	12.7	9.2	9.9	8.7
1990	10.0	7.1	11.1	10.8	11.9	12.5	9.0	10.0	8.8
2000	10.1	6.6	11.5	10.3	10.9	12.3	9.3	10.2	9.4
Medium:									
1980	10.4	7.2	10.8	11.5	13.8	12.7	9.2	9.9	8.6
1990	10.1	7.0	11.2	10.9	12.1	12.6	9.1	10.1	8.8
2000	10.3	6.6	11.9	10.7	11.3	12.7	9.6	10.5	9.7
Low:									
1980	10.4	7.2	10.8	11.4	13.8	12.7	9.2	9.9	8.6
1990	10.2	6.8	11.3	11.0	12.2	12.7	9.2	10.2	8.9
2000	10.7	6.6	12.3	11.0	11.6	13.0	9.9	10.8	9.9
Constant:									
1980	10.4	7.3	10.8	11.5	13.8	12.7	9.2	9.9	8.6
1990	10.1	7.2	11.2	10.9	12.2	12.6	9.1	10.0	8.8
2000	10.3	6.7	11.9	10.5	11.5	12.8	9.5	10.2	9.7
Natural increase:									
High:									
1980	7.9	22.1	5.2	6.9	1.8	2.6	11.2	8.4	9.3
1990	7.3	22.1	4.8	5.9	4.4	2.3	8.2	8.3	8.8
2000	7.7	18.6	5.6	8.3	4.6	5.3	8.5	8.3	8.0
Medium:									
1980	7.0	20.7	4.4	6.1	1.1	1.9	10.2	7.5	8.4
1990	5.5	19.5	3.2	4.2	2.7	.7	6.5	6.5	7.1
2000	5.0	15.1	2.8	5.4	2.0	2.4	5.8	5.5	5.3
Low:									
1980	6.2	19.3	3.7	5.2	.4	1.1	9.3	6.6	7.6
1990	3.7	16.9	1.5	2.5	.9	-.9	4.7	4.6	5.3
2000	2.1	11.2	-.1	2.4	-.7	-.6	2.9	2.5	2.5
Constant:									
1980	7.1	22.1	4.4	6.1	.4	1.9	10.2	8.4	8.4
1990	5.8	24.1	3.1	4.7	1.4	.2	6.7	8.0	6.9
2000	5.5	22.0	2.7	6.6	.1	1.3	6.2	7.8	5.0

TABLE 5.—SELECTED AGE-SEX CHARACTERISTICS OF THE POPULATION—8 EASTERN EUROPEAN COUNTRIES: 1950, 1975, AND 2000

(As of July 1 for 1950, Jan. 1 for 1975 and 2000; percentages may not add to totals due to rounding; see text for an explanation of the series)

Country, year, and series	Percent distribution by age group					Median age (In years)	Males per 100 females	Dependency ratio ¹
	All ages	0-14	15-39	40-64	65 and over			
Eastern Europe:								
1950.....	100	27.5	38.1	27.5	6.8	27.9	90.8	523
1975.....	100	24.0	38.1	27.2	10.7	30.8	94.8	532
2000:								
High.....	100	24.1	34.5	29.3	12.1	33.2	97.0	567
Medium.....	100	22.0	35.2	30.3	12.5	34.5	96.7	526
Low.....	100	19.7	36.0	31.4	12.9	35.9	96.4	484
Constant.....	100	22.4	35.1	30.1	12.4	34.3	96.7	533
Albania:								
1950.....	100	39.3	36.8	17.8	6.1	20.3	106.6	831
1975.....	100	39.9	38.1	16.8	5.2	19.5	105.5	820
2000:								
High.....	100	33.5	39.9	20.7	5.8	24.4	105.1	648
Medium.....	100	30.7	41.4	21.8	6.1	26.0	105.1	584
Low.....	100	27.7	42.9	22.9	6.4	27.5	105.0	518
Constant.....	100	35.7	38.7	20.0	5.6	23.3	105.2	704
Bulgaria:								
1950.....	100	26.8	41.7	24.8	6.7	27.3	99.9	504
1975.....	100	22.4	36.4	30.8	10.5	33.5	99.7	490
2000:								
High.....	100	23.0	33.1	29.5	14.3	35.1	98.5	595
Medium.....	100	20.9	33.8	30.5	14.8	36.4	98.3	555
Low.....	100	18.7	34.5	31.6	15.3	37.7	98.1	514
Constant.....	100	20.9	33.8	30.5	14.8	36.4	98.3	554
Czechoslovakia:								
1950.....	100	25.9	36.6	29.9	7.6	30.2	94.6	504
1975.....	100	23.2	37.1	27.7	12.1	31.3	95.0	544
2000:								
High.....	100	24.3	34.9	29.1	11.7	32.5	95.6	561
Medium.....	100	22.1	35.7	30.1	12.1	33.9	95.3	520
Low.....	100	19.9	36.4	31.2	12.5	35.2	95.0	479
Constant.....	100	22.9	35.3	29.8	11.9	33.5	95.4	535
German Democratic Republic:								
1950.....	100	22.8	31.0	35.6	10.6	37.3	79.8	502
1975.....	100	21.9	35.6	26.3	16.3	35.1	86.5	617
2000:								
High.....	100	22.6	33.4	31.0	13.0	36.1	95.1	554
Medium.....	100	20.6	34.0	32.0	13.4	37.1	94.8	516
Low.....	100	18.4	34.7	33.1	13.9	38.1	94.4	477
Constant.....	100	19.0	34.4	32.8	13.8	37.9	94.5	488
Hungary:								
1950.....	100	25.1	38.6	29.0	7.3	29.9	92.6	480
1975.....	100	20.2	37.2	30.1	12.5	34.2	94.2	485
2000:								
High.....	100	22.3	32.7	31.5	13.5	35.6	95.1	557
Medium.....	100	20.2	33.3	32.6	13.9	37.0	94.7	518
Low.....	100	18.0	34.0	33.7	14.4	38.5	94.4	479
Constant.....	100	19.4	33.6	32.9	14.1	37.5	94.7	504
Poland:								
1950.....	100	29.4	40.2	25.2	5.2	25.8	91.0	529
1975.....	100	24.1	40.2	26.3	9.3	28.2	94.7	503
2000:								
High.....	100	24.1	34.7	29.6	11.6	33.0	95.6	554
Medium.....	100	22.0	35.4	30.6	12.0	34.4	95.3	514
Low.....	100	19.7	36.2	31.7	12.4	35.8	94.9	473
Constant.....	100	22.3	35.3	30.5	11.9	34.3	95.3	520
Romania:								
1950.....	100	28.4	41.0	25.2	5.3	26.1	93.2	509
1975.....	100	25.2	37.4	28.0	9.4	30.8	96.9	529
2000:								
High.....	100	25.0	35.0	27.9	12.1	31.5	98.5	589
Medium.....	100	22.8	35.8	28.9	12.5	32.5	98.3	546
Low.....	100	20.4	36.6	29.9	13.0	33.8	98.1	502
Constant.....	100	24.6	35.2	28.0	12.1	31.7	98.5	581
Yugoslavia:								
1950.....	100	31.1	39.7	23.5	5.7	24.1	93.1	582
1975.....	100	25.8	39.3	26.3	8.6	28.8	96.8	524
2000:								
High.....	100	24.0	34.7	29.3	12.0	33.7	98.8	561
Medium.....	100	21.8	35.4	30.3	12.4	34.9	98.5	520
Low.....	100	19.6	36.2	31.4	12.8	36.1	98.3	479
Constant.....	100	21.6	35.5	30.4	12.4	35.0	98.5	516

¹ Number of persons under 15 and 65 and over per thousand persons of age 15 to 64.

TABLE 6.—ESTIMATED AND ASSUMED GROSS REPRODUCTION RATES—8 EASTERN EUROPEAN COUNTRIES: 1979, 1980, AND 2000

Year and series	Albania	Bulgaria	Czechoslovakia	German Democratic Republic	Hungary	Poland	Romania	Yugoslavia
1979.....	1.95	1.05	1.13	0.91	0.97	1.08	1.21	1.03
1980:								
High.....	1.95	1.10	1.19	1.01	1.02	1.14	1.21	1.08
Medium.....	1.85	1.05	1.13	.96	.97	1.08	1.15	1.03
Low.....	1.75	0.99	1.07	.91	.92	1.03	1.09	.98
Constant.....	1.95	1.05	1.13	.91	.97	1.08	1.21	1.03
2000:								
High.....	1.65	1.25	1.25	1.25	1.25	1.25	1.25	1.25
Medium.....	1.35	1.05	1.05	1.05	1.05	1.05	1.05	1.05
Low.....	1.05	.85	.85	.85	.85	.85	.85	.85
Constant.....	1.95	1.05	1.13	.91	.97	1.08	1.21	1.03

TABLE 7.—LIFE EXPECTANCIES AT BIRTH, BY SEX—8 EASTERN EUROPEAN COUNTRIES: 1979 AND 2000

Country	1979 (estimated)		2000 (projected)	
	Male	Female	Male	Female
Albania.....	66.2	70.0	68.7	72.5
Bulgaria.....	69.2	74.4	71.7	76.9
Czechoslovakia.....	67.3	75.4	69.8	77.9
German Democratic Republic.....	68.9	75.5	71.4	78.0
Hungary.....	66.6	73.7	69.1	76.2
Poland.....	67.1	76.5	69.6	79.0
Romania.....	67.7	73.1	70.2	75.6
Yugoslavia.....	68.5	74.0	71.0	76.5

APPENDIX TABLES

TABLE I-A.—ESTIMATED AND PROJECTED TOTAL POPULATION, COMPONENTS OF POPULATION CHANGE, AND VITAL RATES—8 EASTERN EUROPEAN COUNTRIES COMBINED: 1950-2000

[Absolute numbers in thousands; rates per thousand population; differences between natural increase and year-to-year changes in the population estimates are due, in varying degrees, to migration and discrepancies in the reporting systems; natural increase may not equal the difference between births and deaths due to rounding; see text for an explanation of the series]

Year	Population		Natural increase		Births		Deaths	
	Jan. 1	July 1	Number	Rate	Number	Rate	Number	Rate
ESTIMATES								
1950.....	105,504	106,061	1,438	13.6	2,702	25.5	1,264	11.9
1955.....	111,081	111,692	1,533	13.7	2,689	24.1	1,156	10.3
1960.....	116,105	116,565	1,212	10.4	2,321	19.9	1,109	9.5
1965.....	120,690	121,110	941	7.8	2,070	17.1	1,129	9.3
1970.....	125,104	125,501	896	7.1	2,162	17.2	1,265	10.1
1975.....	129,415	129,876	1,003	7.7	2,332	18.0	1,329	10.2
1976.....	130,338	130,813	1,030	7.9	2,366	18.1	1,336	10.2
1977.....	131,307	131,786	1,019	7.7	2,369	18.0	1,349	10.2
1978.....	132,253	132,679	968	7.3	2,354	17.7	1,386	10.4
1979.....	133,109	133,569	967	7.2	2,356	17.6	1,389	10.4
PROJECTIONS								
High series:								
1980.....	134,007	134,538	1,062	7.9	2,463	18.3	1,401	10.4
1981.....	135,069	135,598	1,058	7.8	2,471	18.2	1,413	10.4
1982.....	136,128	136,653	1,051	7.7	2,474	18.1	1,423	10.4
1983.....	137,179	137,701	1,043	7.6	2,475	18.0	1,432	10.4
1984.....	138,222	138,740	1,035	7.5	2,475	17.8	1,441	10.4
1985.....	139,257	139,771	1,027	7.3	2,475	17.7	1,448	10.4
1990.....	144,382	144,908	1,051	7.3	2,504	17.3	1,453	10.0
1995.....	149,857	150,422	1,130	7.5	2,594	17.2	1,464	9.7
2000.....	155,633	156,238	1,210	7.7	2,780	17.8	1,570	10.1
Medium series:								
1980.....	134,007	134,480	946	7.0	2,345	17.4	1,399	10.4
1981.....	134,953	135,417	928	6.9	2,337	17.3	1,410	10.4
1982.....	135,881	136,334	906	6.6	2,325	17.1	1,419	10.4
1983.....	136,787	137,229	883	6.4	2,311	16.8	1,428	10.4
1984.....	137,670	138,101	860	6.2	2,296	16.6	1,436	10.4
1985.....	138,531	138,950	837	6.0	2,281	16.4	1,444	10.4
1990.....	142,-67	142,961	789	5.5	2,235	15.6	1,447	10.1
1995.....	146,577	146,971	788	5.4	2,245	15.3	1,457	9.9
2000.....	150,435	150,811	751	5.0	2,312	15.3	1,561	10.3
Low series:								
1980.....	134,007	134,423	830	6.2	2,227	16.6	1,397	10.4
1981.....	134,838	135,236	797	5.9	2,204	16.3	1,406	10.4
1982.....	135,635	136,015	760	5.6	2,176	16.0	1,416	10.4
1983.....	136,396	136,757	723	5.3	2,147	15.7	1,424	10.4
1984.....	137,119	137,461	685	5.0	2,117	15.4	1,432	10.4
1985.....	137,804	138,129	649	4.7	2,087	15.1	1,439	10.4
1990.....	140,751	141,014	527	3.7	1,967	13.9	1,440	10.2
1995.....	143,297	143,520	447	3.1	1,895	13.2	1,449	10.1
2000.....	145,246	145,396	300	2.1	1,851	12.7	1,551	10.7
Constant series:								
1980.....	134,007	134,486	958	7.1	2,357	17.5	1,399	10.4
1981.....	134,965	135,436	942	7.0	2,352	17.4	1,410	10.4
1982.....	135,907	136,368	922	6.8	2,342	17.2	1,420	10.4
1983.....	136,829	137,279	901	6.6	2,330	17.0	1,429	10.4
1984.....	137,730	138,170	880	6.4	2,318	16.8	1,437	10.4
1985.....	138,610	139,041	860	6.2	2,306	16.6	1,445	10.4
1990.....	142,793	143,208	830	5.8	2,279	15.9	1,449	10.1
1995.....	147,053	147,480	852	5.8	2,312	15.7	1,460	9.9
2000.....	151,276	151,695	837	5.6	2,402	15.8	1,565	10.3

TABLE I-B.—ESTIMATED AND PROJECTED TOTAL POPULATION, COMPONENTS OF POPULATION CHANGE, AND VITAL RATES—ALBANIA: 1950-2000

[Absolute numbers in thousands; rates per thousand population; differences between natural increase and year-to-year changes in the population estimates are due, in varying degrees, to migration and discrepancies in the reporting systems; natural increase may not equal the difference between births and deaths due to rounding; see text for an explanation of the series]

Year	Population		Natural increase		Births		Deaths	
	Jan. 1	July 1	Number	Rate	Number	Rate	Number	Rate
ESTIMATES								
1950.....	1,199	1,215	30	24.7	47	38.9	17	14.2
1955.....	1,359	1,379	41	29.4	61	44.5	21	15.1
1960.....	1,581	1,607	53	32.9	70	43.4	17	10.4
1965.....	1,841	1,865	49	26.2	66	35.2	17	9.0
1970.....	2,105	2,136	50	23.3	70	32.5	20	9.3
1975.....	2,375	2,402	53	22.2	72	29.9	18	7.7
1976.....	2,429	2,456	54	22.1	73	29.7	19	7.6
1977.....	2,483	2,510	55	21.9	74	29.4	19	7.5
1978.....	2,538	2,566	56	21.7	75	29.1	19	7.4
1979.....	2,594	2,622	56	21.5	76	28.8	19	7.3
PROJECTIONS								
High series:								
1980.....	2,650	2,680	59	22.1	79	29.4	20	7.3
1981.....	2,709	2,740	61	22.4	81	29.7	20	7.3
1982.....	2,771	2,802	63	22.6	84	29.9	20	7.3
1983.....	2,834	2,867	65	22.8	86	30.0	21	7.3
1984.....	2,899	2,933	67	22.8	88	30.1	21	7.3
1985.....	2,966	3,000	68	22.8	90	30.0	22	7.2
1990.....	3,320	3,357	74	22.1	98	29.2	24	7.1
1995.....	3,698	3,737	77	20.6	103	27.5	26	6.8
2000.....	4,084	4,122	77	18.6	104	25.3	27	6.6
Medium series:								
1980.....	2,650	2,678	55	20.7	75	27.9	19	7.2
1981.....	2,705	2,734	57	20.9	77	28.1	20	7.2
1982.....	2,763	2,792	59	21.0	79	28.2	20	7.2
1983.....	2,821	2,851	60	21.0	80	28.2	20	7.2
1984.....	2,881	2,912	61	20.9	82	28.1	21	7.1
1985.....	2,942	2,973	62	20.8	83	27.9	21	7.1
1990.....	3,256	3,288	64	19.5	87	26.5	23	7.0
1995.....	3,578	3,610	63	17.6	88	24.3	24	6.8
2000.....	3,887	3,917	59	15.1	85	21.7	26	6.6
Low series:								
1980.....	2,650	2,676	52	19.3	71	26.5	19	7.2
1981.....	2,702	2,728	53	19.4	72	26.5	19	7.1
1982.....	2,755	2,781	54	19.3	73	26.4	20	7.1
1983.....	2,808	2,836	55	19.2	75	26.3	20	7.0
1984.....	2,863	2,890	55	19.0	75	26.0	20	7.0
1985.....	2,918	2,946	55	18.7	76	25.7	21	7.0
1990.....	3,193	3,220	54	16.9	76	23.7	22	6.8
1995.....	3,457	3,482	50	14.3	73	21.0	23	6.7
2000.....	3,691	3,711	41	11.2	66	17.8	24	6.6
Constant series:								
1980.....	2,650	2,680	59	22.1	79	29.4	20	7.3
1981.....	2,709	2,740	62	22.6	82	29.9	20	7.3
1982.....	2,771	2,803	65	23.0	85	30.3	20	7.3
1983.....	2,836	2,869	67	23.4	88	30.7	21	7.3
1984.....	2,903	2,938	70	23.7	91	31.0	21	7.3
1985.....	2,972	3,008	72	23.8	94	31.1	22	7.3
1990.....	3,351	3,392	82	24.1	106	31.3	24	7.2
1995.....	3,777	3,821	90	23.4	116	30.4	27	7.0
2000.....	4,234	4,281	94	22.0	123	28.8	29	6.7

TABLE I-C.—ESTIMATED AND PROJECTED TOTAL POPULATION, COMPONENTS OF POPULATION CHANGE, AND VITAL RATES—BULGARIA: 1950-2000

[Absolute numbers in thousands; rates per thousand population; differences between natural increase and year-to-year changes in the population estimates are due, in varying degrees, to migration and discrepancies in the reporting systems; natural increase may not equal the difference between births and deaths due to rounding; see text for an explanation of the series]

Year	Population		Natural increase		Births		Deaths	
	Jan. 1	July 1	Number	Rate	Number	Rate	Number	Rate
ESTIMATES								
1950	7,228	7,250	108	15.0	183	25.2	74	10.2
1955	7,461	7,499	83	11.1	151	20.1	68	9.0
1960	7,829	7,867	76	9.7	140	17.8	64	8.1
1965	8,178	8,201	59	7.2	126	15.3	67	8.1
1970	8,464	8,490	62	7.2	139	16.3	77	9.1
1975	8,710	8,721	55	6.3	145	16.6	90	10.3
1976	8,731	8,759	57	6.4	145	16.5	88	10.1
1977	8,786	8,804	47	5.4	142	16.1	94	10.7
1978	8,823	8,814	44	5.0	136	15.5	92	10.5
1979	8,805	8,823	41	4.6	135	15.3	94	10.7
PROJECTIONS								
High series:								
1980	8,846	8,869	46	5.2	141	15.9	96	10.8
1981	8,892	8,914	45	5.0	141	15.9	97	10.9
1982	8,937	8,959	44	4.9	142	15.8	98	10.9
1983	8,981	9,002	43	4.8	142	15.7	99	10.9
1984	9,024	9,045	43	4.7	142	15.7	99	11.0
1985	9,066	9,087	42	4.6	142	15.7	100	11.1
1990	9,278	9,301	45	4.8	148	15.9	103	11.1
1995	9,525	9,552	53	5.5	158	16.6	106	11.0
2000	9,794	9,821	55	5.6	168	17.1	113	11.5
Medium series:								
1980	8,846	8,866	39	4.4	135	15.2	95	10.8
1981	8,885	8,904	37	4.2	134	15.0	97	10.9
1982	8,923	8,940	35	4.0	133	14.9	98	10.9
1983	8,958	8,975	34	3.8	132	14.7	98	11.0
1984	8,992	9,008	33	3.6	132	14.6	99	11.0
1985	9,025	9,040	31	3.4	131	14.5	100	11.1
1990	9,173	9,187	29	3.2	132	14.3	103	11.2
1995	9,331	9,347	32	3.4	137	14.7	105	11.3
2000	9,482	9,495	27	2.8	139	14.7	113	11.9
Low series:								
1980	8,846	8,863	32	3.7	128	14.4	95	10.8
1981	8,879	8,894	30	3.3	126	14.2	97	10.9
1982	8,908	8,922	27	3.0	125	14.0	97	10.9
1983	8,936	8,948	25	2.8	123	13.7	98	11.0
1984	8,960	8,972	22	2.5	121	13.5	99	11.0
1985	8,983	8,993	20	2.2	120	13.3	100	11.1
1990	9,067	9,074	13	1.5	116	12.8	102	11.3
1995	9,138	9,143	11	1.2	116	12.7	105	11.5
2000	9,170	9,169	-1	-0.1	111	12.1	112	12.3
Constant series:								
1980	8,846	8,866	39	4.4	135	15.2	96	10.8
1981	8,885	8,904	37	4.2	134	15.0	97	10.9
1982	8,923	8,940	35	4.0	133	14.9	98	10.9
1983	8,958	8,975	34	3.8	132	14.7	98	11.0
1984	8,992	9,008	32	3.6	132	14.6	99	11.0
1985	9,024	9,040	31	3.4	131	14.5	100	11.1
1990	9,172	9,186	29	3.1	131	14.3	103	11.2
1995	9,329	9,345	31	3.4	137	14.6	105	11.3
2000	9,477	9,490	26	2.7	139	14.6	113	11.9

TABLE I-D.—ESTIMATED AND PROJECTED TOTAL POPULATION, COMPONENTS OF POPULATION CHANGE, AND VITAL RATES—CZECHOSLOVAKIA: 1950-2000

[Absolute numbers in thousands; rates per thousand population; differences between natural increase and year-to-year changes in the population estimates are due in varying degrees, to migration and discrepancies in the reporting systems; natural increase may not equal the difference between births and deaths due to rounding; see text for an explanation of the series]

Year	Population ¹		Natural increase		Births		Deaths	
	Jan. 1	July 1	Number	Rate ²	Number	Rate ²	Number	Rate ²
ESTIMATES								
1950.....	12,340	12,389	145	11.8	288	23.3	143	11.5
1955.....	13,024	13,093	139	10.7	265	20.3	126	9.6
1960.....	13,608	13,654	92	6.7	217	15.9	125	9.2
1965.....	14,097	14,147	91	6.4	232	16.4	141	10.0
1970.....	14,309	14,319	63	4.4	229	16.0	166	11.6
1975.....	14,738	14,802	120	8.1	289	19.6	170	11.5
1976.....	14,857	14,918	117	7.8	287	19.2	171	11.4
1977.....	14,974	15,031	108	7.2	281	18.7	173	11.5
1978.....	15,082	15,138	104	6.9	279	18.4	175	11.6
1979.....	15,184	15,238	97	6.4	272	17.8	175	11.5
PROJECTIONS								
High series:								
1980.....	15,282	15,335	106	6.9	282	18.4	176	11.5
1981.....	15,388	15,440	103	6.7	280	18.1	177	11.4
1982.....	15,491	15,541	99	6.4	277	17.8	177	11.4
1983.....	15,590	15,639	96	6.2	274	17.5	178	11.4
1984.....	15,687	15,734	94	6.0	273	17.3	179	11.4
1985.....	15,781	15,827	93	5.9	272	17.2	179	11.3
1990.....	16,242	16,290	95	5.9	271	16.6	176	10.8
1995.....	16,776	16,839	124	7.4	297	17.6	173	10.3
2000.....	17,445	17,518	146	8.3	327	18.6	181	10.3
Medium series:								
1980.....	15,282	15,329	93	6.1	269	17.5	176	11.5
1981.....	15,375	15,419	88	5.7	264	17.1	176	11.4
1982.....	15,463	15,505	83	5.4	260	16.8	177	11.4
1983.....	15,546	15,586	79	5.0	256	16.5	178	11.4
1984.....	15,625	15,663	75	4.8	253	16.2	178	11.4
1985.....	15,700	15,736	72	4.6	251	15.9	178	11.3
1990.....	16,044	16,077	67	4.2	243	15.1	175	10.9
1995.....	16,418	16,461	85	5.2	257	15.6	172	10.5
2000.....	16,863	16,909	92	5.4	272	16.1	180	10.7
Low series:								
1980.....	15,282	15,322	80	5.2	255	16.7	175	11.4
1981.....	15,362	15,399	73	4.8	249	16.2	176	11.4
1982.....	15,435	15,469	67	4.3	244	15.8	177	11.4
1983.....	15,502	15,533	61	3.9	239	15.4	177	11.4
1984.....	15,563	15,591	56	3.6	234	15.0	178	11.4
1985.....	15,619	15,645	52	3.3	230	14.7	178	11.4
1990.....	15,846	15,865	39	2.5	214	13.5	175	11.0
1995.....	16,060	16,083	46	2.9	218	13.5	172	10.7
2000.....	16,283	16,302	39	2.4	218	13.4	179	11.0
Constant series:								
1980.....	15,282	15,329	93	6.1	269	17.5	176	11.5
1981.....	15,375	15,420	89	5.8	265	17.2	176	11.4
1982.....	15,464	15,507	85	5.5	262	16.9	177	11.4
1983.....	15,549	15,590	81	5.2	259	16.6	178	11.4
1984.....	15,630	15,670	79	5.0	257	16.4	178	11.4
1985.....	15,709	15,747	77	4.9	255	16.2	179	11.3
1990.....	16,083	16,121	76	4.7	251	15.6	175	10.9
1995.....	16,511	16,561	99	6.0	271	16.4	172	10.4
2000.....	17,039	17,095	112	6.6	293	17.1	180	10.5

¹ The published population totals for the years 1961-70 have been revised downward here to account for the difference of approximately 148,000 between the Dec. 1, 1970 census total of 14,344,987 and the unrevised population estimate for that date. The revised estimates are based on the Mar. 1, 1961 census total, reported births and deaths, and adjustments to the implied annual net emigration figures so as to be consistent with the 1970 census total. These adjustments include the assumption that 60,000 refugees left during the last half of 1968 and 20,000 during the first half of 1969.

² Rates for the years 1961-70 are based on the published numbers of births and deaths and the revised midyear population totals. See footnote 1 above.

TABLE I-E.—ESTIMATED AND PROJECTED TOTAL POPULATION, COMPONENTS OF POPULATION CHANGE, AND VITAL RATES—GERMAN DEMOCRATIC REPUBLIC: 1950-2000

[Absolute numbers in thousands; rates per thousand population; differences between natural increase and year-to-year changes in the population estimates are due, in varying degrees, to migration and discrepancies in the reporting systems; natural increase may not equal the difference between births and deaths due to rounding; see text for an explanation of the series]

Year	Population ¹		Natural increase		Births		Deaths	
	Jan. 1	July 1	Number	Rate ²	Number	Rate ²	Number	Rate ³
ESTIMATES								
1950.....	³ 18,388	³ 18,388	84	4.6	304	16.5	220	11.9
1955.....	17,929	17,832	79	4.4	293	16.4	214	12.0
1960.....	17,114	17,058	59	3.5	293	17.2	234	13.7
1965.....	17,004	17,020	51	3.0	281	16.5	230	13.5
1970.....	17,075	17,070	-4	-2	237	13.9	241	14.1
1975.....	16,891	16,850	-59	-3.5	182	10.8	240	14.3
1976.....	16,820	16,786	-38	-2.3	195	11.6	234	13.9
1977.....	16,767	16,765	-3	-2	223	13.3	226	13.5
1978.....	16,758	16,756	0	0	232	13.9	232	13.9
1979.....	16,751	16,745	2	.1	235	14.0	233	13.9
PROJECTIONS								
High series:								
1980.....	16,740	16,755	31	1.8	262	15.7	232	13.8
1981.....	16,771	16,790	39	2.3	269	16.0	231	13.7
1982.....	16,810	16,833	47	2.8	276	15.4	229	13.6
1983.....	16,856	16,883	54	3.2	282	16.7	228	13.5
1984.....	16,911	16,941	61	3.6	286	16.9	226	13.3
1985.....	16,971	17,004	66	3.9	289	17.0	223	13.1
1990.....	17,330	17,369	76	4.4	283	16.3	207	11.9
1995.....	17,701	17,732	64	3.6	258	14.6	194	11.0
2000.....	18,032	18,073	83	4.6	280	15.5	197	10.9
Medium series:								
1980.....	16,740	6,749	19	1.1	251	15.0	232	13.8
1981.....	16,759	16,771	25	1.5	251	15.2	239	13.7
1982.....	16,784	16,799	31	1.8	260	15.5	229	13.6
1983.....	16,814	16,832	36	2.1	263	15.6	227	13.5
1984.....	16,850	16,870	40	2.4	265	15.7	225	13.4
1985.....	16,890	16,912	43	2.6	266	15.7	223	13.2
1990.....	17,119	17,142	46	2.7	253	14.7	207	12.1
1995.....	17,328	17,342	29	1.7	223	12.9	194	11.2
2000.....	17,466	17,484	35	2.0	232	13.3	197	11.3
Low series:								
1980.....	16,740	16,744	7	.4	239	14.2	231	13.8
1981.....	16,747	16,753	11	.6	241	14.4	230	13.7
1982.....	16,758	16,765	14	.9	243	14.5	229	13.6
1983.....	16,772	16,781	17	1.0	245	14.6	227	13.5
1984.....	16,790	16,800	19	1.2	245	14.6	225	13.4
1985.....	16,809	16,820	21	1.2	243	14.5	223	13.2
1990.....	16,907	16,915	15	.9	222	13.1	206	12.2
1995.....	16,955	16,952	-6	-.3	188	11.1	194	11.4
2000.....	16,902	16,896	-12	-.7	185	11.0	137	11.6
Constant series:								
1980.....	16,740	16,744	7	.4	239	14.2	231	13.8
1981.....	16,747	16,753	12	.7	242	14.4	230	13.7
1982.....	16,759	16,767	16	1.0	245	14.6	229	13.6
1983.....	16,775	16,785	20	1.2	247	14.7	227	13.5
1984.....	16,795	16,806	23	1.4	248	14.8	225	13.4
1985.....	16,818	16,830	25	1.5	248	14.7	223	13.2
1990.....	16,945	16,956	23	1.4	230	13.5	206	12.2
1995.....	17,036	17,039	5	.3	198	11.6	194	11.4
2000.....	17,041	17,042	2	.1	199	11.7	197	11.5

¹ The published population totals for the years 1951-64 have been revised downward here to account for the difference of approximately 212,000 between the Dec. 31, 1964 census total of 17,003,632 and the unrevised population estimate for that date. The revised estimates are based on the Aug. 31, 1950 census total, reported births and deaths, and adjustments to the implied annual net emigration figures so as to be consistent with the 1964 census total.

² Rates for the years 1951-64 are based on the published numbers of births and deaths and the revised midyear population totals. See footnote 1 above.

³ Census of Aug. 31, 1950.

TABLE I-F.—ESTIMATED AND PROJECTED TOTAL POPULATION, COMPONENTS OF POPULATION CHANGE, AND VITAL RATES—HUNGARY: 1950-2000

[Absolute numbers in thousands; rates per thousand population; differences between natural increase and year-to-year changes in the population estimates are due, in varying degrees, to migration and discrepancies in the reporting systems; natural increase may not equal the difference between births and deaths due to rounding; see text for an explanation of the series]

Year	Population		Natural increase		Births		Deaths	
	Jan. 1	July 1	Number	Rate	Number	Rate	Number	Rate
ESTIMATES								
1950.....	9,293	9,338	89	9.5	196	20.9	107	11.4
1955.....	9,767	9,825	113	11.4	210	21.4	98	10.0
1960.....	9,961	9,984	45	4.5	146	14.7	102	10.2
1965.....	10,140	10,153	25	2.4	133	13.1	108	10.7
1970.....	10,322	10,338	32	3.1	152	14.7	120	11.6
1975.....	10,509	10,541	63	6.0	194	18.4	131	12.4
1976.....	10,572	10,599	53	5.0	185	17.5	132	12.5
1977.....	10,625	10,648	46	4.3	178	16.7	132	12.4
1978.....	10,671	10,684	28	2.6	168	15.7	140	13.1
1979.....	10,699	10,704	23	2.2	160	15.0	137	12.8
PROJECTIONS								
High series:								
1980.....	10,710	10,724	28	2.6	164	15.3	137	12.7
1981.....	10,738	10,750	25	2.4	162	15.1	137	12.7
1982.....	10,763	10,774	23	2.1	160	14.9	137	12.7
1983.....	10,786	10,796	21	1.9	158	14.7	138	12.7
1984.....	10,807	10,816	19	1.8	157	14.5	138	12.8
1985.....	10,826	10,835	18	1.7	156	14.4	138	12.8
1990.....	10,920	10,933	25	2.3	162	14.8	136	12.5
1995.....	11,096	11,120	47	4.2	182	16.3	135	12.1
2000.....	11,360	11,390	60	5.3	200	17.5	140	12.3
Medium series:								
1980.....	10,710	10,720	20	1.9	157	14.6	137	12.7
1981.....	10,730	10,738	17	1.6	153	14.3	137	12.7
1982.....	10,747	10,753	13	1.2	150	14.0	137	12.7
1983.....	10,760	10,765	10	1.0	148	13.7	137	12.8
1984.....	10,770	10,774	8	.7	145	13.5	138	12.8
1985.....	10,778	10,781	6	.5	144	13.3	138	12.8
1990.....	10,802	10,806	8	.7	144	13.3	136	12.6
1995.....	10,878	10,889	22	2.1	157	14.4	134	12.3
2000.....	11,003	11,016	26	2.4	166	15.1	139	12.7
Low series:								
1980.....	10,710	10,716	12	1.1	149	13.9	136	12.7
1981.....	10,722	10,726	8	.8	145	13.5	137	12.7
1982.....	10,730	10,732	4	.4	141	13.1	137	12.7
1983.....	10,734	10,734	-4	-0.3	137	12.8	137	12.8
1984.....	10,734	10,732	-4	-0.3	134	12.5	137	12.8
1985.....	10,730	10,727	-6	-0.6	131	12.2	138	12.8
1990.....	10,683	10,679	-9	-0.9	126	11.8	136	12.7
1995.....	10,660	10,659	-2	-0.2	132	12.4	134	12.6
2000.....	10,647	10,644	-6	-0.6	133	12.5	139	13.0
Constant series:								
1980.....	10,710	10,720	20	1.9	157	14.6	137	12.7
1981.....	10,730	10,738	16	1.5	153	14.2	137	12.7
1982.....	10,746	10,752	12	1.1	149	13.9	137	12.7
1983.....	10,758	10,763	8	.8	146	13.6	137	12.8
1984.....	10,767	10,770	6	.5	143	13.3	138	12.8
1985.....	10,772	10,774	3	.3	141	13.1	138	12.8
1990.....	10,777	10,779	2	.2	139	12.9	136	12.6
1995.....	10,821	10,828	13	1.3	148	13.7	134	12.4
2000.....	10,895	10,902	14	1.3	153	14.1	139	12.8

TABLE I-G.—ESTIMATED AND PROJECTED TOTAL POPULATION, COMPONENTS OF POPULATION CHANGE,
AND VITAL RATES—POLAND: 1950-2000

[Absolute numbers in thousands; rates per thousand population; differences between natural increase and year-to-year changes in the population estimates are due, in varying degrees, to migration and discrepancies in the reporting systems; natural increase may not equal the difference between births and deaths due to rounding; see text for an explanation of the series]

Year	Population ¹		Natural increase		Births		Deaths	
	Jan. 1	July 1	Number	Rate ²	Number	Rate ²	Number	Rate ²
ESTIMATES								
1950.....	24, 613	24, 824	474	19.1	763	30.7	289	11.6
1955.....	26, 959	27, 221	532	19.6	794	29.2	262	9.6
1960.....	29, 384	29, 590	445	15.0	669	22.6	224	7.6
1965.....	31, 123	31, 262	314	10.0	546	17.5	232	7.4
1970.....	32, 400	32, 526	279	8.6	546	16.8	267	8.2
1975.....	33, 789	33, 951	347	10.2	644	19.0	297	8.7
1976.....	34, 114	34, 277	366	10.7	670	19.6	304	8.9
1977.....	34, 441	34, 595	350	10.1	663	19.2	313	9.0
1978.....	34, 749	34, 899	341	9.8	666	19.1	325	9.3
1979.....	35, 049	35, 225	365	10.4	688	19.5	323	9.2
PROJECTIONS								
High series:								
1980.....	35, 382	35, 581	398	11.2	726	20.4	328	9.2
1981.....	35, 780	35, 978	396	11.0	729	20.3	332	9.2
1982.....	36, 176	36, 372	391	10.8	728	20.0	336	9.2
1983.....	36, 567	36, 759	384	10.4	724	19.7	340	9.2
1984.....	36, 951	37, 139	375	10.1	718	19.3	343	9.2
1985.....	37, 326	37, 508	364	9.7	710	18.9	346	9.2
1990.....	39, 042	39, 202	320	8.2	673	17.2	352	9.0
1995.....	40, 641	40, 803	323	7.9	685	16.8	362	8.9
2000.....	42, 317	42, 497	360	8.5	755	17.8	395	9.3
Medium series:								
1980.....	35, 382	35, 564	364	10.2	691	19.4	327	9.2
1981.....	35, 746	35, 925	358	10.0	689	19.2	331	9.2
1982.....	36, 104	36, 278	349	9.6	684	18.9	335	9.2
1983.....	36, 452	36, 621	337	9.2	676	18.5	339	9.2
1984.....	36, 790	36, 952	324	8.8	666	18.0	342	9.2
1985.....	37, 114	37, 269	310	8.3	655	17.6	345	9.3
1990.....	38, 527	38, 652	250	6.5	601	15.5	351	9.1
1995.....	39, 738	39, 855	233	5.9	594	14.9	360	9.0
2000.....	40, 907	41, 025	237	5.8	630	15.4	393	9.6
Low series:								
1980.....	35, 382	35, 547	330	9.3	657	18.5	327	9.2
1981.....	35, 712	35, 872	320	8.9	650	18.1	331	9.2
1982.....	36, 031	36, 184	306	8.5	641	17.7	335	9.2
1983.....	36, 337	36, 483	291	8.0	628	17.2	338	9.3
1984.....	36, 628	36, 765	274	7.4	614	16.7	341	9.3
1985.....	36, 902	37, 029	256	6.9	599	16.2	344	9.3
1990.....	38, 012	38, 102	180	4.7	529	13.9	350	9.2
1995.....	38, 835	38, 907	143	3.7	502	12.9	359	9.2
2000.....	39, 498	39, 556	116	2.9	507	12.8	391	9.9
Constant series:								
1980.....	35, 382	35, 564	364	10.2	691	19.4	327	9.2
1981.....	35, 746	35, 925	359	10.0	690	19.2	332	9.2
1982.....	36, 105	36, 280	351	9.7	686	18.9	335	9.2
1983.....	36, 455	36, 626	340	9.3	679	18.5	339	9.2
1984.....	36, 796	36, 960	328	8.9	670	18.1	342	9.2
1985.....	37, 124	37, 281	315	8.4	660	17.7	345	9.3
1990.....	38, 570	38, 700	259	6.7	610	15.8	351	9.1
1995.....	39, 836	39, 959	247	6.2	608	15.2	361	9.0
2000.....	41, 084	41, 212	257	6.2	650	15.8	393	9.5

¹ The published population totals for the years 1951-78 have been revised downward here to account for the differences of approximately 123,000, 95,000, and 112,000 between the 1960, 1970, and 1978 census totals and the unrevised population estimates for those years. The revised estimates are based on the Dec. 3, 1950 census total; reported births, deaths and net migration; and the intercensal adjustments necessary to be consistent with the Dec. 6, 1960 census total of 29,775,508; the Dec. 8, 1970 census total of 32,642,270; and the Dec. 7, 1978 preliminary census total of 35,032,000.

² Rates for the years 1951-78 are based on the published numbers of births and deaths and the revised midyear population totals. See footnote 1 above.

TABLE I-H.—ESTIMATED AND PROJECTED TOTAL POPULATION, COMPONENTS OF POPULATION CHANGE, AND VITAL RATES—ROMANIA: 1950-2000

[Absolute numbers in thousands; rates per thousand population; differences between natural increase and year-to-year changes in the population estimates are due, in varying degrees, to migration and discrepancies in the reporting systems; natural increase may not equal the difference between births and deaths due to rounding; see text for an explanation of the series]

Year	Population		Natural increase		Births		Deaths	
	Jan. 1	July 1	Number	Rate	Number	Rate	Number	Rate
ESTIMATES								
1950	16,204	16,311	225	13.8	427	26.2	202	12.4
1955	17,181	17,325	275	15.9	443	25.6	168	9.7
1960	18,319	18,403	192	10.4	352	19.1	161	8.7
1965	18,980	19,027	115	6.0	278	14.6	163	8.6
1970	20,140	20,253	234	11.6	427	21.1	193	9.5
1975	21,141	21,245	221	10.4	418	19.7	198	9.3
1976	21,353	21,446	212	9.9	417	19.5	205	9.6
1977	21,559	21,658	215	10.0	424	19.6	209	9.6
1978	21,758	21,855	205	9.4	417	19.1	212	9.7
1979	21,953	22,044	192	8.7	410	18.6	218	9.9
PROJECTIONS								
High series:								
1980	22,135	22,228	187	8.4	407	18.3	220	9.9
1981	22,322	22,412	180	8.0	403	18.0	223	9.9
1982	22,502	22,589	174	7.7	399	17.6	225	10.0
1983	22,675	22,760	168	7.4	396	17.4	227	10.0
1984	22,844	22,926	165	7.2	395	17.2	230	10.0
1985	23,008	23,090	163	7.1	395	17.1	232	10.1
1990	23,868	23,967	198	8.3	438	18.3	240	10.0
1995	24,940	25,052	224	8.9	469	18.7	245	9.8
2000	26,049	26,158	218	8.3	484	18.5	266	10.2
Medium series:								
1980	22,135	22,218	167	7.5	387	17.4	220	9.9
1981	22,302	22,381	158	7.1	380	17.0	222	9.9
1982	22,460	22,535	150	6.6	374	16.6	224	10.0
1983	22,610	22,681	142	6.3	369	16.3	227	10.0
1984	22,752	22,821	137	6.0	366	16.0	229	10.0
1985	22,889	22,956	133	5.8	364	15.9	231	10.1
1990	23,572	23,648	153	6.5	392	16.6	239	10.0
1995	24,385	24,467	163	6.7	406	16.6	243	9.9
2000	25,155	25,224	138	5.5	403	16.0	264	10.5
Low series:								
1980	22,135	22,208	147	6.6	366	16.5	219	9.9
1981	22,282	22,350	137	6.1	358	16.0	221	9.9
1982	22,418	22,481	126	5.6	350	15.6	224	10.0
1983	22,544	22,603	117	5.2	343	15.2	226	10.0
1984	22,661	22,716	109	4.8	337	14.8	228	10.0
1985	22,770	22,822	103	4.5	334	14.6	230	10.1
1990	23,275	23,329	108	4.6	345	14.8	237	10.2
1995	23,830	23,881	102	4.3	344	14.4	241	10.1
2000	24,263	24,293	60	2.5	323	13.3	262	10.8
Constant series:								
1980	22,135	22,228	187	8.4	407	18.3	220	9.9
1981	22,322	22,411	180	8.0	402	17.9	223	9.9
1982	22,501	22,587	172	7.6	397	17.6	225	10.0
1983	22,673	22,757	166	7.3	394	17.3	227	10.0
1984	22,840	22,921	162	7.1	392	17.1	230	10.0
1985	23,002	23,082	160	6.9	392	17.0	232	10.1
1990	23,838	23,934	191	8.0	431	18.0	240	10.0
1995	24,866	24,972	213	8.5	457	18.3	244	9.8
2000	25,910	26,011	202	7.8	468	18.0	266	10.2

TABLE I-I.—ESTIMATED AND PROJECTED TOTAL POPULATION, COMPONENTS OF POPULATION CHANGE, AND VITAL RATES—YUGOSLAVIA: 1950-2000

[Absolute numbers in thousands; rates per thousand population; differences between natural increase and year-to-year changes in the population estimates are due, in varying degrees, to migration and discrepancies in the reporting systems; natural increase may not equal the difference between births and deaths due to rounding; see text for an explanation of the series]

Year	Population		Natural increase		Births		Deaths	
	Jan. 1	July 1	Number	Rate	Number	Rate	Number	Rate
ESTIMATES								
1950	16,240	16,346	282	17.3	494	30.2	212	13.0
1955	17,402	17,519	271	15.5	471	26.9	200	11.4
1960	18,308	18,402	250	13.6	433	23.5	183	9.9
1965	19,328	19,434	238	12.2	408	21.0	171	8.8
1970	20,290	20,371	181	8.9	363	17.8	182	8.9
1975	21,262	21,365	203	9.5	388	18.2	185	8.7
1976	21,462	21,573	209	9.7	392	18.2	183	8.5
1977	21,672	21,775	202	9.3	385	17.7	183	8.4
1978	21,875	21,968	190	8.6	381	17.3	190	8.7
1979	22,074	22,168	190	8.6	380	17.1	190	8.6
PROJECTIONS								
High series:								
1980	22,262	22,366	208	9.3	401	17.9	193	8.7
1981	22,470	22,574	209	9.3	406	18.0	197	8.7
1982	22,679	22,784	210	9.2	410	18.0	199	8.8
1983	22,889	22,995	211	9.2	414	18.0	202	8.8
1984	23,101	23,207	212	9.1	417	18.0	205	8.8
1985	23,313	23,419	213	9.1	420	18.0	208	8.9
1990	24,382	24,490	217	8.8	431	17.6	215	8.8
1995	25,479	25,588	218	8.5	442	17.3	224	8.8
2000	25,552	26,658	212	8.0	462	17.3	250	9.4
Medium series:								
1980	22,262	22,356	189	8.4	382	17.1	193	8.6
1981	22,451	22,545	188	8.3	384	17.0	196	8.7
1982	22,639	22,732	186	8.2	385	16.9	199	8.7
1983	22,825	22,918	185	8.1	386	16.8	201	8.8
1984	23,010	23,101	183	7.9	387	16.7	204	8.8
1985	23,193	23,283	180	7.7	387	16.6	207	8.9
1990	24,074	24,160	171	7.1	385	15.9	213	8.8
1995	24,920	25,000	160	6.4	383	15.3	223	8.9
2000	25,672	25,740	136	5.3	385	15.0	248	9.7
Low series:								
1980	22,262	22,347	170	7.6	363	16.2	193	8.6
1981	22,432	22,515	166	7.4	362	16.1	195	8.7
1982	22,599	22,680	162	7.2	360	15.9	198	8.7
1983	22,761	22,840	158	6.9	359	15.7	200	8.8
1984	22,919	22,996	153	6.7	356	15.5	203	8.8
1985	23,072	23,146	148	6.4	354	15.3	206	8.9
1990	23,767	23,830	126	5.3	338	14.2	212	8.9
1995	24,361	24,412	102	4.2	323	13.2	221	9.1
2000	24,793	24,824	62	2.5	309	12.4	247	9.9
Constant series:								
1980	22,262	22,356	189	8.4	382	17.1	193	8.6
1981	22,451	22,545	187	8.3	383	17.0	196	8.7
1982	22,638	22,731	186	8.2	384	16.9	199	8.8
1983	22,824	22,916	184	8.0	385	16.8	201	8.7
1984	23,008	23,098	181	7.8	385	16.7	204	8.8
1985	23,189	23,278	178	7.7	385	16.5	207	8.9
1990	24,056	24,140	167	6.9	381	15.8	213	8.8
1995	24,879	24,956	154	6.2	377	15.1	223	8.9
2000	25,597	25,661	129	5.0	377	14.7	248	9.7

TABLE II-A.—PROJECTED POPULATION, BY 5-YR AGE GROUPS AND SEX—8 EASTERN EUROPEAN COUNTRIES COMBINED, 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Age and series	Both sexes					Male					Female						
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000		
All ages:																	
High	134,007	139,257	144,382	149,857	155,633	65,377	68,089	70,780	73,625	76,613	68,630	71,168	73,603	73,232	79,020		
Medium		138,531	142,567	146,577	150,435		67,716	69,848	71,941	73,945		70,815	72,719	74,636	76,491		
Low		137,804	140,751	143,297	145,246		67,343	68,916	70,258	71,281		70,461	72,835	73,039	73,965		
Constant		138,610	142,793	147,054	151,276		67,757	69,964	72,186	74,376		70,853	72,829	74,868	76,900		
Under 5 yr:																	
High	11,428	12,067	12,134	12,417	13,081	5,866	6,193	6,230	6,378	6,720	5,562	5,874	5,904	6,040	6,360		
Medium		11,340	11,042	10,948	11,156		5,820	5,669	5,623	5,732		5,521	5,373	5,325	5,424		
Low		10,614	9,949	9,478	9,240		5,447	5,108	4,868	4,747		5,167	4,841	4,610	4,493		
Constant		11,420	11,190	11,200	11,524		5,860	5,745	5,753	5,921		5,559	5,445	5,448	5,603		
5 to 9 yr:																	
High	10,510	11,375	12,017	12,090	12,377	5,394	5,834	6,163	6,204	6,355	5,116	5,540	5,854	5,885	6,022		
Medium			11,294	11,001	10,912			5,792	5,646	5,603			5,501	5,356	5,309		
Low			10,570	9,913	9,448			5,421	5,087	4,851			5,149	4,826	4,597		
Constant			11,372	11,147	11,162			5,832	5,721	5,731			5,540	5,426	5,431		
10 to 14 yr:																	
High	10,202	10,494	11,359	12,002	12,077	5,222	5,383	6,153	6,196	4,980	5,111	5,535	5,849	5,881			
Medium				11,280	10,990			5,783	5,638				5,497	5,352			
Low				10,558	9,903			5,413	5,080				5,145	4,823			
Constant				11,358	11,135			5,823	5,713				5,535	5,423			
15 to 19 yr:																	
High	10,176	10,180	10,473	11,339	11,984	5,208	5,206	5,367	5,809	4,967	4,974	5,106	5,530	5,845			
Medium					11,263									5,769	5,783	5,493	5,352
Low					10,541									5,400	5,060	4,851	5,141
Constant					11,341									5,809	5,809	5,809	5,531
20 to 24 yr	11,344	10,137	10,145	10,441	11,309	5,793	5,178	5,178	5,341	5,783	5,552	4,960	4,967	5,100	5,526		
25 to 29 yr	11,414	11,291	10,094	10,106	10,405	5,811	5,751	5,143	5,147	5,312	5,603	5,540	4,951	4,959	5,094		
30 to 34 yr	9,254	11,349	11,232	10,047	10,064	4,684	5,762	5,706	5,107	5,114	4,570	5,587	5,526	4,940	4,950		
35 to 39 yr	8,137	9,182	11,266	11,156	9,986	4,073	4,631	5,701	5,648	5,060	4,064	4,551	5,566	5,507	4,925		
40 to 44 yr	8,601	8,043	9,083	11,151	11,049	4,268	4,006	4,560	5,617	5,569	4,333	4,036	4,523	5,535	5,480		
45 to 49 yr	8,567	8,444	7,903	8,935	10,978	4,238	4,161	3,910	4,455	5,493	4,329	4,283	3,993	4,480	5,486		
50 to 54 yr	8,076	8,322	8,216	7,698	8,716	3,837	4,072	4,005	3,768	4,301	4,240	4,250	4,211	3,930	4,416		
55 to 59 yr	7,091	7,733	7,979	7,893	7,407	3,162	3,614	3,843	3,788	3,570	3,929	4,120	4,137	4,105	3,837		
60 to 64 yr	4,047	6,626	7,239	7,482	7,422	1,753	2,878	3,300	3,518	3,478	2,294	3,748	3,939	3,964	3,941		
65 to 69 yr	5,563	3,631	5,966	6,533	6,767	2,361	1,510	2,487	2,865	3,063	3,202	2,121	3,478	3,668	3,700		
70 to 74 yr	4,524	4,639	3,053	5,039	5,537	1,870	1,849	1,193	1,973	2,287	2,654	2,789	1,860	3,066	3,253		
75 yr and over	5,073	5,744	6,223	5,527	6,474	1,837	2,061	2,171	1,854	2,173	3,236	3,683	4,053	3,673	4,304		

TABLE II-B.—PROJECTED POPULATION, BY 5-YR AGE GROUPS AND SEX—ALBANIA, 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Age and series	Both sexes					Male					Female					
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	
All ages:																
High.....	2,650	2,966	3,320	3,698	4,084	1,360	1,522	1,703	1,897	2,093	1,290	1,444	1,616	1,802	1,911	
Medium.....		2,942	3,256	3,578	3,887		1,510	1,671	1,835	1,992		1,432	1,586	1,743	1,836	
Low.....		2,918	3,193	3,457	3,691		1,498	1,638	1,772	1,890		1,420	1,555	1,685	1,800	
Constant.....		2,972	3,351	3,777	4,234		1,526	1,719	1,937	2,171		1,447	1,631	1,840	2,063	
Under 5 yrs:																
High.....	342	389	435	469	484	176	200	224	242	250	166	188	210	227	234	
Medium.....		365	395	410	407		188	204	212	210		177	191	199	197	
Low.....		341	355	352	330		176	183	182	170		165	172	170	160	
Constant.....		395	460	516	557		204	237	266	288		191	223	250	270	
5 to 9 yrs:																
High.....	325	334	380	426	459	167	172	196	220	237	158	162	184	206	222	
Medium.....			357	387	402			184	200	208			173	187	195	
Low.....			333	348	345			172	180	178			161	168	167	
Constant.....			386	450	506			199	232	261			187	218	245	
10 to 14 yr:																
High.....	310	324	333	379	425	159	167	172	196	219	151	157	161	184	206	
Medium.....				356	386				184	199				172	187	187
Low.....				332	347				171	179				187	187	187
Constant.....				385	449				199	232				261	187	218
15 to 19 yr:																
High.....	303	309	323	378	425	157	159	166	195	219	146	150	157	161	183	
Medium.....				355	386				183	199				171	187	187
Low.....				332	347				171	179				187	187	187
Constant.....				384	449				199	232				261	187	218
20 to 24 yr.....	263	302	308	322	331	136	156	158	165	170	127	146	150	157	161	
25 to 29 yr.....	198	261	300	306	321	102	135	155	157	165	95	126	145	149	156	
30 to 34 yr.....	161	196	260	299	305	84	102	134	154	156	77	95	126	145	149	
35 to 39 yr.....	145	160	195	258	297	77	83	101	133	153	68	76	94	125	144	
40 to 44 yr.....	133	143	158	193	256	71	76	82	100	132	62	67	76	93	124	
45 to 49 yr.....	108	131	141	156	190	58	70	74	81	98	51	61	67	75	92	
50 to 54 yr.....	93	106	128	138	152	48	56	67	72	78	44	50	60	66	74	
55 to 59 yr.....	70	89	101	123	133	34	46	53	64	69	36	43	48	59	64	
60 to 64 yr.....	61	65	84	95	116	30	31	42	49	59	31	34	41	46	56	
65 to 69 yr.....	51	56	60	76	87	24	27	28	38	44	27	29	32	38	43	
70 to 74 yr.....	38	44	48	52	67	17	20	23	23	32	21	24	26	28	34	
75 yr. and over.....	50	58	66	75	83	20	24	28	32	35	30	34	38	43	48	

TABLE II-C.—PROJECTED POPULATION, BY 5-YR AGE GROUPS AND SEX—BULGARIA, 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Age and series	Both sexes					Male					Female									
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000					
All ages:																				
High.....	8,846	{	9,066	9,278	9,525	9,794	4,409	{	4,511	4,611	4,728	4,860	4,437	{	4,555	4,668	4,797	4,934		
Medium.....			9,025	9,173	9,331	9,482			4,490	4,556	4,629	4,700			4,782					
Low.....			8,983	9,067	9,138	9,170			4,468	4,502	4,529	4,540			4,630					
Constant.....			9,024	9,172	9,329	9,477			4,490	4,556	4,628	4,697			4,779					
Under 5 yr:																				
High.....	681	{	694	706	747	803	349	{	356	362	383	412	332	{	338	344	364	391		
Medium.....			653	643	659	684			335	330	338	351			321	333				
Low.....			611	579	570	566			313	297	292	290			278	275				
Constant.....			652	642	657	681			334	329	337	350			318	313	320	332		
5 to 9 yr:																				
High.....	658	679	{	692	704	746	338	348	{	355	361	382	320	331	{	337	343	363		
Medium.....				651	641	657				333	329	337				317	312	320		
Low.....				609	577	569				312	296	292				297	281	277		
Constant.....				650	640	656				333	328	336				317	312	319		
10 to 14 yr:																				
High.....	622	657	678	{	691	704	320	338	347	{	354	361	302	320	331	{	337	343		
Medium.....					650	640					333	328					317	312	321	
Low.....					608	577					311	295					297	281	277	
Constant.....					649	639					333	328					317	312	319	
15 to 19 yr:																				
High.....	621	621	656	677	{	690	318	319	337	346	{	353	303	302	319	330	{	337		
Medium.....						649						332						317	312	296
Low.....						607						311						295	297	281
Constant.....						649						332						317	312	319
20 to 24 yr.....	636	619	620	655	676	325	317	318	336	345	311	302	301	319	330					
25 to 29 yr.....	658	633	617	618	653	332	323	315	317	334	326	310	302	301	319					
30 to 34 yr.....	659	655	631	615	616	331	329	321	313	315	328	325	310	301	301					
35 to 39 yr.....	558	655	651	627	613	280	328	327	318	311	279	327	324	309	300					
40 to 44 yr.....	562	553	649	645	622	281	276	324	323	315	282	277	325	323	308					
45 to 49 yr.....	627	554	545	641	637	314	275	271	318	317	313	279	274	323	320					
50 to 54 yr.....	614	612	541	533	628	306	304	266	263	309	308	308	274	270	318					
55 to 59 yr.....	583	589	589	521	515	284	290	289	253	251	299	300	300	268	265					
60 to 64 yr.....	333	545	552	553	491	160	260	266	266	234	173	285	286	288	257					
65 to 69 yr.....	392	299	490	498	502	187	139	227	233	234	205	159	263	265	268					
70 to 74 yr.....	311	326	250	413	420	143	149	112	183	188	167	177	138	229	232					
75 yr and over.....	330	375	412	387	480	141	160	174	160	198	189	215	238	227	283					

TABLE II-D.—PROJECTED POPULATION, BY 5-YR AGE GROUPS AND SEX—CZECHOSLOVAKIA, 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Age and series	Both sexes					Male					Female					
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	
All ages:																
High.....	15,282	15,781	16,242	16,776	17,445	7,446	7,692	7,925	8,192	8,528	7,836	8,089	8,317	8,585	8,918	
Medium.....		15,700	16,044	16,418	16,863		7,651	7,824	8,009	8,230		8,049	8,220	8,410	8,633	
Low.....		15,619	15,846	16,060	16,283		7,610	7,723	7,826	7,934		8,010	8,123	8,234	8,349	
Constant.....		15,709	16,083	16,511	17,039		7,656	7,844	8,065	8,320		8,053	8,239	8,455	8,719	
Under 5 yr:																
High.....	1,380	1,361	1,332	1,376	1,535	705	695	681	703	785	675	666	652	672	750	
Medium.....		1,280	1,215	1,215	1,311		654	621	621	670		626	594	594	640	
Low.....		1,199	1,097	1,055	1,088		612	560	539	556		587	537	516	531	
Constant.....		1,289	1,245	1,269	1,394		658	636	649	713		631	609	620	681	
5 to 9 yr:																
High.....	1,256	1,376	1,357	1,329	1,374	642	702	692	679	702	613	674	665	651	672	
Medium.....			1,277	1,212	1,213			651	619	620			625	593		
Low.....			1,196	1,095	1,053			610	559	538			586	536		
Constant.....			1,286	1,242	1,267			656	634	647			630	608	619	
10 to 14 yr:																
High.....	1,068	1,254	1,374	1,356	1,328	547	641	701	691	678	521	613	673	664	650	
Medium.....				1,275	1,211				650	618				625	593	
Low.....				1,195	1,094				609	558				586	536	
Constant.....				1,284	1,241				655	634				629	608	
15 to 19 yr:																
High.....	1,089	1,066	1,252	1,354	1,372	558	545	639	690	699	531	521	612	673	664	
Medium.....				1,274					649						625	585
Low.....				1,193					608						585	536
Constant.....				1,283					654						629	629
20 to 24 yr.....	1,174	1,085	1,063	1,248	1,369	599	554	543	636	696	575	531	520	612	673	
25 to 29 yr.....	1,282	1,169	1,081	1,059	1,245	653	595	551	540	633	629	574	530	520	611	
30 to 34 yr.....	1,194	1,276	1,164	1,077	1,056	604	648	591	548	537	590	628	573	529	519	
35 to 39 yr.....	979	1,185	1,268	1,157	1,071	490	597	642	586	543	489	588	626	571	528	
40 to 44 yr.....	800	969	1,173	1,256	1,147	395	483	588	633	578	405	486	585	623	569	
45 to 49 yr.....	871	786	952	1,154	1,237	427	385	471	575	619	444	401	481	580	618	
50 to 54 yr.....	892	844	763	926	1,125	427	408	369	452	553	466	436	394	474	572	
55 to 59 yr.....	903	851	806	730	888	420	398	382	346	425	483	453	425	385	464	
60 to 64 yr.....	473	838	792	751	683	215	378	359	345	313	258	460	433	407	370	
65 to 69 yr.....	715	420	746	707	673	314	182	320	305	293	401	238	427	403	380	
70 to 74 yr.....	575	587	347	620	590	236	238	138	245	234	339	349	208	376	356	
75 yr and over.....	631	715	772	656	772	214	243	259	211	250	417	472	513	446	523	

TABLE II-E.—PROJECTED POPULATION, BY 5-YR AGE GROUPS AND SEX—GERMAN DEMOCRATIC REPUBLIC, 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Age and series	Both sexes					Male					Female						
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000		
All ages:																	
High.....	16,740	16,971	17,330	17,701	18,032	7,840	8,033	8,301	8,561	8,790	8,900	8,938	9,030	9,139	9,242		
Medium.....		16,890	17,119	17,328	17,466		7,992	8,192	8,370	8,499		8,899	8,927	8,958	8,967		
Low.....		16,809	16,907	16,955	16,902		7,950	8,084	8,179	8,210		8,859	8,824	8,776	8,633		
Constant.....		16,818	16,945	17,036	17,041		7,954	8,103	8,220	8,281		8,863	8,842	8,816	8,760		
Under 5 yr:																	
High.....	1,051	1,359	1,432	1,351	1,301	540	698	736	694	669	511	661	696	657	632		
Medium.....		1,278	1,301	1,189	1,109		656	668	611	570		622	633	578	539		
Low.....		1,197	1,171	1,027	917		615	601	528	471		583	569	499	445		
Constant.....		1,206	1,199	1,071	974		619	616	551	501		587	583	521	473		
5 to 9 yr:																	
High.....	1,004	1,048	1,356	1,429	1,349	515	538	696	734	693	490	510	660	695	656		
Medium.....			1,275	1,299	1,187			655	667	610			621	632	577		
Low.....			1,195	1,168	1,026			613	600	527			582	568	499		
Constant.....			1,203	1,197	1,070			617	615	550			586	582	529		
10 to 14 yr:																	
High.....	1,248	1,003	1,047	1,355	1,428	640	514	537	695	733	609	489	510	660	695		
Medium.....				1,274	1,298				654	666				620	632		
Low.....				1,194	1,168				612	599				581	568		
Constant.....				1,202	1,196				617	614				585	582		
15 to 19 yr:																	
High.....	1,427	1,245	1,000	1,352	1,200	730	637	512	535	693	697	608	489	509	659		
Medium.....				1,272											652	620	620
Low.....				1,191											610	581	581
Constant.....				1,200											615	585	585
20 to 24 yr.....	1,313	1,420	1,240	997	1,041	674	724	633	509	532	639	696	607	488	509		
25 to 29 yr.....	1,296	1,307	1,415	1,235	993	666	670	720	629	506	630	638	695	606	488		
30 to 34 yr.....	860	1,289	1,301	1,409	1,231	436	661	665	715	625	424	628	636	694	605		
35 to 39 yr.....	1,222	854	1,282	1,294	1,402	614	432	655	660	710	608	422	626	635	692		
40 to 44 yr.....	1,275	1,209	846	1,270	1,284	640	605	427	647	652	636	604	420	623	631		
45 to 49 yr.....	1,017	1,254	1,189	834	1,252	507	625	592	418	635	510	628	598	416	617		
50 to 54 yr.....	931	991	1,224	1,162	816	414	490	605	573	406	518	501	618	589	410		
55 to 59 yr.....	867	896	954	1,180	1,122	324	382	466	576	547	544	504	488	604	576		
60 to 64 yr.....	525	814	842	837	1,112	191	295	360	428	531	334	519	483	469	582		
65 to 69 yr.....	864	474	736	763	811	312	164	254	312	372	552	309	482	450	440		
70 to 74 yr.....	808	723	400	624	647	296	242	129	199	248	512	481	271	424	399		
75 yr and over.....	1,031	1,083	1,066	858	889	343	345	316	237	239	688	739	750	621	650		

TABLE II-F.—PROJECTED POPULATION, BY 5-YR AGE GROUPS AND SEX—HUNGARY 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Age and series	Both sexes					Male					Female											
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000							
All ages:																						
High.....	10,710	{	10,826	10,920	11,096	11,360	5,195	{	5,253	5,305	5,397	5,536	5,515	{	5,573	5,616	5,699	5,824				
Medium.....			10,778	10,802	10,878	11,003			5,228	5,244	5,286	5,353			5,550	5,558	5,592	5,650				
Low.....			10,730	10,683	10,660	10,647			5,204	5,183	5,174	5,171			5,527	5,500	5,486	5,476				
Constant.....			10,772	10,777	10,821	10,895			5,225	5,232	5,256	5,298			5,547	5,546	5,564	5,597				
Under 5 yr:																						
High.....	859	{	784	769	830	935	440	{	401	394	425	479	419	{	383	375	405	456				
Medium.....			736	698	730	796			377	357	374	408			359	341	356	388				
Low.....			688	627	630	658			352	321	323	337			336	306	307	321				
Constant.....			730	679	697	746			374	348	357	382			357	331	340	364				
5 to 9 yr:																						
High.....	767	856	781	767	828		394	438	400	392	424		373	418	382	374	406					
Medium.....			734	696	729				375	356	373				359	340	357					
Low.....			686	626	629				351	320	322				335	305	304					
Constant.....			728	678	696				372	347	356				356	331	339					
10 to 14 yr:																						
High.....	699	766	855	781	766		360	393	437	399	392		339	373	418	381	374					
Medium.....				733	696	729				375	356	373					358	340	357			
Low.....				686	626	625				351	320	320					335	305	305			
Constant.....				728	677	677				372	347	347					356	331	331			
15 to 19 yr:																						
High.....	646	697	764	779		331	359	392	436	398		314	338	372	418	381	374					
Medium.....				732						374						350		335		335		355
Low.....				685						371						350		352		352		355
Constant.....				726						371						371		371		371		371
20 to 24 yr.....	817	643	695	762	851	418	330	357	390	434	399	314	338	372	417							
25 to 29 yr.....	907	814	641	692	759	462	415	327	355	388	445	398	313	338	372							
30 to 34 yr.....	769	902	809	638	689	389	459	412	325	352	380	443	397	313	337							
35 to 39 yr.....	728	763	895	803	633	363	384	453	408	322	365	378	441	395	311							
40 to 44 yr.....	655	718	753	884	794	315	356	377	446	401	340	362	376	438	393							
45 to 49 yr.....	686	641	703	738	867	332	306	346	367	434	354	335	357	371	434							
50 to 54 yr.....	695	662	621	681	716	331	316	292	331	352	364	346	328	351	365							
55 to 59 yr.....	672	661	631	593	652	309	310	296	274	311	363	352	335	319	341							
60 to 64 yr.....	379	623	614	588	553	170	279	280	268	249	209	344	334	319	304							
65 to 69 yr.....	544	336	553	547	525	237	144	237	238	229	307	191	316	308	295							
70 to 74 yr.....	412	445	277	457	453	171	181	111	183	185	242	264	166	274	269							
75 yr and over.....	474	515	560	483	557	172	182	194	161	186	302	333	366	323	371							

TABLE II-G.—PROJECTED POPULATION, BY 5-YR AGE GROUPS AND SEX—POLAND, 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Age and series	Both sexes					Male					Female									
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000					
All ages:																				
High.....	35,382	{	37,326	39,042	40,641	42,317	17,235	{	18,200	19,059	19,853	20,682	18,147	{	19,126	19,983	20,788	21,635		
Medium.....			37,114	38,527	39,738	40,907			18,091	18,795	19,390	19,958			18,022	19,732	20,348	20,948		
Low.....			36,902	38,012	38,835	39,498			17,983	18,531	18,926	19,235			18,919	19,481	19,909	20,263		
Constant.....			37,124	38,570	39,836	41,084			18,097	18,817	19,440	20,049			19,027	19,753	20,396	21,035		
Under 5 yr:																				
High.....	3,237	{	3,549	3,402	3,307	3,498	1,663	{	1,820	1,746	1,698	1,797	1,574	{	1,729	1,656	1,609	1,700		
Medium.....			3,337	3,098	2,918	2,989			1,711	1,590	1,499	1,536			1,626	1,508	1,420	1,453		
Low.....			3,125	2,795	2,530	2,481			1,603	1,434	1,299	1,275			1,522	1,360	1,231	1,206		
Constant.....			3,347	3,131	2,973	3,068			1,717	1,607	1,526	1,577			1,631	1,524	1,446	1,492		
5 to 9 yr:																				
High.....	2,781	3,226	{	3,539	3,393	3,301	1,428	1,656	{	1,813	1,740	1,694	1,354	1,571	{	1,726	1,653	1,607		
Medium.....				3,327	3,091	2,913				1,705	1,585	1,495				1,622	1,506	1,418		
Low.....				3,116	2,788	2,525				1,596	1,430	1,296				1,519	1,358	1,229		
Constant.....				3,337	3,124	2,967				1,710	1,602	1,523				1,627	1,522	1,444		
10 to 14 yr:																				
High.....	2,506	2,778	3,222	{	3,535	3,391	1,208	1,425	1,653	{	1,811	1,738	1,226	1,353	1,570	{	1,725	1,652		
Medium.....					3,324	3,088					1,702	1,583					1,622	1,505		
Low.....					3,113	2,788					1,594	1,428					1,519	1,358		
Constant.....					3,334	3,121					1,708	1,600					1,627	1,521		
15 to 19 yr:																				
High.....	2,801	2,501	2,773	3,218	{	3,531	1,431	1,276	1,421	1,649	{	1,807	1,370	1,225	1,352	1,569	{	1,724		
Medium.....						3,320						1,699						1,591	1,621	1,505
Low.....						3,109						1,591						1,428	1,519	1,358
Constant.....						3,330						1,704						1,600	1,627	1,521
20 to 24 yr.....	3,432	2,790	2,492	2,764	3,209	1,748	1,422	1,269	1,413	1,641	1,683	1,369	1,224	1,351	1,568					
25 to 29 yr.....	3,351	3,414	2,777	2,481	2,753	1,699	1,733	1,410	1,259	1,403	1,653	1,681	1,367	1,222	1,350					
30 to 34 yr.....	2,630	3,330	3,393	2,761	2,468	1,325	1,681	1,715	1,396	1,248	1,305	1,649	1,678	1,365	1,221					
35 to 39 yr.....	1,876	2,607	3,302	3,367	2,742	935	1,307	1,659	1,694	1,380	940	1,301	1,644	1,673	1,362					
40 to 44 yr.....	2,112	1,852	2,577	3,266	3,332	1,044	918	1,283	1,630	1,666	1,068	935	1,294	1,636	1,666					
45 to 49 yr.....	2,201	2,071	1,818	2,533	3,212	1,082	1,014	892	1,250	1,589	1,119	1,057	926	1,283	1,623					
50 to 54 yr.....	2,082	2,135	2,012	1,768	2,468	978	1,035	971	856	1,202	1,104	1,100	1,041	913	1,266					
55 to 59 yr.....	1,740	1,991	2,043	1,929	1,699	780	916	971	913	806	960	1,075	1,073	1,016	893					
60 to 64 yr.....	1,052	1,630	1,868	1,920	1,818	456	710	836	887	837	596	920	1,033	1,033	981					
65 to 69 yr.....	1,320	950	1,477	1,696	1,746	554	394	614	725	771	766	556	863	971	975					
70 to 74 yr.....	1,073	1,111	806	1,260	1,451	433	433	310	486	576	640	678	496	774	875					
75 yr and over.....	1,187	1,391	1,540	1,441	1,700	399	463	497	446	528	788	928	1,043	995	1,172					

TABLE II-H.—PROJECTED POPULATION, BY 5-YR AGE GROUPS AND SEX—ROMANIA, 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Age and series	Both sexes					Male					Female				
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000
All ages:															
High.....	22, 135	23, 008	23, 838	24, 940	26, 049	10, 921	11, 365	11, 808	12, 359	12, 928	11, 214	11, 643	12, 060	12, 581	13, 121
Medium.....		22, 889	23, 572	24, 385	25, 155		11, 304	11, 656	12, 074	12, 470		11, 585	11, 915	12, 311	12, 685
Low.....		22, 770	23, 275	23, 830	24, 263		11, 243	11, 504	11, 790	12, 012		11, 527	11, 771	12, 041	12, 251
Constant.....		23, 002	23, 838	24, 866	25, 910		11, 362	11, 793	12, 321	12, 857		11, 640	12, 045	12, 545	13, 053
Under 5 yr:															
High.....	2, 017	1, 943	1, 990	2, 216	2, 328	1, 033	997	1, 021	1, 137	1, 195	984	946	969	1, 079	1, 134
Medium.....		1, 824	1, 811	1, 957	1, 988		936	929	1, 004	1, 020		888	882	953	968
Low.....		1, 705	1, 633	1, 698	1, 649		875	838	871	846		830	795	827	803
Constant.....		1, 937	1, 966	2, 172	2, 263		994	1, 009	1, 115	1, 161		943	957	1, 058	1, 102
5 to 9 yr:															
High.....	1, 922	2, 004	1, 932	1, 979	2, 206	984	1, 026	991	1, 015	1, 132	938	978	942	964	1, 075
Medium.....			1, 814	1, 802	1, 948			930	924	999			884	878	949
Low.....			1, 696	1, 625	1, 690			869	833	867			826	792	823
Constant.....			1, 926	1, 956	2, 162			987	1, 003	1, 109			938	938	953
10 to 14 yr:															
High.....	1, 933	1, 919	2, 001	1, 929	1, 976	987	982	1, 024	989	1, 013	945	937	977	941	963
Medium.....				1, 811	1, 799				928	922				883	877
Low.....				1, 693	1, 622				868	832				825	791
Constant.....				1, 923	1, 953				985	1, 001				937	952
15 to 19 yr:															
High.....	1, 436	1, 928	1, 914	1, 925	735	984	978	1, 021	986	701	944	935	976	939	
Medium.....				1, 808					926					882	
Low.....				1, 690					865					824	
Constant.....				1, 919					983					936	
20 to 24 yr.....	1, 801	1, 430	1, 921	1, 908	1, 990	918	731	979	974	1, 016	883	699	942	934	974
25 to 29 yr.....	1, 768	1, 792	1, 423	1, 913	1, 900	900	912	726	973	969	868	880	697	940	932
30 to 34 yr.....	1, 424	1, 757	1, 782	1, 416	1, 904	723	892	905	721	967	701	865	877	694	937
35 to 39 yr.....	1, 280	1, 412	1, 743	1, 768	1, 406	640	715	883	896	715	640	697	860	873	692
40 to 44 yr.....	1, 536	1, 264	1, 395	1, 724	1, 750	764	629	703	869	883	772	635	692	855	867
45 to 49 yr.....	1, 496	1, 507	1, 241	1, 372	1, 696	745	744	614	687	850	752	762	627	685	846
50 to 54 yr.....	1, 400	1, 453	1, 465	1, 208	1, 338	687	716	717	592	665	718	737	748	616	673
55 to 59 yr.....	1, 175	1, 339	1, 392	1, 406	1, 161	538	648	677	679	562	637	691	715	727	599
60 to 64 yr.....	659	1, 097	1, 251	1, 303	1, 319	286	492	593	621	624	373	605	658	682	695
65 to 69 yr.....	891	590	986	1, 126	1, 176	392	247	428	517	543	499	343	558	608	633
70 to 74 yr.....	680	743	495	833	953	298	313	198	346	419	381	431	297	487	533
75 yr and over.....	717	830	937	843	1, 019	291	337	371	320	389	425	493	566	522	629

TABLE II-I.—PROJECTED POPULATION, BY 5-YR AGE GROUPS AND SEX—YUGOSLAVIA, 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Age and series	Both sexes					Male					Female					
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	
All ages:																
High.....	22,262	23,313	24,382	25,479	26,552	10,971	11,512	12,068	12,638	13,196	11,291	11,801	12,313	12,841	13,356	
Medium.....		23,193	24,074	24,920	25,672		11,450	11,910	12,350	12,742		11,743	12,164	12,571	12,930	
Low.....		23,072	23,767	24,361	24,793		11,388	11,751	12,061	12,289		11,685	12,015	12,300	12,504	
Constant.....		23,189	24,056	24,879	25,597		11,448	11,901	12,328	12,703		11,741	12,156	12,550	12,893	
Under 5 yr:																
High.....	1,861	1,988	2,069	2,121	2,196	960	1,025	1,067	1,095	1,133	901	962	1,002	1,027	1,033	
Medium.....		1,867	1,881	1,869	1,874		963	970	964	967		904	911	905	907	
Low.....		1,747	1,693	1,617	1,553		901	874	834	801		846	820	783	752	
Constant.....		1,863	1,867	1,845	1,840		961	963	952	950		902	904	893	891	
5 to 9 yr:																
High.....	1,797	1,852	1,979	2,061	2,114	926	955	1,020	1,063	1,091	871	897	958	998	1,024	
Medium.....			1,859	1,874	1,863			959	966	961			901	907	902	
Low.....			1,739	1,687	1,611			897	870	831			843	817	780	
Constant.....			1,855	1,860	1,839			956	959	949			899	901	890	
10 to 14 yr:																
High.....	1,816	1,794	1,849	1,976	2,058	929	924	953	1,019	1,061	887	870	896	958	997	
Medium.....				1,857	1,872				957	965				900	907	
Low.....				1,737	1,685				895	869				842	816	
Constant.....				1,853	1,858				955	958				898	900	
15 to 19 yr:																
High.....	1,853	1,812	1,791	1,974	1,846	949	926	922	951	1,017	905	886	869	895	957	
Medium.....				1,854											955	899
Low.....				1,735											894	841
Constant.....				1,850											953	897
20 to 24 yr.....	1,908	1,847	1,807	1,786	1,842	974	944	922	919	948	934	903	885	868	894	
25 to 29 yr.....	1,953	1,901	1,841	1,801	1,781	997	968	939	918	914	956	932	902	884	867	
30 to 34 yr.....	1,557	1,944	1,892	1,833	1,795	793	990	962	934	913	764	954	930	900	882	
35 to 39 yr.....	1,349	1,546	1,931	1,881	1,823	675	785	982	954	927	675	761	950	927	897	
40 to 44 yr.....	1,527	1,335	1,531	1,913	1,864	759	665	775	969	943	676	768	670	756	944	
45 to 49 yr.....	1,560	1,501	1,313	1,508	1,886	774	742	650	759	950	786	759	663	749	935	
50 to 54 yr.....	1,369	1,519	1,463	1,281	1,474	646	747	717	629	736	723	772	746	652	738	
55 to 59 yr.....	1,081	1,316	1,462	1,410	1,237	473	613	710	683	600	608	703	752	727	637	
60 to 64 yr.....	564	1,014	1,236	1,374	1,329	244	434	565	655	631	320	580	671	720	697	
65 to 69 yr.....	785	508	917	1,120	1,248	340	213	380	497	577	445	295	537	624	671	
70 to 74 yr.....	628	659	430	781	956	276	272	172	308	405	352	386	259	473	551	
75 yr and over.....	653	778	871	785	974	257	308	332	287	349	396	470	539	498	625	

TABLE III.—PROJECTED POPULATION OF PRESCHOOL AGE (0 TO 6 YEARS), BY SEX—8 EASTERN EUROPEAN COUNTRIES, 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Country and series	Both sexes					Male					Female				
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000
Eastern Europe:															
High.....	15,714	16,634	16,954	17,272	18,085	8,068	8,534	8,703	8,870	9,290	7,645	8,100	8,251	8,402	8,795
Medium.....		15,907	15,527	15,323	15,527		8,161	7,970	7,869	7,976		7,746	7,557	7,454	7,551
Low.....		15,181	14,101	13,375	12,978		7,788	7,238	6,868	6,667		7,392	6,863	6,507	6,311
Constant.....		15,987	15,713	15,645	16,009		8,202	8,066	8,034	8,224		7,785	7,647	7,611	7,785
Albania:															
High.....	469	525	594	644	672	241	271	306	332	347	227	254	287	312	325
Medium.....		501	543	568	569		258	280	293	294		243	263	275	275
Low.....		477	492	492	467		246	254	254	241		231	238	238	226
Constant.....		532	623	704	766		274	321	363	395		257	302	341	371
Bulgaria:															
High.....	956	959	984	1,032	1,108	490	491	505	529	568	466	467	480	503	539
Medium.....		917	901	915	950		470	462	469	487		447	439	446	463
Low.....		875	818	798	793		448	419	410	407		427	399	389	386
Constant.....		917	900	913	947		470	461	468	486		447	439	445	461
Czechoslovakia:															
High.....	1,933	1,900	1,869	1,907	2,099	988	970	955	974	1,073	945	930	914	932	1,026
Medium.....		1,819	1,715	1,695	1,804		929	876	866	923		890	839	829	882
Low.....		1,738	1,561	1,483	1,511		887	797	758	773		851	763	725	738
Constant.....		1,828	1,751	1,763	1,912		933	895	901	978		895	857	862	934
German Democratic Republic:															
High.....	1,402	1,819	1,992	1,921	1,825	720	934	1,023	987	938	682	885	969	934	887
Medium.....		1,738	1,823	1,701	1,565		892	936	874	804		846	887	828	760
Low.....		1,657	1,653	1,483	1,306		850	849	762	671		806	804	721	635
Constant.....		1,665	1,688	1,541	1,382		855	867	792	710		810	821	749	672
Hungary:															
High.....	1,189	1,102	1,076	1,140	1,279	609	564	551	584	655	580	538	525	556	623
Medium.....		1,054	984	1,008	1,095		539	503	516	561		515	480	492	534
Low.....		1,007	891	877	913		515	456	449	468		492	435	428	445
Constant.....		1,049	961	966	1,030		537	492	495	528		512	469	471	502
Poland:															
High.....	4,392	4,868	4,811	4,642	4,824	2,257	2,496	2,468	2,383	2,478	2,135	2,372	2,343	2,259	2,346
Medium.....		4,656	4,410	4,123	4,148		2,387	2,262	2,116	2,131		2,269	2,148	2,006	2,017
Low.....		4,444	4,010	3,603	3,474		2,278	2,057	1,850	1,785		2,165	1,953	1,753	1,689
Constant.....		4,666	4,451	4,193	4,252		2,392	2,283	2,152	2,185		2,274	2,167	2,040	2,068
Romania:															
High.....	2,786	2,741	2,755	3,034	3,230	1,428	1,405	1,413	1,556	1,658	1,358	1,335	1,342	1,477	1,573
Medium.....		2,622	2,523	2,694	2,777		1,344	1,294	1,382	1,425		1,277	1,229	1,312	1,352
Low.....		2,503	2,292	2,325	2,325		1,283	1,176	1,208	1,193		1,219	1,116	1,147	1,132
Constant.....		2,734	2,727	2,978	3,145		1,402	1,399	1,528	1,614		1,332	1,328	1,450	1,531
Yugoslavia:															
High.....	2,588	2,721	2,873	2,953	3,049	1,336	1,404	1,482	1,524	1,573	1,253	1,318	1,391	1,403	1,476
Medium.....		2,601	2,629	2,618	2,618		1,341	1,356	1,351	1,351		1,259	1,273	1,267	1,267
Low.....		2,481	2,385	2,283	2,189		1,279	1,230	1,178	1,130		1,201	1,155	1,105	1,060
Constant.....		2,597	2,612	2,588	2,574		1,339	1,347	1,335	1,328		1,257	1,265	1,253	1,246

TABLE IV.—PROJECTED POPULATION OF PRIMARY SCHOOL AGE (7 TO 14 YR), BY SEX—EIGHT EASTERN EUROPEAN COUNTRIES: 1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Country and series	Both sexes					Male					Female				
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000
Eastern Europe:															
High.....	16,427	17,302	18,556	19,237	19,450	8,414	8,876	9,514	9,865	9,981	8,013	8,426	9,042	9,372	9,469
Medium.....			18,167	17,905	17,531			9,315	8,996	8,996			8,852	8,723	8,535
Low.....			17,778	16,574	15,613			9,115	8,500	8,012			8,663	8,074	7,601
Constant.....			18,208	18,060	17,813			9,336	9,262	9,141			8,872	8,798	8,672
Albania:															
High.....	508	521	554	630	697	261	268	286	325	360	247	253	268	305	337
Medium.....			542	585	626			280	302	323			262	283	303
Low.....			530	540	555			273	279	287			256	261	269
Constant.....			556	648	746			287	335	385			269	314	361
Bulgaria:															
High.....	1,006	1,072	1,092	1,111	1,144	518	550	560	569	587	489	522	533	542	558
Medium.....			1,070	1,034	1,031			548	530	528			522	504	503
Low.....			1,048	957	918			537	490	470			511	467	447
Constant.....			1,070	1,033	1,029			548	529	528			522	504	502
Czechoslovakia:															
High.....	1,771	2,091	2,194	2,154	2,138	906	1,068	1,119	1,099	1,091	865	1,023	1,075	1,055	1,046
Medium.....			2,151	2,008	1,930			1,097	1,024	986			1,054	983	945
Low.....			2,107	1,862	1,723			1,074	950	880			1,032	912	843
Constant.....			2,153	2,032	1,990			1,098	1,037	1,016			1,055	996	974
German Democratic Republic:															
High.....	1,901	1,592	1,842	2,214	2,254	974	816	945	1,136	1,157	927	776	897	1,078	1,097
Medium.....			1,801	2,060	2,029			924	1,057	1,042			877	1,003	987
Low.....			1,759	1,906	1,804			902	978	927			856	928	878
Constant.....			1,761	1,930	1,858			904	990	954			858	939	904
Hungary:															
High.....	1,136	1,304	1,329	1,238	1,252	585	668	680	633	641	552	635	650	605	611
Medium.....			1,303	1,151	1,125			666	589	576			637	562	549
Low.....			1,278	1,064	999			653	544	511			624	520	488
Constant.....			1,302	1,136	1,089			666	581	557			636	555	531
Poland:															
High.....	4,132	4,685	5,352	5,594	5,365	2,114	2,405	2,744	2,866	2,751	2,018	2,280	2,608	2,728	2,614
Medium.....			5,237	5,210	4,841			2,685	2,669	2,483			2,552	2,541	2,359
Low.....			5,123	4,827	4,318			2,626	2,473	2,214			2,497	2,354	2,103
Constant.....			5,240	5,238	4,904			2,687	2,684	2,515			2,554	2,554	2,389
Romania:															
High.....	3,087	3,126	3,168	3,091	3,281	1,577	1,600	1,622	1,585	1,682	1,510	1,526	1,546	1,507	1,599
Medium.....			3,103	2,876	2,958			1,589	1,474	1,517			1,514	1,402	1,441
Low.....			3,038	2,660	2,636			1,556	1,364	1,352			1,482	1,297	1,284
Constant.....			3,166	3,073	3,233			1,621	1,575	1,658			1,545	1,498	1,576
Yugoslavia:															
High.....	2,885	2,912	3,024	3,205	3,320	1,479	1,501	1,559	1,652	1,712	1,406	1,411	1,465	1,553	1,608
Medium.....			2,960	2,981	2,990			1,526	1,537	1,542			1,434	1,444	1,448
Low.....			2,897	2,757	2,660			1,493	1,421	1,371			1,403	1,336	1,288
Constant.....			2,959	2,970	2,963			1,525	1,531	1,528			1,433	1,439	1,435

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding; see text for an explanation of the series]

Country and series	Both sexes					Male					Female				
	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000	1980	1985	1990	1995	2000
Eastern Europe:															
High.....					{ 99,319 }					{ 49,818 }					{ 49,501 }
Medium.....					{ 98,598 }					{ 49,448 }					{ 49,150 }
Low.....	86,707	91,308	93,630	96,249	{ 97,877 }	42,827	45,258	46,712	48,198	{ 49,079 }	43,880	46,050	46,918	48,051	{ 48,798 }
Constant.....					{ 98,676 }					{ 49,488 }					{ 49,188 }
Albania:															
High.....					{ 2,478 }					{ 1,275 }					{ 1,203 }
Medium.....					{ 2,455 }					{ 1,263 }					{ 1,191 }
Low.....	1,534	1,762	1,998	2,222	{ 2,431 }	796	912	1,033	1,146	{ 1,251 }	738	850	964	1,075	{ 1,180 }
Constant.....					{ 2,484 }					{ 1,279 }					{ 1,206 }
Bulgaria:															
High.....					{ 6,140 }					{ 3,085 }					{ 3,054 }
Medium.....					{ 6,098 }					{ 3,064 }					{ 3,034 }
Low.....	5,851	6,035	6,050	6,085	{ 6,057 }	2,930	3,021	3,033	3,053	{ 3,043 }	2,921	3,014	3,017	3,031	{ 3,014 }
Constant.....					{ 6,098 }					{ 3,064 }					{ 3,034 }
Czechoslovakia:															
High.....					{ 11,174 }					{ 5,586 }					{ 5,588 }
Medium.....					{ 11,093 }					{ 5,545 }					{ 5,548 }
Low.....	9,657	10,070	10,314	10,732	{ 11,013 }	4,788	4,992	5,134	5,358	{ 5,504 }	4,870	5,077	5,179	5,374	{ 5,509 }
Constant.....					{ 11,102 }					{ 5,550 }					{ 5,553 }
German Democratic Republic:															
High.....					{ 11,605 }					{ 5,836 }					{ 5,769 }
Medium.....					{ 11,525 }					{ 5,795 }					{ 5,730 }
Low.....	10,735	11,281	11,293	11,322	{ 11,444 }	5,196	5,532	5,634	5,690	{ 5,754 }	5,539	5,749	5,660	5,632	{ 5,691 }
Constant.....					{ 11,453 }					{ 5,758 }					{ 5,695 }
Hungary:															
High.....					{ 7,296 }					{ 3,641 }					{ 3,655 }
Medium.....					{ 7,248 }					{ 3,616 }					{ 3,632 }
Low.....	6,955	7,124	7,126	7,232	{ 7,201 }	3,422	3,513	3,533	3,599	{ 3,592 }	3,533	3,611	3,593	3,633	{ 3,609 }
Constant.....					{ 7,243 }					{ 3,614 }					{ 3,629 }
Poland:															
High.....					{ 27,232 }					{ 13,578 }					{ 13,654 }
Medium.....					{ 27,021 }					{ 13,470 }					{ 13,551 }
Low.....	23,277	24,321	25,056	26,008	{ 26,810 }	11,478	12,010	12,426	12,947	{ 13,362 }	11,799	12,312	12,630	13,061	{ 13,448 }
Constant.....					{ 27,031 }					{ 13,475 }					{ 13,556 }
Romania:															
High.....					{ 16,391 }					{ 8,237 }					{ 8,154 }
Medium.....					{ 16,273 }					{ 8,177 }					{ 8,096 }
Low.....	13,975	14,979	15,528	16,014	{ 16,155 }	6,934	7,463	7,776	8,034	{ 8,116 }	7,041	7,516	7,752	7,980	{ 8,039 }
Constant.....					{ 16,384 }					{ 8,234 }					{ 8,151 }
Yugoslavia:															
High.....					{ 17,005 }					{ 8,580 }					{ 8,425 }
Medium.....					{ 16,885 }					{ 8,518 }					{ 8,367 }
Low.....	14,722	15,735	16,267	16,624	{ 16,736 }	7,282	7,815	8,144	8,370	{ 8,457 }	7,440	7,920	8,123	8,264	{ 8,309 }
Constant.....					{ 16,881 }					{ 8,516 }					{ 8,365 }

TABLE VI.—PROJECTED POPULATION OF RETIREMENT AGE (65 YR AND OVER), BY SEX—8 EUROPEAN COUNTRIES:
1980-2000

[Numbers in thousands as of Jan. 1; figures may not add to totals due to rounding]

Country and sex	1980	1985	1990	1995	2000
Both sexes:					
Eastern Europe.....	15, 160	14, 014	15, 242	17, 099	18, 779
Albania.....	140	157	174	203	237
Bulgaria.....	1, 033	1, 000	1, 152	1, 297	1, 402
Czechoslovakia.....	1, 921	1, 721	1, 865	1, 984	2, 035
German Democratic Republic.....	2, 702	2, 280	2, 202	2, 244	2, 348
Hungary.....	1, 430	1, 296	1, 389	1, 487	1, 534
Poland.....	3, 580	3, 452	3, 824	4, 397	4, 896
Romania.....	2, 288	2, 163	2, 418	2, 801	3, 147
Yugoslavia.....	2, 067	1, 945	2, 219	2, 686	3, 178
Male:					
Eastern Europe.....	6, 068	5, 421	5, 851	6, 692	7, 524
Albania.....	62	71	78	93	111
Bulgaria.....	472	449	513	576	620
Czechoslovakia.....	764	663	717	760	777
German Democratic Republic.....	950	752	699	748	858
Hungary.....	579	508	542	582	600
Poland.....	1, 386	1, 290	1, 421	1, 657	1, 875
Romania.....	981	897	997	1, 184	1, 352
Yugoslavia.....	874	793	884	1, 092	1, 331
Female:					
Eastern Europe.....	9, 092	8, 593	9, 391	10, 407	11, 255
Albania.....	78	86	96	110	126
Bulgaria.....	561	551	639	721	782
Czechoslovakia.....	1, 156	1, 059	1, 148	1, 224	1, 258
German Democratic Republic.....	1, 752	1, 529	1, 504	1, 496	1, 490
Hungary.....	851	788	848	905	935
Poland.....	2, 195	2, 162	2, 402	2, 740	3, 021
Romania.....	1, 306	1, 266	1, 421	1, 617	1, 796
Yugoslavia.....	1, 193	1, 152	1, 334	1, 595	1, 848

MANPOWER POLICY

By Tibor Vais*

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I. INTRODUCTION

This paper seeks to present a picture of labor markets and governmental responses to changes in the labor market situation in the six East European countries which are members of the Council for Mutual Economic Assistance (CEMA): Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, and Romania.

The first goal of this paper is to describe the general features of labor markets in the East European countries during the postwar period. The labor resources of any country are determined primarily by demographic factors, that is by the size of the population and its sex and age composition. The labor market situation is a result of both demographic changes which affect the supply of labor and economic policies which primarily determine the demand for labor. Changes in the labor markets as a result of these two factors are discussed in the first part of this paper. Despite the existence of substantial differences in the labor supply and demand relation among individual countries, the general tendency in most of them has been towards a demand for labor that exceeds the supply. The second section contains a discussion of some of the causes of this imbalance. The analysis reveals an ever

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growing problem in meeting the demand for labor in practically every East European country. The coming 5-year plan period (1981-85) will see a sharp decline in labor supply in most of them. Combined with other economic problems, this situation constitutes one of the most serious challenges to East European policymakers in the first half of the 1980's.

The second goal of this paper is to describe East European manpower policies. One of the main goals of socialist economic policy is to provide employment for all those seeking it. At present, this task has been achieved in all the East European countries. Under the circumstances of growing labor shortages the main objective becomes to better use of the available labor force. This is assured, in particular, by means of manpower policy. Manpower policy must ensure that necessary types of labor are available at the places and in quantities where they are needed to fulfill national economic plans. Among the manpower instruments discussed in this paper are labor planning, regulation of labor mobility, certain elements of wage policy, as well as measures aimed at increasing current and future labor supply.

This paper concentrates on the industrial labor market. There is no discussion of that facet of manpower policy which addresses the problems of supply and demand for workers with particular qualifications; the goal here is simply to provide the reader with a general understanding of the labor market situation and the general features of manpower policy in Eastern Europe.

II. THE LABOR MARKET

A. From Reserves to Shortage¹

The labor resources of any country are determined primarily by demographic factors, i.e., by the size of the population and its age and sex composition.

The six East European CMEA countries had a population of 108 million in 1978, an increase of 5.3 million, or 5.1 percent, over 1970. During the entire post World War II period the population in all but one of these countries has been increasing. The only exception has been the G.D.R. where, because of the massive emigration before 1961, the adverse impact of the two world wars on the age and sex structure of the population, and low birth rates, the population has been decreasing almost throughout the entire postwar period (see table 1).

TABLE 1.—AVERAGE ANNUAL PERCENTAGE CHANGE IN THE POPULATION

Country	1951-55	1956-60	1961-65	1966-70	1971-75	1976-78
Bulgaria.....	0.65	0.95	0.85	0.70	0.55	0.35
Czechoslovakia.....	1.10	.85	.75	.25	.65	.75
German Democratic Republic.....	-.50	-.80	-.25	.05	-.25	-.20
Hungary.....	1.00	.30	.35	.35	.40	.45
Poland.....	1.90	1.60	1.30	.65	.90	.95
Romania.....	1.20	1.20	.65	1.25	.95	.95
Total.....	1.00	.80	.70	.60	.60	.60

Source: Statistical yearbooks of individual countries.

¹ Labor shortage, as interpreted in this paper, is a situation when the enterprises cannot find enough workers in the labor market to meet employment plans, either their own, or those handed down for them by the authorities. No attempt is made to discuss supply and demand for workers of particular skills.

At the same time the general tendency in the majority of East European countries has been a decline in the average rates of population growth. This decline was especially impressive in the 1960's. In the 1970's, however, there was a slight increase in population growth in Czechoslovakia, Hungary, and Poland, due primarily to increased birth rates during the first half of the previous decade.

At least two periods in the dynamics of population can be distinguished in most East European countries. During the first period, which lasted approximately until the mid-1950's, birth rates were high and death rates were decreasing. While death rates decreased steadily until the end of the 1960's, birth rates reached their maximum level in most East European countries in the early 1950's. Thereafter they started to decline rapidly. Death rates were relatively stable in the 1970's while birth rates have stabilized or even somewhat increased. The latter was due to the fact that the relatively large cohorts of population born after World War II were entering child bearing years during that period. Active pronatalist population policies adopted by most East European countries have also contributed to the increase in birth rates.

Changes in birth and death rates and increased life expectancy resulted in significant changes in the age structure of population. Their characteristic feature has been the aging of the population. The rates of growth of the elderly population (i.e., aged 60 and over) were 3-4 times the rates of growth of the whole population. At the same time, the youth (under 15) have decreased in number and proportion in the population in almost all the countries.

As all East European countries must rely primarily on domestic labor force,² the dynamics of the working age population is of paramount importance to the evaluation of labor supply (see table 2).³

During the entire postwar period Poland has had the largest growth in working-age population, and therefore, the ability to increase its labor force more rapidly than the rest of the East European countries. Romania and Bulgaria also experienced relatively high rates of growth in the working-age population in the 1950's. With the exception of the G.D.R., labor supply again increased in all the East European countries during the second half of the 1960's, due to high birth rates after the war and in the early 1950's. During the second half of the 1970's the average annual rates of growth of the working-age population started to decline in most East European countries, reflecting the low birth rates of the 1960's. This trend will become particularly evident in the first years of the 1980's.

In addition to decreasing increments of young people to the labor force, the dynamics of the aging population withdrawing from the

² Import of foreign labor in some of the East European countries was very limited and played a marginal role. Emigration has significantly influenced the size and the growth of the labor force only in the G.D.R., while having been a minor factor in the rest of Eastern Europe.

³ Age limits for the working-age population are different in individual East European countries. The lower limit is usually determined by compulsory schooling age, while the upper one is dependent upon the legal requirements for eligibility for old-age pensions. The working-age population is defined in Bulgaria as men aged 16 to 59 and women aged 16 to 54. In Czechoslovakia it includes men 15 to 59 and women 15 to 53 or 57 depending on the number of children they have, in the G.D.R. it consists of men 15 to 64 and women 15 to 59, in Hungary the age limits are 14 to 59 for men and 14 to 54 for women (as of 1981, the lower limit became 15), in Poland the limits are 16 or 18 to 64 for men and to 59 for women, in Romania, 16 to 61 for men and to 56 for women. However, the actual limits of the able-bodied population differ from those set by jurisdiction which serve as the basis of official statistics.

labor force upon reaching retirement age will also have an increasingly negative effect on the labor supply in most East European countries. For example, World War I affected Hungarian birth rates in such a way that an average of 131 thousand people a year were born during 1916-1918 in comparison with an average of 264 thousand during 1900-1914. These cohorts reached retirement age at the end of the 1970's, thus partially offsetting the lower increments to the working-age population. But in 1980-1982 people born after World War I, the years of maximum births in Hungarian history, will reach retirement age. These cohorts are twice as large (251 thousand on average during 1920-1922) as those of 1916-1918. At the same time, people born in the mid-1960's when the birth rates were extremely low will reach working age. [1] Thus, the size of the working-age population in Hungary will decrease. Similar demographic trends can be observed in most of the other countries of Eastern Europe as well.

These changes in population growth and changes in age and sex structure of the population have affected the dynamics of employment in Eastern Europe (see tables 2 and 3).

The employed population has increased in all the six East European countries. However, a comparison of the rates of growth of employment and of the population of working ages reveals significant differences between them (see table 3).

TABLE 2.—NUMBER OF EMPLOYED POPULATION

(In thousands)

Country	1950	1955	1960	1965	1970	1978
Bulgaria.....	4,203	4,153	3,956	3,942	4,151	¹ 4,304
Czechoslovakia.....	5,577	5,956	6,063	6,477	7,033	7,605
German Democratic Republic.....	7,196	7,722	7,686	7,676	7,769	8,048
Hungary.....	4,107	4,470	4,735	4,649	4,980	5,069
Poland.....	10,186	11,467	12,401	13,521	15,175	17,410
Romania.....	8,377	9,363	9,538	9,684	9,875	10,290

¹ 1975.

Sources: Statistical yearbooks of individual countries; Mikul'skiy, K.I., ed.: *Effektivnost' socialisticheskogo proizvodstva i khozyaistvennyy mekhanizm* (Efficiency of Socialist Production and Economic Mechanism), Moscow, 1979, p. 33; Vais, T.A.: *Problemy sotrudnichestva stran SEV v ispol'zovanii trudovykh resursov* (Problems of Cooperation of the CMEA Countries in Manpower Utilization), Moscow, 1976, p. 27.

TABLE 3.—AVERAGE ANNUAL PERCENTAGE CHANGE IN WORKING-AGE¹ POPULATION (P) AND EMPLOYED POPULATION (E)

Country	1951-55		1956-60		1961-65		1966-70		1971-78	
	P	E	P	E	P	E	P	E	P	E
Bulgaria.....	0.75	-0.25	0.40	-0.95	0.75	-0.05	0.60	1.05	² 0.50	³ 0.75
Czechoslovakia.....	.15	1.35	.40	.35	.85	1.35	.50	1.65	.70	1.00
German Democratic Republic.....	-.65	1.40	-1.55	-.10	-1.20	.00	-.05	.25	.65	.55
Hungary.....	.50	1.70	-.10	1.15	.45	-.35	.65	1.40	.35	.25
Poland.....	1.45	2.40	.85	1.60	1.00	1.75	1.40	2.35	² 1.70	1.75
Romania.....	2.25	.65	.35	.50	.30	1.05	.40	1.35	.50	

¹ Population of individuals of working age is by official age limits set by individual countries, except for Romania (15 to 59 for men and 15 to 54 for women).

² 1971-75.³ 1971-77.

Sources: Same as for table 2.

Let us take a closer look at employment growth in individual countries and the factors which have affected this growth.

(I) 1951-55: AMPLE LABOR RESERVES

The immediate postwar period and the first years of the 1950's were the years of reconstruction of the East European economies. This was a time of rapid industrial development which required a significant labor force. Meeting this labor demand has not been a problem, since unemployment existed in the urban areas and the countryside was overpopulated. The increase in employment was based primarily on liquidation of unemployment. Due to this policy, the employment rate of the population rose significantly in most countries (see tables 4 and 5).⁴ For example, during 1951-1955 the employment rate of the working-age population increased in Czechoslovakia from 75.1 to 79.6 percent, in the G.D.R. from 61.1 to 67.7 percent.⁵ The first labor shortages appeared in the G.D.R. and Czechoslovakia toward the end of this period. There were labor shortages in Hungary as well due to economic policies before 1953. [3] The only exception has been Bulgaria where until 1956 the process of industrialization was very slow, and employment in industry and construction hardly grew. As a result, the size of the labor force has decreased. That, in turn, caused a decline in the level of economic activity. [4]

⁴ When discussing employment rates one should be aware of several caveats. The employment rate of the total population does not reflect the differences among individual countries in the age and sex structure of the population. Thus, a country where the labor force potential of the population (i.e., the share of working-age population in the total population) is higher might have a higher employment rate even though the age-specific participation rates might not necessarily be higher. The employment rates of the working-age population are distorted by the fact that the employed population consists not only of persons in working age groups, but of those in pre- and post-productive ages as well. It should be mentioned that employment of people of pre-productive ages is very limited in the socialist countries of Eastern Europe. For example, in Bulgaria there were only 10,000 persons of this age employed in the national economy in 1970. This constituted only 0.2 percent of overall employment. [2] In addition, the employment rate is affected by the branch structure of the economy. Countries with a high proportion of the workforce employed in agriculture (see table below) have, as a rule, higher employment rates. Possibilities of employment in agriculture in the East European countries for women, elderly persons, and less qualified labor are much greater than in other branches of the national economy. Therefore, *ceteris paribus* one can expect the employment rates to be higher in such countries with a large share of agricultural employment, as Romania, Poland and Bulgaria.

PERCENTAGE OF OVERALL WORKFORCE EMPLOYED IN AGRICULTURE AND FORESTRY

Country	1950	1955	1960	1965	1970	1978
Bulgaria.....	79.5	70.4	55.5	45.5	35.8	25.2
Czechoslovakia.....	38.6	34.1	25.9	21.3	18.6	14.5
German Democratic Republic.....	27.3	20.7	17.2	15.2	13.0	10.6
Hungary.....	50.6	43.4	38.9	29.7	26.4	21.7
Poland.....	54.0	44.1	44.1	39.4	34.6	30.8
Romania.....	74.3	69.7	65.6	56.7	49.3	32.8

Source: Statistical Yearbook of Member States of the Council for Mutual Economic Assistance, Moscow, 1971, pp. 377-80; 1979, pp. 441-43.

⁵ Relatively lower employment rates of the population in the G.D.R. are explained primarily by the high average age of its population, limiting the size of the working age population. If we consider the participation rates of the population aged 15 to 59 then this indicator, for example, for 1970 would have been 83.5 percent rather than 78.6 percent for the legally determined population of working ages.

TABLE 4.—EMPLOYMENT RATE OF THE POPULATION (PERCENTAGE OF EMPLOYED POPULATION IN TOTAL POPULATION)

Country	1950	1955	1960	1965	1970	1978
Bulgaria.....	58.0	55.4	50.3	48.1	48.9	49.4
Czechoslovakia.....	45.0	45.5	44.4	45.7	49.1	50.1
German Democratic Republic.....	39.1	43.0	44.6	45.1	45.5	48.5
Hungary.....	44.0	45.5	47.4	45.8	48.2	47.4
Poland.....	41.0	42.0	42.0	42.9	46.6	49.7
Romania.....	51.4	54.1	51.8	50.9	48.8	46.9

¹ 1975.

Source: Same as for tables 1 and 2.

TABLE 5.—EMPLOYMENT RATE OF THE WORKING-AGE POPULATION (PERCENTAGE OF EMPLOYED POPULATION IN THE POPULATION OF WORKING AGE)

Country	1950	1955	1960	1965	1970	1978
Bulgaria.....	96.7	92.0	85.8	82.3	84.1	¹ 85.1
Czechoslovakia.....	75.1	79.6	79.4	81.4	86.2	88.0
German Democratic Republic.....	61.1	67.7	72.9	77.4	78.6	77.8
Hungary.....	71.8	73.5	80.3	77.1	80.0	79.6
Poland.....	70.2	73.5	76.2	79.1	82.8	² 83.6
Romania.....		³ 91.7	90.4	89.6	86.8	81.3

¹ 1975.

² 1977.

Source: Same as for table 2.

(II) 1956-60: DEPARTURE FROM THE LABOR FORCE

Large scale collectivization made the second half of the 1950's a time of rapid changes in agriculture in most East European countries. Large numbers of previously unemployed or underemployed agricultural workers and their families moved to urban areas. In some instances the non-agricultural sectors could not absorb both the total growth of the population of working ages and the influx of formerly agricultural population. Limited employment prospects in non-agricultural sectors resulted in significant withdrawals from the labor force and in Bulgaria, even open unemployment, especially among women, and in a general decrease in employment. This phenomenon is known as "migratory loss." The process also resulted in a decline in the level of economic activity of the population in some countries (in Bulgaria the rate of employment of the population decreased from 58 percent in 1950 to 50.3 percent in 1960, in Romania from 54.1 in 1955 to 51.8 in 1960, and in Czechoslovakia from 45.5 to 44.4 during the same five-year period). There was some decline in employment in Hungary as well. However, in the Hungarian case the main cause of the decline was the 1956 revolt, which disrupted regular economic activities. Approximately 180,000 people, a majority of them of working age, left Hungary. The authorities subsequently introduced unemployment benefits. In April of 1957, 39,000 people were receiving benefits. [5] In general, during the second half of the 1950's the rates of growth of employment in all the East European countries were lower than in the preceding five-year period. At the same time in the majority of them these rates

were higher than the rates of growth of the population of working age. As mentioned, the main sources of additional labor for non-agricultural sectors were the formerly agricultural population and housewives in the cities. Some countries relied heavily on the latter source. For example, due mainly to tapping female labor reserves in the G.D.R. the employment rate of the population of working ages increased from 68 percent in 1955 to 73 in 1960.

(III) 1961-65: RELIANCE ON FORMERLY AGRICULTURAL LABOR FORCE CONTINUES

During the first years of the 1960's the process of collectivization in agriculture had continued in most countries with a resulting massive movement of population to the urban areas. For example, from 1959 to 1962 the number of persons employed in Hungarian agriculture decreased by 442,500, while during the preceding and succeeding three-year periods the decrease was only 14,000 and 151,400 persons respectively. At the same time, there was an increase in the rates of growth of the working-age population in all the East European countries, as youths born after the war entered the labor force. However, the increased labor supply, notwithstanding the demand for labor in most countries was unsatisfied.

It should be mentioned that the first half of the 1960's was a period of severe economic problems for many East European countries. Economic growth rates had declined significantly, reflecting, in particular, crises in agriculture after collectivization. In addition, rates of growth of labor productivity had also shown a downward tendency. Policymakers sought to counteract these negative trends by expanding production through construction of new industrial capacity and an increase in the labor force. The main source of industrial employment in most countries continued to be the agricultural workforce. Employment in agriculture during these five years decreased in Hungary by one-fourth, and in the G.D.R., Czechoslovakia, and Romania by one-sixth. The age and sex composition of agricultural labor force started to deteriorate. In the early 1960's, 26 percent of the labor force in agriculture in Czechoslovakia was in post-productive age groups, in Hungary almost one-fifth. Simultaneously in such countries as the G.D.R. and Czechoslovakia the proportion of women in the labor force increased considerably. The rate of employment of women approached the maximum achievable. Illustrative of this process of massive tapping of female labor reserves in Eastern Europe during the postwar period are the following statistics. In Czechoslovakia during the period 1948-1977 total employment increased by 1,545 thousand, while the number of employed women increased by 1,111 thousand, or 72 percent of the total increase. Even more impressive are the data for Hungary where during the period 1949-1979 the increase in employment of women (1,083 thousand) was higher than the increase in overall employment (1,058 thousand).

The following factors have contributed to this significant increase in women's employment: (1) low wages for heads of households created a demand for a second income in the family in order to maintain the standard of living; (2) the increase in the minimum wage

raised the opportunity cost of staying home for housewives; (3) creation of job opportunities in excess of available male labor reserves generated increased demand for female labor; (4) the introduction of new technology made many jobs suitable for employment of women; (5) increase in educational level of women resulted in a desire to apply acquired skills and to pursue a career; and (6) development of childcare facilities liberated women (to some degree) from the necessity of staying at home with their children.

(IV) 1966-70: ECONOMIC REFORMS—CAUTION IN MANPOWER POLICY

The second half of the 1960's was the period when most East European countries started economic reforms. Some of them, as for example, Hungary and Bulgaria, were afraid that economic reforms combined with an increase in the working-age population could bring about the reappearance of unemployment. In order to avoid this danger, Hungarian policymakers adopted several measures. Economic regulators, particularly the system of wage regulation, were constructed in such a way as to discourage enterprises from firing redundant workers. In addition, Hungary signed an agreement with the G.D.R., according to which 10,000 young Hungarians were to work in the G.D.R. for three years. However, fears of possible unemployment were unfounded: Demand for additional labor was extremely high. As a result, while average annual rates of growth of the working-age population were 0.65 percent, employment increased at a rate of 1.4 percent per annum, increasing the employment rate of the population from 45.8 in 1965 to 48.2 percent in 1970, and causing a labor shortage. In the G.D.R., in spite of the continuing decrease of the size of the working age group, the labor force continued to increase. This was made possible by the introduction of flexible forms of employment for marginal female labor reserves and by encouraging people who became eligible for old-age pensions to continue to work. In the mid-1960's 8 percent of the labor force in the G.D.R. consisted of persons in post-productive ages. In Czechoslovakia the rates of growth of employment were also significantly higher than the rates of growth of working age population; the former has been increasing by 1.65 percent on average per year, the latter by 0.50 percent. Almost half of the country's population was employed. Eighty-five percent of the employment increase was derived from the natural increase of working age population. Poland and Romania based their economic strategies on expanding production by, in particular, bringing additional workers into non-agricultural sectors. In Poland during the period 1966-1970 more than three million people (as opposed to two million in the preceding five-year period) reached working age. Thus, in order to secure employment for these increments to the labor force, 1.5 million new job opportunities had to be created. During this period employment in Poland increased by more than that. The first signs of local labor shortages have appeared, especially in the industrially developed regions of the country and among men. At the same time, there were not enough job opportunities for women. In 1965 for every 10 women registered as seeking employment there were only 2 openings, in 1970—only one. [6] In

Bulgaria, in contrast with the preceding 15 years of decreasing labor force, employment showed a significant rise during the second half of the 1960's. The employment rate increased primarily due to increased participation rates of the urban female population. As in Hungary and in Poland, the first labor shortages appeared in Bulgaria during this period.

(V) THE 1970'S: GROWING LABOR SHORTAGE

Thus, at the beginning of the 1970's, two countries—the G.D.R. and Czechoslovakia—achieved high levels of participation of their population, practically exhausted labor reserves among non-working women of working age, and could not rely any more on agriculture as a source of manpower for other sectors of their economies. The labor market in Hungary had very similar characteristics, though the labor shortage was not as acute, as in the two above mentioned countries. In Poland, Romania, and to a lesser degree, in Bulgaria there were still possibilities for increasing the level of economic activity of working-age women, and agriculture still was a reservoir of manpower for nonagricultural sectors.

Economic policies of the East European countries in the 1970's continued to reflect their respective labor market situations. Countries with tight labor force balances had to rely more on increasing labor productivity, while Poland's and Romania's economic policies were based on the availability of labor reserves. The labor market situation in Poland has changed during the past decade. During the period 1971–1975 Poland had the largest increase in the population of working age in her history. At the same time, in 1970 there were 71,300 women seeking employment, but only 8,500 openings. According to one version of the five year plan, there were to be 0.5 million unemployed in Poland at the end of the plan period. [7] The new political leadership, facing a threat of unemployment and severe economic problems, adopted a new economic strategy which was based on heavy investments in industry through foreign borrowing and on high rates of growth of employment. Due to this policy Poland has achieved high rates of economic growth and provided employment for all those seeking it. A special program of creating new "cheap" job opportunities for women was adopted. The rates of growth of employment in "female" branches of the economy have risen sharply. For example, in 1971, the growth rate of employment in the clothing industry was 5.6 times the (percentage) growth rate of 1970, in the leather, fur and shoe industries 2.8 times; and in the food industry as much as 16 times. [8] As a result, for the first time, demand for female labor exceeded the supply in 1973. [9] High rates of employment growth continued through most of the 1970's. Simultaneously, in the last years of the past decade employment in agriculture has stabilized. Under conditions of very limited labor reallocation between agricultural and non-agricultural sectors and diminishing labor reserves among the female population in urban areas, the demand for labor in excess of natural growth of the working age population led to increased labor shortages.

During the second half of the 1970's in most East European countries the supply of young labor started to decline due to the low birth

rates of the early 1960's. This trend, combined with the exhaustion of labor reserves and continued demand of the economy for additional labor have further aggravated labor shortages. For example, in Czechoslovakia there are 500,000 job vacancies in industry, and in Hungary there were 150,000 to 200,000 vacancies outside agriculture in 1975. [10] As a result, in most East European countries the rates of growth of employment have declined, and in Hungary, the employment has even decreased absolutely.

Thus, in every East European country with the exception of Romania and to some extent Poland, labor reserves have been exhausted. Practically the only remaining source of additional labor is the natural increment to the working-age population.⁶ However, this source will decline sharply especially in the period 1981-1985, in all countries but Romania. The size of the working age population will decrease absolutely in the coming five years in Bulgaria and Hungary, and from 1985 until the end of the century in the G.D.R. In Czechoslovakia the average annual rate of growth will be one-tenth of a percent in contrast to the one percent of the second half of the 1970's. In Poland there will be half as many new entrants to the job market as in the preceding five years (see table 6).

TABLE 6.—AVERAGE ANNUAL PERCENTAGE CHANGE IN THE WORKING-AGE POPULATION¹ (PROJECTIONS)

Country	1981-85	1986-90	1991-2000
Bulgaria.....	-0.1	0.0	0.2
Czechoslovakia.....	.1	.7	.8
German Democratic Republic.....	.5	-1	-5
Hungary.....	-2	.1	.5
Poland.....	.4	.5	.9
Romania.....	.9	.6	.5
Eastern Europe.....	.4	.4	.5

¹ Population aged 15 to 59.

Source: Labor Supply and Migration in Europe, Demographic Dimensions 1950-75 and Prospects, Economic Survey of Europe in 1977: Part II. Prepared by the Secretariat of the Economic Commission for Europe, Geneva, N.Y., 1979, p. 276.

These projections combined with achieved levels of economic activity of the population in individual countries suggest a significant slowdown or even absolute decline in the labor force in most East European countries. The labor market situation will depend primarily on changes in the demand for labor, and the ability of policymakers to meet demand by reallocating labor within individual industries rather than seeking to continue the tradition of mobilizing additional manpower reserves.

This brief review of the general trends in employment in Eastern Europe suggests an ever growing problem in meeting the demand for

⁶ Romania and Poland still have a considerable agricultural labor force. Due to the social nature of Poland's agriculture, the majority of which still consists of a large number of small family farms, agricultural overpopulation remains a characteristic feature of today's Poland. It is well known that the process of socialization and collectivization of agriculture in all of the rest of Eastern Europe was accompanied by a significant reduction in the agricultural labor force. This might suggest that when and if this process starts in Poland, the agricultural population will decrease significantly especially if it is of massive proportions. This, in turn, could have a strong impact on the labor market situation through increased labor supply in the non-agricultural sectors. It should, however, be remembered that the agricultural population is large, but its age structure is very unfavorable. In 1975, for example, 24.6 percent of the economically active population in agriculture was 60 years of age and older (27.7 percent in the private sector of agriculture), while in non-agricultural sectors the share of this age-group was less than 4 percent. [11]

labor. The G.D.R. and Czechoslovakia have experienced labor shortages almost continually throughout the entire postwar period. Hungary was preoccupied with problems of creating enough job opportunities in the second half of the 1950's and to some extent at the end of the 1960's. Today Hungary is among the states with a tight balance of labor resources. In Bulgaria, employment had been decreasing until the mid-1960's, but since that time labor shortage has become the predominant feature of the labor market. However, the most striking example of the abrupt appearance and subsequent exacerbation of labor shortages is Poland. Less than a decade ago there were reports of possible large-scale unemployment. Today Poland faces problems of labor shortages which will be especially acute in the 1980's. [12] If Romania retains its present model of economic development, the labor market situation there is bound to take on the same characteristics as in the rest of Eastern Europe.

Of course, this is only a general tendency. The situation in individual countries may vary (as it does) depending primarily on the rates of growth of the working age population and peculiarities of political and economic realities during specific periods of time. But one has a feeling that whatever the supply of labor might be, demand almost constantly exceeds it after a certain point. At least, such has been the past experience. What are the reasons for this situation in socialist countries, where the state has available different tools, including central planning, for attempting to keep labor supply and demand in equilibrium?

B. Causes of Labor Shortage: Possible Explanations

There are quite a few explanations for the existence of labor shortages in the East European countries. For the most part, these explanations are complementary, and each of them should be treated as one reason for the existing situation.

One of the main causes of the labor shortage is deficiencies in national planning. Labor planning in the socialist countries is based on a balance of labor resources. The supply side of the balance is determined primarily on the basis of demographic development and estimates of changes in the participation rates. One of the basic requirements for the national labor plans is full employment. Hence, the potential size of employment is given. Then the supply side of the balance of labor resources is compared with the economy's demand for labor. The latter is calculated on the basis of projected production and labor productivity growth. At this stage the supply and demand sides are balanced.

However, enterprises try to prove to their respective ministries that in order to fulfill their production plans they need more workers than the planned employment limits handed down to them. The same claim is made to the national planning committees by the branch ministries. The national planning committees yield to these pressures for additional labor by expanding the supply side of the balance of labor resources on the often unrealistic assumptions that more people would be willing to undertake employment or fewer workers would be leaving the labor force. Therefore, labor supply figures become the de-

sired number rather than the estimated. [13] As a result of these assumptions, labor plans call for greater increase in employment than is possible.

A second source of labor shortage on the macroeconomic level is the planners' unfounded optimism with regard to the growth of labor productivity. If one compares the five year plans of most East European countries with fulfillment during most of the postwar period, one notes that the planned targets for productivity growth were underfulfilled. Thus, if the level of labor productivity is lower than planned, an increase in the labor force to above plan levels is necessary in order to fulfill output targets, which are the most important planned indicator.

The third cause of labor shortage derives from the practice of investment planning. In this sphere the main goal of an enterprise is to get its investment project approved by the central authorities. Approval is easier to obtain if the project shows low requirements for labor (and money). Therefore, enterprises, as a rule, underestimate the actual labor demand connected with new investments. It is much easier to get additional funding when construction is started and millions of crowns, forints or levas have been spent even if the final costs and labor requirements are much higher than those estimated and approved. [14]

Therefore, one can speak of the labor shortage as a result of creating more job opportunities than available labor supply.

The excess supply of job opportunities has its historical roots in postwar Eastern Europe. During the years of abundant and cheap labor, policymakers sought to create as many job opportunities as the accumulation fund permitted. This often led to the creation of working places with a low technological level resulting in low labor productivity. When the period of exhaustion of labor reserves arrived, this policy of extensive investments in new capacity rather than increased capital for labor substitution at the existing production units was not reversed, thus leading to a labor shortage.

Labor shortage in the East European countries can be discussed from another point of view as well, that is, why are the enterprises interested in expanding their work force?

It seems to be a general law that in modern societies firms seek to expand. In addition to common reasons for a growth-orientation, socialist enterprises have their own specific motives for expansion. In a socialist economy, the activities of enterprises depend on central authorities or market regulators determined by these authorities. The larger the enterprise, the greater its significance, prestige and sometimes, its monopolistic or semimonopolistic position and the more it can influence the authorities. This holds true for economies with traditional types of economic mechanisms as well as for economies which have introduced limited market regulations. With regard to the former, the larger an enterprise, the greater is its ability to influence the plan targets given to it by the central authorities and the stronger is its bargaining position for "better" plan targets. With regard to the latter, a larger enterprise is likely to force the authorities to be more sensitive to the enterprise's interests when determining the market regulators.

The urge toward growth results in a shortage of the factors of production, both labor and capital. But while most capital is allocated by the center (a market for capital goods does not exist, or is very limited), there is a labor market. One specific feature of the labor market, under the conditions of free movement of labor, is that some enterprises are able to get labor even if the total demand is greater than the supply. In a labor-short economy every enterprise has to compete for labor, otherwise it will lose its own. This factor also pushes the enterprise to seek additional labor, even if it does not need it. [15]

In addition, enterprises in the majority of the East European countries are not profit-maximizing. Their prime objectives are connected with the fulfillment of output targets, while profitability is subordinated to these goals. Therefore, allocation of resources is not primarily based on comparative costs of factors of production and their productivity, but rather on the easiest ways of increasing output. Being able to acquire additional labor rather than capital, enterprises often follow a labor intensive policy. Such conduct helps to explain why the efforts of policymakers in many East European countries to increase shadow wages for enterprises (which will be discussed later) have been fruitless.

In addition, the low level of mechanization of auxiliary processes, such as, for example, material handling and storage contributes to labor shortages. Even in the G.D.R., where the level of mechanization is higher than in the rest of Eastern Europe, mechanization of auxiliary processes is 30 percent lower than that of primary processes. [16] Lack of capital for labor substitution in this sphere is due to the fact that such labor-saving investments do not increase output.

Another explanation for labor shortages is connected with the *ratchet* principle of national planning and management, which is also known as planning from the achieved. Under this system of planning, managers have an interest in not disclosing all their reserves. This phenomenon leads to the creation of so-called intra-mural labor reserves at the enterprises. According to various estimates, such reserves constitute up to 20 percent of the industrial labor force and are even larger in the construction industry. Firms' interest in increasing their workforce also stems from the existing system of remuneration for the managers, whose salary is directly connected to performance in output not reduction of labor costs.

Still another explanation for the labor shortage is the low level of labor productivity even in comparison with the achieved level of technology. Very often this results from the extremely limited material incentives for the workers to increase the intensity and productivity of their work. The main reason for this absence of stimuli lies outside the sphere of economic policy. Material incentives can be productive only if they allow visible wage differentiation according to work performance. But this differentiation is very restricted due to political considerations, including the population's intolerance of significant wage and income differentials.

All the above mentioned factors contribute to the enterprises' drive for additional labor which, in turn, creates an excess demand for labor.

III. MANPOWER POLICY

To achieve the goals of economic policy, authorities use different tools. One such tool is manpower policy. Although subordinate to economic policy, manpower policy has tasks of its own. It must ensure that the necessary types of workers are available at the places and in quantities where they are needed in order to fulfill national economic plans, which reflect the goals of economic policy. The goals of manpower policy can be achieved only in combination with other governmental policies, such as investment, population, educational, housing and wage policies. Lack of coordination among these policies results in disequilibria in the labor market. One of the causes of this lack of coordination is the economic policy of "unconditional" economic growth. Therefore, manpower policy cannot be "blamed" for the principal labor market problems in the countries of Eastern Europe.

A. Instruments of Manpower Policy

(I) LABOR PLANNING

In socialist countries the main tool of manpower policy at the national level is labor planning which is based on a balance of labor resources. This balance reflects the relationship between the demand for labor in the national economy and the available labor supply. Two main types of balances may be distinguished: actual and planned. These reflect the process of reproduction and utilization of the labor resources at a specific point in or period of time in the past (actual balances) or in the future (planned balances). An example of an aggregate actual manpower balance for Hungary, is given below.

In addition to manpower balances, the East European planners usually work out employment balances. These balances, based on manpower balances and indicators of the national plan, show the number of employed people at the beginning of the year, the increment to the working population during the year (mainly from schools and training institutions), total withdrawals from the workforce during the year, including natural losses, and finally, the number employed at the end of the year. All these data are broken down by sex.

Preparation and analyses of these balances form the basis for labor planning and the introduction of different measures intended to facilitate the fulfillment of the plan. The national labor plan is designed so as to meet the following requirements: to provide full employment, to provide labor for the economy, to facilitate better utilization of employed personnel, and to regulate labor mobility.

A national labor plan's implementation in individual socialist countries relies upon: (1) regulation of employment at the level of branch ministries, associations, and enterprises; (2) plans for organized labor recruitment; (3) plans for professional training and allocation of skilled labor; and (4) territorial labor planning. In addition, some nonmanpower policy measures are used to facilitate the fulfillment of labor plans. Most of the labor planning instruments are similar in the East European countries. It is, however, the method of regulation of employment that is different.

TABLE 7.—AGGREGATE MANPOWER BALANCE IN HUNGARY (BEGINNING OF THE YEAR)

[In thousands]

	1971	1976	1979 total	Of which	
				Males	Females
Population by age groups:					
Under 14 yrs.....	1, 947. 0	2, 003. 7	2, 172. 3	1, 116. 0	1, 056. 3
Males between 14-59, females between 14-54 yrs.....	6, 275. 4	6, 370. 0	6, 363. 8	3, 325. 3	3, 038. 5
60 yr and older males, 55 yr and older females.....	2, 131. 3	2, 168. 4	2, 162. 7	750. 0	1, 412. 7
Population, total.....	10, 353. 7	10, 572. 1	10, 698. 8	5, 191. 3	5, 507. 5
Source of manpower:					
Males between 14-59 yr, females between 14-54 yr.....	6, 275. 4	6, 370. 0	6, 363. 8	3, 325. 3	3, 038. 5
Active earners 60 yr old and older men and 55 yr old and older females.....	360. 8	277. 6	233. 8	69. 9	163. 9
Source of manpower, total.....	6, 636. 2	6, 647. 6	6, 597. 6	3, 395. 2	3, 202. 4
Use of manpower:					
Active earners:					
Industry.....	1, 775. 5	1, 788. 8	1, 733. 9	958. 1	775. 8
Construction.....	385. 0	420. 4	413. 2	340. 8	72. 4
Transportation and communication.....	369. 1	402. 2	408. 7	309. 7	99. 0
Trade.....	419. 9	468. 0	485. 1	175. 1	310. 0
Water economy.....	62. 3	70. 5	75. 3	58. 0	17. 3
Nonproductive branches.....	772. 7	884. 2	935. 3	366. 4	568. 9
All branches other than agriculture.....	3, 784. 5	4, 034. 1	4, 051. 5	2, 208. 1	1, 843. 4
Agriculture.....	1, 167. 4	1, 008. 6	979. 0	577. 2	401. 8
Forestry.....	58. 4	50. 5	50. 5	34. 6	15. 9
Active earners, total.....	5, 010. 3	5, 093. 2	5, 081. 0	2, 819. 9	2, 261. 1
Persons working abroad within the international manpower cooperation.....	11. 5	10. 0	5. 0	4. 0	1. 0
Inactive earners and dependents (males between 14-59 yr, females between 14-54 yr).....	1, 614. 4	1, 544. 4	1, 511. 6	571. 3	940. 3
Inactive earners.....	300. 9	517. 0	597. 6	246. 4	351. 2
Students.....	614. 1	518. 0	487. 6	259. 1	228. 5
Other dependents.....	699. 4	509. 4	426. 4	65. 8	360. 6

When these countries started their economic reforms, mainly in the 1960's, the general tendency was to give firms more power in making decisions about allocation of factors of production, including labor. The number of planned targets was substantially reduced, and some countries abolished direct planning of employment altogether. Regulation of employment was achieved through planning of the wage fund, average wages, and labor productivity. However, in the 1970's the majority of the East European countries returned to direct planning of employment.

The main reasons for this were the acceleration of the growth of employment and decline in the growth rates of labor productivity, and the desire of the planners to have a stricter control over the money supply in the economy in order to keep the demand for consumer goods and services from producing inflationary pressures.

In Bulgaria, for example, since 1972 all ministries, associations, and firms have received binding plan limits for employment, broken down by categories of blue- and white-collar workers. There are special economic sanctions for violation of these limits. The number of employed personnel is also a planned target in Czechoslovakia, the G.D.R. and Romania. In Poland there are branches of the economy in which the growth of employment is a fixed plan indicator, while in other

branches employment is regulated indirectly with the help of the wage fund. The latter system of employment regulation is used in the Hungarian economy as well. [17]

In Czechoslovakia all the elements of labor planning are integrated into a Unified System of Employment Management and Labor Force Allocation. This system includes a labor plan which prescribes the following employment targets binding down to the level of production units: distribution of labor and job placement by local national committees on the basis of limits on personnel established by the central authorities, and the actual manpower balances in the specific county; measures aimed at satisfying the labor demands of specific branches, firms or developmental projects; job placement of 15-year old youths, control over work discipline, and measures aimed at reducing labor turnover. [18]

To assist labor planning, a system of employment accounting was introduced in Czechoslovakia in 1973. This system keeps records of all the employed population in the country, place of employment, and mobility of the labor force. [19]

Plans for organized recruitment of manpower are directed to cover only a small fraction of the total labor force. The task of these plans is to transfer labor from labor surplus regions of the country to areas which have special needs for additional labor. Such special needs may be the result of low population density (as in the case of the western parts of Czechoslovakia and Poland, from which the German population was deported or fled after or in the last years of the war), or the result of specific production tasks. In the latter case, workers are offered a contract for a specific period of time, after which they can either remain in the new job or return to their previous places of residence and employment. The contracts are accompanied by certain material incentives. For example, in Czechoslovakia organized manpower recruitment is based on a contract between the worker and the local national committee for a period not less than a year. This contract is accompanied by specific material incentives for the worker to relocate such as:

A lump sum, half of which is paid at the beginning of the new job, the remainder after six months.

Reimbursement of traveling and moving expenses.

Daily allowances and wages during the period of relocation.

A grant to learn the trade if needed.

Family allowances in case the family does not get housing from the firm.

If the worker breaches the contract he is obliged to pay back the amount of money received from the firm. The system encourages long-term contracts by increasing lump sum payments. [20]

Plans for professional training in practice mean plans for distribution of youth entering the working age group among various forms of training and education, and job placement of graduates.

During the last few years a greater emphasis has been placed on territorial planning. Local authorities, who are represented in individual countries by national committees or councils, supervise the fulfillment of employment plans by the enterprise. They have the right to limit or to impose a ban (as in Czechoslovakia) on the construction

of any new production capacity if there is insufficient labor in the locality to fill new job vacancies.

In Hungary, local councils are responsible for the following activities in the area of manpower planning and labor utilization. The councils divide all the firms into groups—usually three—according to permissible changes in employment. In the first group are those firms which are allowed to increase their personnel. At the same time, most counties have imposed limits on such increases. The second group contains those enterprises which are allowed only to compensate for their losses in employment, but not to increase the number of employed persons above the level of the basis year. The third group is formed by firms which are not allowed even to compensate for their losses, and have to operate with diminishing labor.

The councils supervise compulsory labor exchange and job placement. These activities are limited to those workers who have quit their jobs more than twice a year, and those who have been fired because of a shutdown of a production unit. These measures are integrated into territorial manpower plans which have been prepared in Hungary for the forthcoming plan (1981–1985) as they have been for the previous two five-year plan periods. [21]

(II) LABOR FORCE ALLOCATION AND REGULATION OF LABOR MOBILITY

Labor force allocation and regulation of labor mobility are another major part of manpower policy in East European countries. The allocation of labor between various branches and industries is based primarily on investment and training policies, while wage differentiation has played a subordinate role. There are few restrictions on the free movement of labor in the labor market, so that people are relatively free to choose among various types of employment. At the same time, labor mobility in the East European countries is a problem that causes substantial concern to the planners. They view it as being both insufficient and redundant at the same time.

The problem of labor turnover which is often considered to be undesirable and socially harmful is well-known. In the early 1970's in Hungary it was running at 20 percent of average yearly employment. [22] However, the problem is not so much the high rate of labor turnover, as its direction. Most of the turnover has a circular movement, that is, workers quit their jobs and are replaced by those who quit their jobs in another place and who, in turn, are replaced by those of the first group. Thus, labor turnover does not facilitate desirable changes in the structure of production. In addition, it is considered to be a significant economic burden. First, during the time workers are between jobs society loses a considerable portion of the social fund of working time. This averages up to 3 weeks per worker. Secondly, labor productivity of a worker who is changing jobs falls during the period prior to quitting his former place of employment and is lower at his new job during a certain training period. These losses are even higher if the worker has to acquire a new profession or skill. This is why the official attitude toward labor turnover has been negative. Measures have been introduced to limit these movements, such as administrative restrictions on job changes, and material incentives to encourage remaining at one's job.

In Bulgaria the range of administrative restrictions on labor mobility is widespread. Firms, for instance, may not hire workers already employed, or who have been dismissed for disciplinary violations. Territorial labor mobility is restricted by a ban on hiring new personnel who reside in another county or who were employed in the agricultural sector. In addition, skilled workers who abandoned agricultural production after January 1, 1973 and undertook new jobs outside agriculture, had to return to work in agriculture. To reduce fluctuations, the government punishes those who change their jobs without "valid" reasons by allowing them to receive lower wages, by prohibiting a wage increase for one year, and by depriving them of the right to get bonuses for two years. If the managers breach these regulations they may be subjected to disciplinary actions or penalties, such as deprivation of bonuses and reduction of wages up to 20 percent. [23] To provide material incentives not to change jobs, "long-service" increments to wages are used. These increments range from 6 percent after 1 year of service up to 36 percent after 15 years of service in jobs regarded as difficult, and from 3 percent after 5 years up to 12 percent after 20 years in other jobs. [24]

In Czechoslovakia measures of this nature are included in the Labor Code. Among them are the following: A firm may sign a contract with a worker undergoing professional training provided by the firm, which obligates the worker to spend a specified period of time with the firm after his training period is over. If the worker quits the job earlier, he must pay back the training expenses. A similar type of contract may be signed with an apprentice. A worker is eligible for regular paid vacation only after he has been with the enterprise for a certain length of time, usually 11 months.

Besides such "negative incentives" against mobility, there are some measures, which provide material stimuli to encourage remaining with the firm for a longer period. Among them are the following: (1) Allowances for "loyalty" which represent a specific percentage of wage increase in accordance with length of uninterrupted service at a given firm, paid primarily in the mining industry; (2) remuneration on the occasion of 25 years of service, fiftieth birthday, or retirement, provided that the recipient has been with the enterprise not less than 5 years; and (3) determining remuneration at the end of the year, personal wage increments, sick benefits, and pensions, on the basis of length of uninterrupted service.

Many firms in Czechoslovakia have organized special "fluctuation" committees. Their purpose is to analyze the causes of labor turnover and to prevent undesirable quitting, primarily by skilled workers who are difficult to replace. [25] Similar committees have also been organized in enterprises in the G.D.R. Many firms receive planned targets for labor turnover reduction. In addition, there are "loyalty" allowances and bonuses at the end of the year according to the length of service. For example, the loyalty allowances in the mining industry for those working underground amount to 4 to 16 percent of their yearly wages. [26]

Both in Czechoslovakia and in Hungary workers who change their jobs more than twice a year, and those who leave their jobs without advance notice may be placed in a new job only through the mediation

of a local employment office. However, the efficiency of this "compulsory" job placement is very low, although in 1978 the number placed in Hungary was 75 percent higher than in 1976 before compulsory mediation was introduced. [27] Although the above mentioned restriction succeeded in bringing about some reduction in labor turnover it did not fulfill the other task the employment agencies were assigned; namely, to redirect workers to priority firms. Because a worker is not obliged to take the job offered, less than a third of those who reported to the employment offices were given assignment to priority enterprises. The majority, 60 to 70 percent, came to the offices having not only a concrete idea of future employment, but very often a special petition from the future employer. More often than not the worker was assigned to the petitioning firm. [28]

These measures aimed at restricting labor turnover coexist at the present time with the view that labor turnover should be encouraged when it facilitates reallocation of labor from low- to high-priority industries, when it helps to match the skills of the workers and the job requirements to labor force qualification, and when it is motivated by personal circumstances. [29]

Restructuring of production in industry is becoming one of the primary economic objectives of East European countries. Unfavorable changes in the world markets in the 1970s along with unsatisfactory efficiency in national production have made it evident to planners that in order to avoid major economic slowdowns they must stimulate effective and suppress ineffective production. Up until now these policies have not been totally successful, despite their high priority for a number of years.

The growing labor shortage and the anticipated sharp reduction in the increment to the working age population for 1981-85 bring about a new environment for these structural changes. In the past, programs for development of new industrial products could have been carried out, though not without difficulties, by adding new labor to man new facilities. Instead, the present situation requires the reduction of the labor force at existing production units. On the one hand, reductions must foster the development of efficient production, which is competitive on world markets, and reduce the share of inefficient production. On the other hand, reduction of the working force at existing enterprises has to solve the problem of intraenterprise reserves of labor and to reduce the labor shortage. These reserves are estimated to be between 5 and 20 percent in industry and up to 35 percent in construction.

According to one Czechoslovak source, in the long run approximately 20 percent of all jobs in industry should be phased out. During the 1976-80 plan period 32 thousand working places were to be eliminated, but during the first 2 years of the plan period this target was underfulfilled by 40 percent. [30]

In order to facilitate the process of structural change, the government of Czechoslovakia issued a decree in 1978 concerning material security for workers affected by structural changes. [31] The decree was enacted by the Federal Ministry on Labor and Social Questions in 1979. Its main objective was to facilitate desirable labor mobility by reducing the negative effects of job changes on workers.

According to this decree, a worker affected by structural changes may be dismissed only if he cannot be employed at his former place, and if he refuses to accept a new job offered by the administration of the firm, or to undergo retraining. The former employer has to assist the fired worker in finding a new job. This is done in cooperation with the local national committees.

If the worker, after being fired, accepts a new job at one of the development projects, he is eligible for compensation for the loss of his wages. During the first 3 to 6 months (in some instances up to 12 months) at the new job, after being fired because of structural changes, the worker receives the same gross wage he had received at the previous job, even if the present wage is lower. If, on the other hand, the worker is hired at a developmental project through organized recruitment, he is eligible for the benefits appropriate to that recruitment. The same compensation is also provided to a worker who changes his job within a firm as a result of structural changes.

In case a worker has been fired because of structural changes and cannot be placed in a new job by the enterprise and the local national committee, he is eligible for a so-called grant until new employment is found, which is in fact a form of unemployment benefits. The grant constitutes 60 percent of the previous average net wage not to exceed 1,800 crowns a month (which is 70 percent of average wage rate in industry for 1978). The grant is paid for up to a 6-month period. If the dismissed worker has not been offered any suitable job during this 6-month period, the grant is paid for another 6 months but at a reduced rate (30 percent of the average net wage but not more than 90 crowns). [32] It remains to be seen whether these new measures will achieve the goals for which they were designed. A similar regulation was introduced in Bulgaria in 1967, [33] but no evidence of any positive effect on labor reallocation has been reported.

Other East European countries do not have such a comprehensive program for facilitating socially useful labor mobility. This does not mean that the problem of structural changes is less important in these countries.

In all the East European countries, preference is given to transfers of workers within an enterprise. Under Hungarian regulations, if a worker does not accept a new job within the enterprise, he is given a dismissal notice 15 days to 6 months prior to the dismissal itself. During this period the firm is obliged to give the worker free time with full pay for a period of 15 to 30 days, to look for a position. In case a worker has been fired and cannot find a job, he is eligible for some form of assistance, under certain conditions. [34] The first case of relatively large dismissals occurred in Hungary in April of 1979, when 249 employees were dismissed from a truck and machine factory in Győr. [35] The dismissed workers were given new jobs by the local council employment agencies. No difficulties in finding new employment were reported. Some changes in the Labor Code that will give more power to enterprise managers to dismiss workers, and will at the same time provide the dismissed workers with some form of social security can be expected in the near future.

In the G.D.R., structural changes in employment are carried out primarily in two ways. The first is the redistribution of the labor force

on the basis of categorizing enterprises or branches according to the planners' ideas of future growth. Those enterprises which are designated to lose manpower are not permitted to hire any new employees. This brings about a reduction of employment in this sector of the economy in the long run. In contrast, enterprises and branches that are designated to increase their work force are provided with new employees from among graduates of colleges and trade schools. This method is used primarily in construction and service industries. The second method of structural change is the so-called direct transfer of workers on the basis of "triangle agreements." The parties to such agreements are the two enterprises between which the transfer of workers occurs and the workers themselves. Such agreements may be established solely on the basis of central or local plans. They include compensations both to former employers and the transferred workers. [36]

The authorities also apply measures aimed at regulating movement of specific groups of the labor force. For example, almost all the East European countries at different periods have introduced more or less severe restrictions on hiring administrative workers, or have ordered a reduction in their number. Bulgaria in 1976 decided to reduce the number of administrative workers by 30 to 40 percent, and to redirect them to new jobs. [37] In Hungary in 1976 a freeze on hiring new administrative workers was introduced, which was replaced as of January 1, 1977 by a regulation allowing the hiring of only as many administrative workers as those who left their jobs. [38] In Czechoslovakia the number of administrative and managerial workers was reduced by 10 percent in 1970. But after 1970 their number continued to grow. In 1976 their number was frozen at the level of December 31, 1974. Beginning in 1977 every enterprise received as a binding plan target its share of administrative workers in its total personnel. In spite of all these restrictions, out of a total growth of industrial employment of 58,000 during 1976-78 only 19 percent constituted an increase in blue-collar workers; the remaining 81 percent was in managerial and clerical personnel. [39] Since 1979, in several branches of the economy, the number of administrative managerial and clerical personnel, as well as some other groups, has been regulated on an individual basis for specific occupations. [40]

Another means of influencing the distribution of the labor force is through housing policy and restrictions on residence in certain cities. In many instances a firm is permitted to hire new workers only if they reside in the same community as the firm. Enterprises which are planned for growth receive special privileges such as the ability to provide new workers with lodging, dormitories or apartments, or an allocation of apartments being constructed by the municipalities. In some countries enterprises provide workers with low-interest loans for the purpose of building a house.

(III) WAGE POLICY

A potentially important instrument in achieving the goals of manpower policy is wage policy. At the macroeconomic level, regulation of wages has two important functions. First, regulation must keep the

employees' wage bill within the planned limits of the population's purchasing power, so as to ensure a balanced consumer market. Second, regulation must provide firms with incentives to increase efficiency, including better utilization of the labor force.

Up until now in practically all the East European countries the system of wage regulation have fulfilled only the function of income regulation. The problem is that a mechanism of wage regulation which effectively combines both these functions has not yet been found. Regulations, which have occasionally been built into the systems of wage regulation in individual countries with the aim of minimizing labor inputs, were usually accompanied by measures restricting their effect. More general moves in the direction of connecting the wage bill to the results of enterprises' activities took the form of the making the wage bill depend on one of the performance indicators. In the last years in most of the East European countries this indicator has been net production, or value added. But even in those countries which have adopted this normative (ratio) method of wage regulation the growth of the wage bill or the average wage is limited either by absolute amounts of paid wages, or by progressive taxation of wage increase. [41]

Let us take a closer look at the Hungarian system of wage regulation. There the enterprises have the right to make decisions about inputs, including labor. Thus, the wage regulation system's function of increasing the efficiency of labor utilization might be meaningful in Hungary, as cannot be the case in countries where employment itself is regulated.

Since 1976 four main methods of wage regulation have been used in Hungary. [42] Two of them which are used in branches and enterprises which are either non-profit or in which the performance depends more on the economic environment than on their own activities are direct wage regulations by the center. The second two methods of regulation depend on success indicators. One of them, regulation of the average wage, is used in branches in which employment increases are permitted. Those enterprises which, according to the planners projections, are to develop with a stable or even shrinking labor force use a system of regulation of the wage bill, which is linked to increase in value added over the previous year.

The latter system of wage regulation is the one which was designed primarily with the aim of improving labor utilization. In this system, every percentage increase or decrease of the value added entitles the firms to an increase or decrease in the wage bill of 0.2-0.3 percent. Any higher increase in the wage bill is taxed, and the tax has to be paid out of the profitsharing fund. In addition to the regulation of possible increases in the wage bill, there are limitations on increases in the average wage. The latter may be increased up to a certain level, after which any further increase results in a tax.

In any case, an increase of the average wage by 8 to 10 percent is subject to progressive taxation. Until 1980 the untaxable average wage increase was set at the level of six percent. The scale of taxation was 100 to 300 percent of the increase of the wage bill until 1979. In 1979 the tax was reduced to 50 percent in case of growth of the average wage by 6 to 7 percent and to 100 percent in case of 7 to 8 percent

growth, provided the amount of this increase is available at the enterprise due to increase in the value added or reduction in personnel. If the latter condition is not fulfilled, the firm has to pay an additional 100 to 200 percent in taxes on any increase of the average wage above the six percent limit. [43]

The above method of wage regulation has become dominant in the Hungarian economy. While this system is the only one which stimulates enterprises to use less labor to achieve their production tasks, its actual effect is minimized by a low 3 percent untaxable increase in the average wage which discourages the substitution of capital for labor. Thus, an enterprise which reduces its personnel and thus achieves savings in the usable wage bill, is prevented from using the saving for investment in capital or wage increases. The result often is that enterprises first calculate the amount of the wage fund they can use without being subject to the progressive tax and take this sum as a starting point in planning all the rest of their economic activity, including employment changes. [44] Thus the stimuli for efficient production, and labor utilization especially, are substantially reduced. An active debate on possible changes in the system of wage regulation in Hungary took place during 1978-79. A wide variety of views were presented, ranging from propositions to introduce centrally determined wage increases to appeals for further increases in the scope of wage bill regulation. As of 1980, it seems the latter point of view has prevailed. More significant changes, however, may be introduced soon.

Although the East European countries are trying to create incentives for better utilization of their resources through regulation of wages, even in Hungary, which has gone further in these efforts, the results have not been satisfactory.

Some of the East European countries use or have been experimenting with devices intended to increase the labor costs of enterprises, that is, raising the shadow wage, thereby encouraging enterprises to reduce labor inputs. In Poland, for example, some enterprises must pay a special fixed tax for any additional worker they hire above a base level. A similar kind of tax was used in some enterprises in Czechoslovakia from 1972 to 1975, and with some modifications, until 1977. In all the East European countries enterprises must make social security payments to the state and in some of them pay a tax on the wage bill. In some instances these payments were increased: but in general they did not have a positive effect on labor utilization as discussed earlier. [45]

Regulation of individual wages is primarily carried out with the help of centrally fixed wage rates. Wages represent a reward for a specific amount of work performed (norm) during an hour. They are differentiated in accordance with qualification of the worker, complexity of the job and conditions of the work. Theoretically, overfulfillment of the norm results in an increase in the wages. But norms are often set not on the basis of an assessment of achievable labor productivity, but in such a way as to keep wage increases within the limits of the wage bill or the average wage. For a number of reasons it may be

concluded that the stimuli for individual workers to increase productivity are limited and that the present system of wage rates does not alleviate the problem.

B. Other Measures

The foregoing discussion has been limited to instruments of manpower policy in the East European socialist countries which seek primarily to regulate the employment of those already employed. In addition, these countries apply measures to increase the supply of manpower—an approach which is gaining increasing importance with the decline in rates of growth in most East European countries and in the absolute numbers of the population of working age in some of them.

From the point of view of East European policymakers a most disturbing fact has been the decline in population growth. Another closely related concern has been the negative effect of low-birth rates on the age structure of the population. As life expectancy lengthens⁷ and birth rates fall, the percentage of elderly in the total population rises.⁸ This means an increase in the dependency ratio and a future slowdown in the growth of the labor force.

These considerations have led the East European countries to the adoption of pronatalist demographic policies. [47] Among the instruments of such policies are family allowances, paid maternity leaves, loans to young married couples, childbirth grants, child sickness benefits, and various nonmonetary forms of aid to families with children. Another instrument has been the reinstatement of strict laws regulating abortion. Some of these measures have a more social, than pronatalist orientation, while others are directly designed to increase the birth rate. Among the pronatalist measures which should be mentioned is the child care allowance system which has a direct impact on the current and future situation in the labor market. Hungary was the first East European country to introduce this system as of January 1, 1967. In 1962 Hungary's birth rate had dropped to 129 births per 10,000 of population—one of the lowest in Europe. Had the coefficient of population reproduction not been raised, there would have been an absolute decline in population in the future. At the same time due to the high participation rates of the female population an ever increasing proportion of annual births occur among working women. In addition, since the mid-1960's the fertility rates of working women have been higher than those for nonworking women. Therefore, the introduction of the system of child care allowances was aimed primarily at increasing birth rates among working women.

Under this system working mothers, after the expiration of their regular maternity leave, are eligible for child-care allowances up to the time when the child reaches three years of age. The monthly allowances at present are identical for urban and rural areas, and are differentiated according to the number of children in the family: 800 forints a month for the first child, 900 for the second, and 1,000 forints

⁷ In the mid-seventies the average life expectancy ranged from 69.6 in Hungary to 71.9 in Poland. [46]

⁸ Between the early fifties and the late seventies the proportion of population aged 60 and over increased in Czechoslovakia from 11.8 to 16.4, in Hungary from 11.6 to 16.8, and in the G.D.R. from 13.3 to 18.4 percent.

for the third (for comparison, the average monthly wage in the Hungarian economy in 1978 equaled 3,522 forints). During the three years of child rearing the woman is guaranteed re-employment at her previous job, if she so wishes. In addition, she may participate in any wage raises that may have taken place while she was enjoying her maternity and child care leave.

This scheme has been widely used by Hungarian women. Since 1967 more than a million mothers have taken advantage of it. This means that every eight out of ten working mothers stay at home with her child for some period of time after her regular maternity leave has expired. The number of persons receiving child-care allowances has increased from 92,000 in December 1968 to 277,000 in December 1978.

Combined with other pronatalist policies and due to an increase in the number of women of child-bearing age, live births per 10,000 of population in Hungary rose from a low level of 129 in 1962 to 184 in 1975. This increase in the number of births will result in a higher increment to the working age population in 15-18 years, thereby increasing the labor force in the long-run. During recent years a slight decline in this index has been registered, mainly due to the change in the age-composition of the population.

Although of long term benefit, this policy has exerted a negative effect on labor supply in the short run. The number of women on post-maternity leave represents approximately 5 percent of the total labor force and 11 to 12 percent of all employed women. The withdrawal from the active labor force of 250 to 300 thousand persons each year has undoubtedly contributed to the labor shortage in the last decade. The negative effect on the labor situation is especially acute in "female" industries, such as the clothing industry, where 18.8 percent of all persons employed were receiving child-care allowances in December of 1978, the textile industry where 14.6 percent of all employees received such allowances and the leather, fur and shoe industries where the figure was 13.3 percent. The share of employees receiving allowances was also high in trade—9.6 percent. [48]

The Hungarian child-care allowance system was followed with some modifications in 1970 by Czechoslovakia, in 1973 by Bulgaria and in 1976 by the G.D.R. [49]

In addition to the above mentioned long range goals, the East European planners also seek to increase the current labor supply.

One of the traditional sources of additional labor in Eastern Europe has been activation of unemployed female population. But due to increasing participation rates of women in the national economies this reservoir of labor has been almost totally exhausted in those countries where the labor shortage is especially acute. For example, according to the aggregate manpower balance of Hungary for 1979 (see table 7), there were 3,038,500 women of working age (14-54 years). Out of this total, 2,261,100 were active earners (69 percent), 351,200 were inactive earners (11.6 percent) that is, pensioners, rentiers, mothers on child-care leave, 228,500 were students (7.5 percent), and 360,600 were dependents (11.9 percent). Thus, active earners together with students and inactive earners comprised a total of almost 90 percent of the female working age population. Among the dependents a great number have children, live in small villages or are without any skills so that

their employment is either impossible or would require significant expenditures. Moreover, many work on family household plots, the produce of which is in strong demand. Therefore, in the short-run their employment is unlikely. On the other hand, such countries as Romania and to a lesser degree Poland still have some labor reserves among women.

To increase the supply of labor some Hungarian specialists have suggested changing the child care scheme so as to increase participation rates among women, especially by shortening child-care leaves. Two-fifths of the women on post-maternity leave go back to work within 12 months of child birth. Some specialists argue that the child-care allowance should be such as to stimulate mothers to remain at home with their children during the first 12 to 18 months, while encouraging them to return to active employment afterwards. [50] As the majority currently takes longer maternity leaves, this could lead to a decrease in the number of women on post-maternity leave by 20 to 60 thousand. [51]

In addition to seeking an increase in female employment, the East European countries try to make use of the growing population in post-productive ages. The period 1979-82 will see the retirement of large numbers of people born during the postwar birth rise of 1919 to 1922. This results in a significant increase in the number of retirees and their proportion in the population, which is especially significant because the participation rate of this group has been declining in some countries. For example, in Hungary during the 12 year period 1966 to 1978 it decreased from 23.4 to 11.4 percent. [52]

In the 1950's and even in the 1960's many aged people were forced to continue to work because they were not eligible for old-age retirement benefits. The pension scheme in the socialist countries provides full benefits to those who have reached a certain age—different in individual countries—and, in addition, have been employed for a certain number of years (usually 25 years for men and 20 years for women.) Many would-be retirees were not eligible for old-age pensions in full because they did not fulfill the second of these conditions. In addition, and even more importantly, in many countries the pension scheme did not cover the agricultural population. Along with the development of the pension system the number of old-age pensions has increased rapidly, reducing at the same time the number of employed elderly persons.

To increase the number of employed persons in post-productive ages material incentives have been introduced with the aim of both discouraging retirement and luring old-age pensioners back to work. A significant factor in encouraging employment of retirement aged individuals is the low retirement age in most East European countries. Many men above 60 years of age and women above 55—the usual retirement ages—are still able-bodied and can perform useful work. Thus, it is argued, the socialist countries must take use of this additional labor reserve.⁹ In the G.D.R. the economic activity of persons older than working age is the highest among the East European countries, reaching 43 percent of this group of the population [54], while in Czechoslovakia, for example, it is only 22.7 percent of this group. One of the reasons for this disparity is that in G.D.R. anyone

⁹ It should be mentioned that retirement policies are used to regulate the labor market in the West too. For example, a system of pre-pensions was introduced in 1978 by Belgium in an effort to stimulate early retirement. [53]

who reaches retirement age receives a pension and, in addition, may be gainfully employed in any economic activity without restriction. In all the rest of the socialist countries the possibility of working while receiving an old-age pension is restricted to a lesser or greater degree; the harshest restrictions are in Poland, the mildest in Czechoslovakia.

Two main types of work incentives can be distinguished in the East European countries. First, some countries such as Bulgaria, Czechoslovakia and Hungary and to a very limited extent Romania, have introduced a system of pension-increments. Under this system, those reaching retirement age and having the required length of service may choose not to receive their pensions, but rather to continue to work. In this case, every additional year spent on the job automatically increases the amount of the future pension by a certain percent (up to 8 percent). Second, retirees are allowed to work, while receiving their pension in full or in part. The latter type of incentive is widely used in the G.D.R. and to some extent in Czechoslovakia and Hungary and to a limited degree in Romania. Usually there are limits on the total income from wages and pensions, except for some professions. As the Hungarian and Czechoslovak experience has shown, this type of incentives has proved to be the most effective.

The number of economically active persons above working age who were eligible for old-age pensions more than doubled in Czechoslovakia during 1966-77, and their share in the total labor force reached 9.2 percent. Out of a total of 651,000 employed persons of retirement age in Czechoslovakia in 1977, 585,000, or 90 percent, opted for one of the above incentive schemes. The number of those opting for postponed retirement and increased future pension was small—only 35,000, or 5.4 percent of all working people of retirement age. The majority choose to work only part of the year and thus to receive a full pension in addition to wages. [55]

In addition to monetary incentives to increase the economic activity of the older population, the East European countries' manpower policies have attempted to encourage the employment of the elderly by reducing the length of the work day, by making it more flexible, by offering the pensioners easier jobs, and by increasing the length of paid vacations. In Bulgaria and Poland, enterprises compile lists of jobs suitable for elderly people and report them to the employment agencies. [56] Such policies have had some positive results. In Hungary, for example, 70 percent of total employment increases outside the service sector in 1978 resulted from increased employment of retirees. [57]

Finally, it should be mentioned that the attention of manpower policy also has been directed toward another group—handicapped and disabled persons. During the past decade in some East European countries the economic activity of the male population between the ages of 40 to 59 has declined due to an increase in the number of persons receiving disability pensions. For example, in Hungary, for the period 1976 through 1978, the rise in the number of disabled pensioners outstripped the increase in the participation rate of females, despite the fact that the latter was larger than planned, contributing to a general decline in the size of employment. [58] During 1972-1977 alone the number of disabled pensioners increased by 190,000. [59] The increase, as a Hungarian source points out, [60] is explained by the development of the social security system, as well as by abuses of the

system. In addition, medical and employment rehabilitation did not keep pace with technological changes. To facilitate the rehabilitation of the disabled and the handicapped, a special decree was adopted in Hungary in 1974, which calls for special training and jobs for this group. [61]

Occasionally international labor migration has been mentioned as a means of influencing the labor market situation in the socialist countries. Although employment of foreign workers has a 35-year tradition, its scope is very limited and cannot be compared to the number of foreign workers employed in Western Europe. According to one estimate, [62] the total number of foreign workers within all six East European countries plus the U.S.S.R. was approximately 150,000 during the mid-1970's. There is reason to believe that since then this number has declined somewhat. The temporary transfer of personnel between socialist countries can only promote the solution of some particular problems. It may be important, for example, in certain branches of industry or for certain specific functions. An example is the employment of Polish and Yugoslav construction workers in the G.D.R., Czechoslovakia and Hungary. Another is the employment of commuting workers in the border areas between the G.D.R. and Poland, Poland and Czechoslovakia, and Czechoslovakia and Hungary. [63] The basic position of the CMEA member nations has been and continues to be to strive to assure the right of their citizens to work in their own homeland.

Seldom can international labor migration serve the purpose of directly influencing the balance of labor resources. One such case, however, was the above mentioned agreement between Hungary and the G.D.R. The scope of this type of employment is very limited. The share of foreign workers in individual socialist countries never reached even one percent of total labor force. Employment of workers from outside the communist countries is negligible due to ideological, political and economic reasons.

All of the above described manpower instruments for better or worse fulfill the tasks for which they have been designed. However, they cannot eliminate the growing labor shortage in Eastern Europe. This requires a change in economic policies, more reasonable national planning, a change in existing systems of management of the economies and in the behavior of enterprises in the labor market.

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JOINT INVESTMENT IN RESOURCE DEVELOPMENT: SECTORAL APPROACHES TO SOCIALIST INTEGRATION

By John Hannigan and Carl McMillan*

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I. OVERVIEW

Joint development of natural resources has been a central issue in relations among the CMEA countries in the 1970's. Under the 1971 Comprehensive Program, which set the stage for CMEA activities over the decade, multilateral investment projects have been the principal institutional means for regional resource development.

The joint investment approach was in effect an answer to two, long-standing, regional problems. CMEA had reached an impasse in the 1960's on the issue of supra-national planning. The Comprehensive

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Program stressed "joint planning" on a sectoral basis as at least an intermediate alternative. Joint development projects were to be the vehicle for sectoral integration in the areas of energy, fuels and raw materials. At the same time, joint projects would serve to apportion the cost of developing natural resources (concentrated in the USSR) among the interested CMEA countries. Adoption of the regional approach to resource development followed in the wake of Soviet complaints at the cost of meeting Eastern Europe's mounting requirements for primary products. Joint development projects may thus be seen as serving two ends, regional cohesion, through the sectoral approach to "socialist integration" and regional cost-sharing, through redistribution of the resource development burden.

There is little doubt that these were primary goals of Soviet strategy for the region, and that joint development projects were thus key elements of Soviet regional policy. The Western literature has accordingly tended to regard the terms of participation in the joint projects of the 1970's as imposed upon Eastern Europe, and thus as a new manifestation of Soviet hegemony in the region. The implication is that these projects have not yielded net benefits to the East European participants. East European sources have also occasionally raised questions about the advantages of participation. None of these assessments have been supported by a comprehensive analysis of the available evidence.

This is the task to which this study is addressed. We examine the form and scope of joint investments in the framework of regional relations, and analyze the economics of the projects from the perspective of East European interests. We concentrate on the largest, and by far the most important of the multilateral development projects of the decade: the Orenburg natural gas complex and pipeline. The analysis does not focus on what motivated Eastern Europe to participate in joint projects, but on the nature of its participation and on the benefits and costs to it which have resulted.

Joint resource development projects formed the core of the "Coordinated Plan of Multilateral Integration Measures" adopted by the CMEA in 1975 for the ensuing 1976-80 plan period. The plan envisaged a series of joint investments (including Orenburg) with a total estimated cost of nearly \$12 billion. In addition to providing increased supplies of Soviet natural gas and electrical energy, to substitute where possible for increasingly scarce petroleum resources, these projects aimed at the development of other important primary products for East European industry, such as cellulose, asbestos, ferrous and non-ferrous ores and metals. Most of these projects were to be completed by the end of the plan period.

While coordination of investments and the extension of development credits among CMEA countries are not new, the joint projects of the 1970's incorporated several important new features. They were for the most part larger in scale and more broadly multilateral in character, with the International Investment Bank (1971) providing new opportunities for regional project financing. Their most significant innovation was the more direct participation of investing countries in project construction phases. They have fallen short, however, of providing on-going participation in management or other

aspects of joint ownership, although these have emerged in some bilateral arrangements. The only continuing ownership claim of the investing countries after project completion is to a share of the resultant output. This, however, is merely an extension of the classic CMEA compensation format, dictated by problems of intra-CMEA accounting and rooted inconsistent prices and exchange rates and inconvertible currencies.

One of the new features of joint projects in the 1970's was the degree to which they were designed to incorporate Western inputs. Western equipment, technology and credits have played a key role in the success of these projects, serving to alleviate some of the traditional obstacles to intra-CMEA cooperation. East-West relations have thus contributed importantly to the pursuit of the regional goals cited above.

Orenburg was not only the largest regional project, but the most innovative in format. It apportioned to participating East European countries full responsibilities for the construction on Soviet territory of sections of the 2677-kilometer Soyuz (Alliance) natural gas pipeline. The original project format in fact proved overly ambitious; and subsequent modification of the responsibilities of four of the five East European countries participating in the construction of the pipeline was required. As a result, the USSR ended up by building (but not financing) about two-thirds of the pipeline.

In return for their contributions of equipment, materials, labor and credits to the Orenburg project, the five principal East European participants are each guaranteed annual supplies of 2.8 billion cubic meters of gas over a period of 20 years. (Owing to its more limited participation in the project, Romania is to receive 1.5 billion cubic meters annually.) A portion of these supplies would be provided in repayment of their investment in Orenburg, which we have estimated on the basis of available sources at approximately \$5 billion.

While the full details of East European participation in Orenburg are not known, we have employed varying assumptions with regard to the length of the repayment period and the unit value of gas supplied, to calculate internal rates of return on the East European investment. These calculations indicate that, if present intra-CMEA pricing arrangements for deliveries below world market price levels are maintained, the East European investing countries will enjoy rates of return ranging between 19.5 and 31.5 percent. The lower end of this range considerably exceeds the standard rate-of-return criteria applied to investment projects in the CMEA countries, and compares favourably with rates of return on similar projects in the West. Moreover, the calculated rates of return do not capture the potential benefits accruing beyond the repayment period from supplies of gas provided at CMEA contract prices below world prices.

If joint projects have sought to redress the burden of resource development for regional needs, they have not, in the important case of Orenburg, done so in economic terms which are obviously disadvantageous to the East European countries. In fact, our analysis indicates that the East European countries have participated in resource development in the USSR on terms which are likely to be mutually advantageous. At the same time, these projects have guaranteed to these countries access to Soviet sources of supply to a degree which is significant in terms of their resource requirements.

If there is a significant cost to Eastern Europe from participation in joint investment projects, it must be seen in terms of any loss of autonomy resulting from increased regional interdependence. East European dependence on supplies of Soviet energy and raw materials does give the USSR potential leverage, if it is prepared to use it. In certain sectors, joint investments have both extended and increased their dependence over levels already attained by the early 1970's. The structure of this dependence is changing, however. Increased sectoral dependence on Soviet natural gas will be at least partially offset by a declining dependence on Soviet oil imports.

Increased regional interdependence through joint development projects has resulted in some restructuring of East European investment in the 1970s. The commitment of resources to projects in the U.S.S.R. has necessarily limited funds for the desired development in Eastern Europe of new, internationally competitive, export-oriented industries. While it is not possible to determine the magnitude of this impact, we estimate joint investments only to have constituted some 1 percent of overall East European investments in the 1976-80 plan period (although several East European sources cite higher figures of between 2 and 4 percent for participating countries).

There are signs that the joint investment format for the 1970's will increasingly be abandoned in favor of a new format for "joint projects" carried out under the "Long-Term Target Programs for Cooperation", adopted by the CMEA in 1978. These would no longer envisage the transfer of capital or joint participation in construction. Instead, they would apparently involve greater restructuring of investments within the East European economies in order to provide improved inputs to resource development in the U.S.S.R. The terms at which these products would be exchanged for Soviet raw materials would be negotiated on a short-term basis, under bilateral, annual trade agreements.

Such arrangements could be considerably less favourable to Eastern Europe than the joint investment projects of the 1970's. A major factor will be whether a new pricing formula is adopted for the 1981-85 plan period which moves CMEA contract prices for energy products and other raw materials still closer to world price levels.

II. JOINT PROJECTS IN THE 1971 COMPREHENSIVE PROGRAM

The term "integration" was formally incorporated into the vocabulary of the CMEA with the adoption in July, 1971, at the 25th Session of the Council in Bucharest, of the "Comprehensive Program for the Further Extension and Improvement of Cooperation and the Development of Socialist Economic Integration by the CMEA Member-Countries" (hereafter CP). In its statement of the principles which should guide regional activities through the decade, the CP defined "socialist integration" broadly as:

... a process of the international socialist division of labor, the drawing closer of their economies and the formation of modern, highly effective national economic structures, of a gradual drawing closer and evening out of their economic development levels, a formation of deep and enduring ties in the basic branches of the economy, science and technology, an expansion and consolidation of the international market of these countries, and an improvement of commodity-money relations . . . (Sec. 1, para. 2.)

It is important to note that "integration" had been reserved for the processes fostered by Western regional economic organizations, such as the EEC.¹ Now "socialist integration" began to be used interchangeably with the term, "international socialist division of labor", to designate cooperative activities among member states of the CMEA. What did this shift in official terminology signal?

For one thing, it reflected an attempt by the Soviet Union to revitalize the CMEA as a mechanism for fostering bloc cohesion in the aftermath of the Soviet invasion of Czechoslovakia. This renewed Soviet interest in the regional organization followed a period of comparative indifference in the early years of the Brezhnev leadership. The new terminology served to distinguish the more cautious Brezhnev steps to stimulate greater regional economic interdependence, post-Czechoslovakia, from the earlier drive mounted by Khrushchev, to establish a centrally planned, socialist commonwealth under Moscow's leadership. Khrushchev's regional policies had met formal opposition from the most openly nationalist of the East European members of the CMEA, Romania.² After Khrushchev's fall, the Soviet drive had lost momentum.

The shift in terminology signalled more than a new phase in Soviet-East European relations within the CMEA framework. It also symbolized a new role for the CMEA in the extra-regional relations of the member states, commensurate with the policies of detente and the promotion of security and cooperation in Europe. The adoption of the international designation "integration" for CMEA processes thus represented a further move away from the Stalinist concept of a separate "world socialist market" and its Khrushchevian formulation in the "international socialist division of labor". It reflected the concept of a system of states not only increasingly integrated among themselves, but with normal, active, and collective links to the world economy and to other regional organizations. The perceived compatibility between the expansion of East-West relations and the development of socialist integration, was expressed in the CP in the following terms:

... because the international socialist division of labor is effected with due account taken of the world division of labor, the CMEA member-countries shall continue to develop economic, scientific and technological ties with other countries, irrespective of their social and political system . . . (Sec. 1, par. 3.)

The term "socialist integration" served to imply a system of states analogous to, and capable of acting on a par with, Western regional systems. The CMEA charter was subsequently amended in 1974 to grant the organization the authority to enter into agreements with third parties on behalf of its members (article 11 of the revised charter). These measures were intended not only to enable the CMEA to negotiate collectively with the EEC, but to compete more effectively with it in establishing organizational ties with Third World countries.

The adoption of the CP had been preceded by active discussion of the question of appropriate instruments for the pursuit of regional specialization.³ The CP was in fact a compromise which sought to

¹ Cf. Lavigne (1979), pp. 377ff.

² Cf. Montias (1964) and Kaser (1967), Ch. VI.

³ A volume of papers from a conference of academic specialists representing the member countries, Kiss (1973), reflects some of the differences in approach under discussion at the time.

reconcile two opposing views: integration through comprehensive, supra-national planning and integration through decentralized, market-determined interaction. Its emphasis, however, was on planned, rather than market, approaches.

While some attention was paid in the CP to the "improvement of commodity-money relations", principally in terms of increased non-quota trade and proposed measures to promote multilateral settlement, most of the new methods and instruments introduced were designed to foster cooperation in planning.⁴ In implicit recognition of the impossibility of reconciling comprehensive supra-national planning with national sovereignty, the CP's proposals for "joint planning" stressed a sectoral approach, with initial concentration on "selected branches or lines of production" (sec. 4, par. 24).

To implement this approach in some sectors, three types of "international economic organizations" were envisaged. Each type would create direct, transnational links at the operational level (ministerial, association or enterprise) of its constituent national members; and would engage in the joint planning of industrial production and investment at that level. These new instrumentalities, designed to promote intra-branch specialization among member-countries, are sometimes misleadingly termed "socialist multinationals". They have attracted considerable attention in the Western literature.⁵

In the critical, natural resources sectors, the CP stressed joint investments:

The CMEA member-countries consider it imperative to satisfy more fully the mounting requirement for products of the fuel and power, iron and steel and other raw materials branches of industry, on the basis of the concerted efforts of interested countries aimed at the development of the said branches, employing various mutually advantageous forms of multilateral and bilateral cooperation... (Sec. 10, par. 1.)

Given the wealth of Soviet natural resources, it was inevitable that many such joint projects should be destined for the territory of the U.S.S.R. The CP indicated in general terms a number of possible project areas. It also assigned an important role to the International Investment Bank, created the preceding year, in financing "the building of projects aimed at the development of the fuel and power and raw materials branches" (sec. 10, par. 3.8).

The extension among CMEA member-states, on a bilateral or multilateral basis, of long-term development credits for projects of mutual interest is not new. The innovation of the CP was to step up the pace and scope of joint projects and give them a more important part in the new phase of "socialist integration". Joint development projects played an even more prominent role in regional activities than anticipated by the CP. Much of the envisaged program of integration fell woefully behind schedule. While sectoral planning through the new international economic organizations bogged down in old CMEA problems of international coordination, joint resource development projects—especially the giant Orenburg natural gas complex and as-

⁴ Plndak (1974) analyzes the content of the CP in this respect.

⁵ See Lavigne (1975), and Machowski (1977).

sociated pipeline—remained as the centerpiece of CMEA accomplishments in the 1970's.

In retrospect, this is scarcely surprising; not only because joint development projects were institutionally the most conservative of the CP's "innovations", but more importantly because they were designed to meet vital, regional economic needs. The East European countries faced, by the end of the 1960's, the problem of much increased dependence on raw materials imports from the U.S.S.R. The growth in East European demand for raw materials, and the need for greater recourse to external sources of supply, had their origins in misguided early investment policies and in inefficient industrial use.⁶ The development in the 1960's of the East European chemicals industries and the emergence of the private passenger car contributed further to escalating resource requirements, especially for hydrocarbons.

The U.S.S.R. had meanwhile grown open in its complaints about increasing Eastern European dependence on Soviet raw materials. Soviet dissatisfaction centered on the increased costs (in terms of capital, labor, and transportation) of supplying Eastern Europe's needs from sources which had increasingly shifted to, and beyond, the Urals. The U.S.S.R. also complained of the poor quality of finished products it received from Eastern Europe in return for fuels and other raw materials which could be readily sold outside the CMEA at improving terms of trade.⁷

In these circumstances, joint projects offered a solution potentially attractive to both sides. The Soviet Union would receive needed assistance in financing and carrying out the costly development of more distant natural resources and the infrastructure to transport a portion of the resulting output to Eastern Europe. The East European CMEA countries would be assured in return of major, long-term supplies of raw materials, thereby avoiding alternative recourse to hard currency imports. It should be emphasized that the decision to embark on this course was made prior to the 1973 international energy crisis and to its impact on world supplies and prices.

Most Western observers have questioned the reciprocity of these arrangements, tending to regard the East European countries as forced to contribute large amounts of scarce resources to Soviet development on disadvantageous terms.⁸ Others, while conceding some economic advantage as accruing to Eastern Europe, have raised the question of the political price paid, in terms of increased long-run dependence on Soviet supplies of basic fuels and raw materials. We hope, by reviewing the record of joint CMEA development projects, as it stood at the end of the 1970's, and through an in-depth analysis of the most important project to date (Orenburg), to shed some light on these important issues in the political economy of Soviet-East European relations. We also hope to derive some insights into the processes of CMEA integration over the past decade and into the impact on them of expanding East-West relations.

⁶ Cf. Dobozi (1978).

⁷ These concerns were expressed by, among others, Dudinskii (1966) in a now classic article. See also Dobozi (1978).

⁸ Cf. Pindak (1974) and Trend (1975a).

III. A NEW FORMAT FOR JOINT PROJECTS?

The CMEA countries have long engaged in bilateral and multi-lateral arrangements for the joint financing, on a "compensation" basis, of projects directed to the extraction and distribution of fuels and other raw materials. Kaser cites as the first "joint investment" project, the 1957 agreement whereby the GDR and Czechoslovakia provided capital for the development of Polish coal-mining, with repayment of principal and interest from the eventual output.⁹ This was followed by other, similar arrangements concluded in the late 1950's and throughout the 1960's, among the smaller, East European members of the CMEA and between them and the U.S.S.R.¹⁰

The joint development projects of the 1970's incorporated this basic format, while extending it to meet new requirements. As known East European reserves of raw materials began to be exhausted, joint projects were increasingly directed to the territories of the U.S.S.R. and certain non-European, CMEA member-countries. The size, location and rising cost of development of Soviet reserves dictates joint projects of growing magnitude, involving larger transfers of resources. These conditions in turn have required more extensive participation by CMEA member-countries. The joint projects of the 1970's have in consequence tended to be more broadly multilateral than their predecessors. The general agreements governing them, signed by all participants, have, however, been followed up by more detailed, bilateral agreements between the host country (typically the U.S.S.R.) and the individual investing (typically East European) countries.

Under the compensation format, the contributions of investing countries are for the most part made in kind. Such contributions have taken the form of deliveries of materials, machinery and equipment for the project itself, or of shipments of goods not directly related to the project, usually consumer goods. Contributions may also be "in cash"; for example, through the ahead-of-schedule repayment of Soviet credits.¹¹

Contributions in kind need not be produced by the investing country, but may be procured from foreign, even extra-regional (Western) sources. Similarly, contributions in cash may be made in convertible currencies. One of the distinguishing features of joint projects in the 1970's was their growing hard-goods and hard-currency content (see sec. V below).

A major innovation introduced by the projects of the 1970's was the joint participation of the investing countries in important aspects of construction on the territory of the host country.¹² Contributions were thus extended to the provision of important construction, and related technical services, including the provision of skilled labor and the training of host country personnel. This form of participation was carried furthest in the case of Orenburg, where the construction of the Soyuz pipeline on the territory of the U.S.S.R. was the designated responsibility of the East European investing countries.

⁹ Kaser (1967), pp. 78-79.

¹⁰ Cf. Van Brabant (1971).

¹¹ Lebedinskas (1976), p. 66.

¹² As a result, they are often referred to as "joint construction projects" in the Soviet and East European literature.

While the details will be given below (sec. VI), it may be noted here in this regard that the format for the Soyuz natural gas pipeline contrasted sharply with the organization of its predecessor of the late 1950's and early 1960's, the Druzhba ("Friendship") oil pipeline. In the case of the earlier, oil pipeline (built to transport crude oil from Soviet fields in the Urals to Poland and the G.D.R., with a branch pipeline to supply Czechoslovakia and Hungary) each country was responsible for the financing and construction of the portion of the pipeline located on its own territory.¹³ The Druzhba pipeline was thus a "joint project" only in the sense of being jointly planned, but was not jointly financed or jointly constructed as was the Soyuz pipeline.

The compensation format provides for the eventual repayment of the investing countries in the form of return flows of a portion of the output of the joint project. The proportion of output designated for their repayment typically reflects the share of their contribution in the total capital invested in the project. Thus if the Eastern European countries contribute 40 percent of the capital for a project in the U.S.S.R., 40 percent of the annual output is normally reserved for their repayment. Repayment includes a modest (currently 2 percent) "fraternal" interest charge on the capital tied up in the project, but interest is not paid on interest.¹⁴

With the volume of return flows and interest charge fixed, the length of the "repayment period" is necessarily determined by the valuation of the deliveries of resultant output. The Soviet and East European literature becomes notably vague when approaching this question of valuation, and it seems likely that the method varies somewhat from project to project. Nevertheless, the following procedure emerges as constituting the most general practice. (We shall return to this question in the specific context of the Orenburg project in section VI.)

A fixed, accounting price is employed to set the initial terms of the arrangement. The period of repayment will, however, ultimately depend upon the actual contract prices at which return flows of output are valued. Since January 1, 1975, CMEA contract prices have been variable, renegotiated annually from the base of a moving average of world prices.¹⁵ In a period of rising world prices for the products in question, the CMEA contract prices will rise annually. This has been the case for raw materials in the 1970's. If contract prices are used to value return flows, the final term of repayment of the investments in a project will depend upon the rate at which prices for return deliveries rise in the repayment period.¹⁶

We do not know, however, whether the return flows of output from joint projects are valued at current intra-CMEA trade prices or at specially agreed project prices.¹⁷ It should be noted that most of the

¹³ See Kaser (1967), p. 81.

¹⁴ The low interest charge and failure to compound have an ideological basis, as ritually stressed in the CMEA literature. Lebedinskas (1976) provides one of the more thorough discussions of the financing of joint projects.

¹⁵ See Kohn and Lang (1977) for a detailed discussion of the new CMEA pricing formula, which we will refer to as the "modified Bucharest formula".

¹⁶ In our calculations of the rate of return on East European investments in Orenburg (sec. VI below) we have accordingly employed both fixed and variable price assumptions.

¹⁷ Sources vary on this crucial point. One recent Soviet source (Altukhov, Deviatov and Ivanov (1979), p. 53) suggests the possibility of a "two price system" for raw materials and standard foreign trade prices. See also Balkay (1979). Conversations with knowledgeable East Europeans have failed to establish a consensus on the pricing issue, indicating that the actual arrangements are not well known.

major joint projects for the 1976-80 plan period were negotiated prior to the adoption of the new, variable CMEA pricing formula.

The project agreement will usually also stipulate the "full term" in which there is a commitment to supply stipulated quantities of the resultant output to the investing countries. Beyond the repayment period, the committed quantities will actually be paid for at the then current CMEA contract price, and will no longer be treated simply as offsets against the host country's debt. Agreements will often provide for extension of the supply commitment beyond the full term originally established.

The larger and more complicated international financing required by the new format for joint projects contributed to the establishment in 1971 of a new CMEA institution, the International Investment Bank (IIB). Funded by subscriptions from the member-countries, the IIB serves as financial intermediary in the longer-term credit aspects of joint development projects.¹⁸ The effectiveness of "transferable" ruble credits is restricted by their de facto lack of ready transferability in intra-CMEA payments practice. The IIB's role is not limited to transferable ruble financing, however. A portion of its loan capital is in convertible currencies, and it has served as an important mechanism for convertible currency financing of joint development projects (see sec. V below).

The format for joint projects has inevitably been shaped by the ideology and institutions of the participating countries. In particular, the nature of their ownership and monetary systems has constrained the organization of joint projects among the CMEA countries.

Legal restrictions on foreign ownership, reflecting both fundamental principles and the practical requirements of central planning and control, have ruled out direct investment by the East European countries in Soviet raw materials.¹⁹ The role of the East European investor has therefore been restricted to that of an arms-length creditor, with no prospect of rights other than a claim to a portion of the output, on agreed terms. In the case of the Soyuz pipeline, however, some short-term relaxation of the ownership constraint may be noted, at least in the original concept. The East European countries were to have primary responsibility for the construction of individual sections of the pipeline on Soviet territory. The ownership features of the arrangement were thus similar to those characteristic of international "turnkey" projects, with transfer of ownership to the host country only upon completion of the project.

A more severe constraint has been imposed by the system of centrally administered prices and related controls on foreign exchange in the member countries. The methods of accounting and payment available to the participants have been sharply restricted by the absence of a consistent, unified CMEA system of prices and exchange

¹⁸ See Kostantinov (1977) for details on the functions of the IIB in this regard. The IIB is not the only medium for financing joint investments. The other CMEA bank (International Bank for Economic Cooperation) plays a role in short-term credits linked to joint projects. We have already stressed the importance of intergovernmental credits, extended in the form of "advance deliveries" to be repaid on a compensation basis. Each of these forms of credit (IIB, IBEC and intergovernmental) is granted on different nominal interest terms.

¹⁹ Dobozi (1978), p. 215, reports, however, that the possibility was at least contemplated of one CMEA country leasing to others the rights to develop natural resources on its territory. This would in effect have been a return to the early Soviet format of foreign concessions, within the CMEA framework.

rates, and by the inconvertibility of member-country currencies. It is these factors which have necessitated the compensation format, with investment and repayment specified and conducted largely in kind.

Problems of accounting have obstructed realization of the potential for flexible participation and for specialized roles in joint projects. Accounting in kind has tended to impose on the investing countries roughly uniform contributions to, and sharing in joint projects. Since the Eastern European CMEA countries vary considerably in economic size and level of development, this has meant unequal investment costs and benefits placed upon them. In the Orenburg case, the failure to take sufficient account of individual capabilities subsequently required major changes in assignments (see sec. VI below).

Large-scale, multinational investment projects would certainly not be simple in the best of circumstances. Their organization was nevertheless rendered more complex by the cumbersome arrangements which the lack of flexible instruments of accounting and payment has dictated. Those aspects of the project subject to convertible currency financing and accounting could, by contrast, be more effectively organized and more easily and realistically assessed.

IV. THE RANGE OF MULTILATERAL PROJECTS IN THE 1970's

At its 29th Session, held in Budapest in June, 1975, the CMEA approved a "coordinated" ("soglasovannyi") plan of multilateral integration measures for the member-countries in the 1976-80 plan period. The coordinated plan sought to establish multilateral commitments which would then be incorporated into national 5-year and annual plans.

The official communique issued by the Council at the end of the session indicated that joint development projects formed the core of the coordinated plan. The communique affirmed that measures adopted for "the construction of facilities and the creation of additional production capacities by the joint efforts of interested countries" would in the 1976-80 period attain a total estimated cost of approximately nine billion transferable rubles (nearly \$12 billion at the 1975 official exchange rate).²⁰

Most of these projects had already been agreed to, and were merely incorporated ex post into the coordinated plan. Nearly all were located in the U.S.S.R. and involved the development of resources in the Urals and beyond. The coordinated plan thus consecrated the long-standing Soviet policy objective of shifting more of the burden of Soviet resource development and distribution to the regional level. The principal exception was a multilateral project, agreed to at the 29th session, for creation of new capacities for the production of nickel and cobalt, and related products in Cuba. While this agreement underscored Cuba's role as a new (since 1972) member of the CMEA, it would also serve to spread some of the burden of Cuban economic development to the East European members of the CMEA.²¹

²⁰ Communique on the 29th Session of the CMEA, complete text published in *Pravda*, June 27, 1975, pp. 1, 4.

²¹ The Soviet and East European references to this project are vague and often contradictory. There are indications that the project has been delayed. See L. Theriot and J. Matheson, "Soviet Economic Relations with Non-European CMEA Countries", in Joint Economic Committee, *Soviet Economy in a Time of Change*, Washington, D.C.: GPO, 1979, p. 563.

The principal development projects incorporated in the coordinated plan are presented, in their essential details in table 1. Neither the plan nor an official list of projects has been made public.²² Table 1 can nevertheless be presumed to be reasonably comprehensive, the projects included there accounting for the bulk of the announced 9 billion transferable ruble total cost of joint investments to be undertaken in the plan period. Among the smaller projects, only occasionally cited in Eastern source materials and about which less is known, one may note the joint development of forestry resources in the Komi Autonomous Republic as well as several chemical fertilizer projects in the U.S.S.R.

It should be stressed that we refer here only to multilateral projects, and therefore exclude from consideration joint projects among CMEA member-countries in this period which are bilateral in nature.²³

Some of these are not only economically important, but are interesting institutionally, involving joint construction, as well as joint investment functions, and even joint management of the new facilities in an ongoing joint venture arrangement. The Erdenet copper-molybdenum mining and ore dressing complex in Mongolia, a joint Soviet-Mongolian project, is a good example.²⁴

As table 1 shows, the coordinated plan envisaged joint projects not only for the development of critical alternative sources of energy, but also for the development of supplies of important industrial raw materials, such as cellulose, asbestos, ferrous and nonferrous ores and metals. Most projects were conceived on a broad multilateral basis, involving all of the European CMEA countries. Romania, however, is clearly seen to have followed a more selective policy of participation than the other East European countries, opting out of some projects and limiting its role in others.²⁵

Among these projects, Orenburg stands out as by far the largest and most ambitious. A separate section of this paper will accordingly be devoted to its description and analysis. Apart from Orenburg, the Ust-Ilimsk project best illustrates the new joint development format.

Construction of a giant pulp mill at Ust-Ilimsk, on the banks of the Angara River, in Central Siberia, was the first of the multilateral development projects to be initiated following the adoption of the Comprehensive Program. The mill is an important part of a complex which Tass reports describe as the largest forest-based industrial complex in the U.S.S.R. When in full operation in 1980, the mill is scheduled to produce 500,000 metric tons of bleached sulphate pulp, 50,000 tons of unbleached pulp and large quantities of various by-products.²⁶

²² There is consequently considerable variation in published reports of the number of projects to be undertaken, ranging from ten upwards. Cf. Vorov and Rakhutin (1979), p. 57 and Trade and Development Board, UNCTAD, "Multilateral Schemes of the Country Members of the CMEA . . ." TD/B/AC.23.3 (April 14, 1977), par. 26. The higher figures probably include bilateral arrangements, or define "project" narrowly. (Orenburg might, for example, be counted as two projects, and the arrangements for the development of ferrous ores and metals as twelve projects.) In the absence of supporting data for the figures given in these sources, one can only speculate at the reasons for their inconsistency.

²³ It should be noted in this regard that the IIB's long-range financing is not restricted to multilateral projects, and extends as well to bilateral and national investments.

²⁴ See "Sovmestnymi usiliiami: 'Erdenet' v god puska", *Ekonomicheskoe sotrudnichestvo stran-chlenov SEV*, No. 3, 1978, pp. 92-95.

²⁵ Cf. J. Laux, "The Limits of Autonomy: Romania in the 1980s", in this volume.

²⁶ "Forestry Complexes Under Development in the USSR," *Business and Trade*, XIII, 13 (Nov. 7, 1979), p. 9.

TABLE 1.—PRINCIPAL MULTILATERAL DEVELOPMENT PROJECTS UNDERTAKEN BY CMEA MEMBER COUNTRIES IN THE 1976-80 PLAN PERIOD

Project	Location	Agreement signed	Facility operational	Participation ¹	Volume of annual return deliveries
Pulp mill.....	U.S.S.R. (Ust-Ilim, Siberia).....	1972	1980	All but Czechoslovakia.....	205,000 metric tons.
Asbestos combine.....	U.S.S.R. (Kiimbaev, Urals Region).....	1973	1980	All.....	40,000-50,000 metric tons.
Development of natural gas condensate deposit and construction of trans-continental gas pipeline.....	U.S.S.R. (Orenburg, Urals Region).....	1974	1980	All; but limited role for Romania.....	15.5 billion cubic metres.
Expansion of iron ore mining and dressing facilities (5 combines).....	U.S.S.R. (various locations, in area of Kursk Magnetic Anomaly and in Ukraine).....	1974	1977-80	All but Romania.....	5.29 million metric tons.
Additional facilities for production of ferroalloys (7 plants).....	U.S.S.R. (various locations in Ukraine and Kazakhstan).....	1974	1979-80	All.....	Not available.
750-KV Vinnitsa-Albertirsa electric power transmission line. ²	Soviet Ukraine and Hungary (590 of the 860 kilometer length is in U.S.S.R.).....	1974	1978	All but Romania.....	3 billion kwh. ³
Nickel and cobalt production facilities.....	Cuba (Las Camariocas).....	1975	Not available	All.....	Not available.

¹ Extent of participation by East European CMEA member-countries.

² Component of CMEA "Master Plan for Long-Term Development of United Power Grids."

³ Estimate.

Sources: CMEA communique and other documents; member-country press reports, and other sources cited in text and bibliography.

The value of the contributions of the five participating East European countries (Czechoslovakia, with its own forest resources to develop, chose not to participate) constituted 40 percent of the capital costs of the mill. Under the terms of the agreement, these countries will accordingly receive in return 40 percent of the annual output of the mill over a twelve-year repayment period. At the end of this period, the supply commitment can be extended for a further, twenty-year period, on renegotiated terms. The East European contributions, while adjusted to some extent to differing national capabilities, were for the most part in the form of special, prefabricated steel structurals for the mill and technical assistance in their installation. Some labor contingents were provided, but they appear to have been largely symbolic. With the exception of Romania, the investment shares of the participating countries apparently did not differ greatly.²⁷

The remaining projects listed in table 1 do not involve significant participation of the East European countries in the actual construction of the new facilities, unless some portion of these are located on their own territory (as was the case for Hungary in the construction of the Vinnitsa-Albertirsa power line). The contributions of the member countries are limited to supplies of equipment and materials, according to an agreed delivery schedule. The value of these contributions may vary considerably in magnitude, however, depending upon national requirements for the resulting output. This is the case, for example, in the joint development of the Kiembraev asbestos deposits, in the Orenburg region of the Southern Urals, involving a strip mine, an ore-enrichment plant and ancillary facilities, with a planned annual capacity of 500,000 metric tons of asbestos. All of the projects follow the compensation format, with return deliveries (proportionate to the investment shares of the participating countries) scheduled systematically to redeem the credits, but with provision for extension of the supply arrangements beyond the repayment period.

V. THE ROLE OF THE WEST IN JOINT CMEA PROJECTS

One of the features of multilateral CMEA projects in the 1970's, which has clearly set them apart from their precursors, is the role they have allotted to Western firms and financial institutions. The expanded Western role has not been limited to increased supply of isolated pieces of machinery and equipment not available within the CMEA region. It has extended to the provision of technically integrated production systems and to direct participation in design and construction. It has inevitably included as well an enlarged role in project financing. Western participation in joint CMEA projects thus illustrates one of several important ways in which East-West relations have, in the course of the decade, contributed to regional goals.²⁸

The Western role is especially striking in the case of Orenburg. Not only was all of the wide-diameter pipe used in the construction

²⁷ On these points, see Zoloev (1973) and *Ekonomicheskoe sotrudnichestvo stran-chlenov SEV*, No. 3, 1978, pp. 98-102.

²⁸ One of us has argued elsewhere the more general point that East-West relations can contribute positively to East European integration, especially in the area of industrial cooperation. See McMillan (1978). In the more specific context of the involvement of Western multinationals, see also Marer (1980).

of the Soyuz natural gas pipeline of Western (French, Italian and Japanese) manufacture; but the compressors, turbines and all other related equipment for the 22 compressor stations required to move the gas through the line were all purchased in the West (FRG and Italy). Western firms also supplied large amounts of ancillary equipment.²⁹ We estimate that approximately 80 percent of the total \$2.5 billion cost of materials and equipment for the pipeline was in the form of expenditures for Western materials and equipment.³⁰

Western suppliers have also provided technology and equipment for other joint projects. The advanced technology for the highly automated Ust-Ilimsk pulp mill was acquired from France and Sweden.³¹ For the jointly financed expansion of capacities for iron-ore extraction and enrichment in the Kursk region and in the Ukraine, four technically integrated lines for the processing of iron-ore concentrates, and related equipment, were acquired from U.S. and German firms.³² The number of examples could easily be extended, but these illustrate the extent of Western inputs.

Western engineering firms have also participated in the design and construction of facilities forming part of joint CMEA projects. Technip of France has played a central role in the development since the late 1960's of the Orenburg gas complex. In the third phase (which coincided with the period of the multilateral agreement for the participation of the East European CMEA countries in Orenburg development), Technip was again contracted to supply gas recovery and processing units. These facilities included "three gas purifying and drying installations, each with a capacity of 5.75 billion cubic meters per year, a 1.4 million ton per year condensate collecting and purifying unit, and a 640,000 ton per year gas filtering and sulfur production unit, with sulfur granulation equipment."³³ At Ust-Ilimsk the French subsidiary of the U.S. multinational Parsons Whittemore was awarded the contract for the design of the installation, and served under the arrangement as principal contractor for the equipping of the mill. The bulk of the equipment orders were in turn subcontracted to French suppliers.³⁴

It is interesting to note that Western, as well as Eastern, participation in such projects may be on a compensation basis. In the case of the Ust-Ilimsk mill, Parsons Whittemore France reportedly agreed to purchase 85,000 tons of the annual cellulose output, thus helping to finance the convertible currency costs of the project.³⁵

Under the joint project format, individual East European countries make convertible currency funds available for joint financing as part of their investment commitment. To the extent that these funds are raised through the IIB, the investing countries are in turn respon-

²⁹ *Soviet Business and Trade*, V, 1 (June 9, 1976), p. 1, and IV, 19 (February 18, 1976), p. 5; *EastWest Markets*, January 26, 1976, p. 6, and June 14, 1976, p. 4; *Eastern Europe Report*, January 30, 1976, p. 31; and *Business Eastern Europe*, July 9, 1976, p. 216. It is interesting to note how the ability in the 1970s to rely on Western suppliers to meet requirements for Orenburg contrasts with the conditions of the 1960's, when construction of the Druzhba pipeline was delayed by a US-led NATO embargo on exports of large-diameter pipe for the project.

³⁰ For further details on the total investment cost of Orenburg, see sec. VI below.

³¹ *Soviet Business and Trade*, V, 15 (Dec. 22, 1976), p. 5.

³² G. Sergeev (1978), p. 89.

³³ *Soviet Business and Trade*, VI, 10, (Oct. 11, 1977), p. 5.

³⁴ *Eastern Europe Report*, Aug. 10, 1973, p. 225.

³⁵ C. H. McMillan and D. P. St. Charles, *Joint Ventures in Eastern Europe: A Three-Country Comparison*, Montreal: C. D. Howe Research Institute, 1974, p. 13; and *Soviet Business and Trade*, V, 14 (Dec. 8, 1976), p. 4.

sible for their repayment (principal and interest at the Eurocurrency lending rate) through the IIB, when due.³⁶ Thus in the case of Orenburg, while convertible currency funds were raised collectively, participating countries were individually accountable for the financing of their sections of the project. They remained financially responsible, regardless of whether they used the funds to make the necessary hard currency purchases themselves, or whether the funds were assigned to a Soviet purchasing agency.

It is not possible to determine precisely what proportion of the convertible currency financing of their contributions to joint projects has been provided directly by participating CMEA countries and what share has been made through the CMEA's International Investment Bank. It seems that the bulk of project financing in convertible currencies has, however, been conducted through the IIB. The financing of multilateral cooperation among CMEA member-countries was in effect the primary purpose intended for the IIB.³⁷

In the case of large-scale convertible currency financing of joint projects the IIB serves as the financial intermediary through which the participating countries can raise funds collectively on Western money markets. Thus the first of a series of Eurocurrency loans for Orenburg was secured by the IIB in 1975. Several of these were raised through multinational syndicates headed by Dresdner Bank of the FRG. The final loan, in December 1977, was raised for IIB with Chase Manhattan of New York acting as lead manager. Altogether, it is estimated that over \$2 billion in convertible currency credits were raised in this fashion to finance Orenburg-related purchases.³⁸ Collective borrowing through the IIB presumably improved the terms of financing, since Western banks tend to ascribe to the IIB the relatively high Soviet credit rating. In fact, the spreads on Eurocurrency loans to IIB for Orenburg ranged between 1 and 1½ percent over the London Interbank Offering Rate (LIBOR).

In sum, large-scale recourse to Western equipment, technology and know-how in carrying out joint CMEA development projects required an enlarged role for Western firms and banking institutions. The availability of Western equipment, technology and credits were indeed vital to the success of the major projects such as Orenburg and Ust-Ilim, and through the medium of such projects served to facilitate the goals of socialist integration as outlined in the Comprehensive Program.

VI. ORENBURG—A CASE STUDY

1. *Planning and Organization of Construction*

The Orenburg project envisaged construction of both the third stage of the natural gas complex at Orenburg, adding a capacity of 15 billion cubic metres per year, and the Soyuz natural gas pipeline, capable

³⁶ The same principle of individual country responsibility applies of course as well to soft-currency (transferable ruble) project financing through the IIB.

³⁷ Lavigne (1973), p. 207.

³⁸ *EastWest Markets*, Oct. 6, 1975, p. 7; *Eastern Europe Report*, Feb. 27, 1976, p. 63; *Business Eastern Europe*, May 20, 1977, p. 157 and June 17, 1977, p. 186; and *Moscow Narodny Press Bulletin*, Dec. 14, 1977, p. 16.

of a through-put of 28 billion cubic metres of gas annually. The CMEA's Committee for Cooperation in the Field of Planning drafted the original proposal for joint participation, subsequently approved at a meeting of the chairmen of the central planning agencies of the interested countries on April 5, 1974. On June 21, 1974, at the 28th Comecon Session in Sofia, the heads of government of Bulgaria, Czechoslovakia, the GDR, Hungary, Poland, Romania and the U.S.S.R. signed the "General Agreement" on Orenburg.

The Orenburg project is an important example of joint planning at the regional level. Not only did the CMEA planning committee draft the original proposal, but upon signing the General Agreement the specifics of the project were incorporated into the individual five-year and annual plans of each CMEA member country.³⁹ The following year, the General Agreement on Orenburg was included as part of Comecon's first regional plan. The General Agreement, supplemented by about twenty more specific multilateral agreements, defined the responsibilities of the participating countries, and set forth the regulations governing construction activity on Soviet soil by East European construction enterprises.⁴⁰

Five East European countries (Bulgaria, Czechoslovakia, the GDR, Hungary and Poland) agreed to finance and construct a 2,677-kilometre pipeline of a 1.42-metre diameter, plus the 22 compressor stations needed to maintain a constant pumping pressure of 75 atmospheres along the length of the pipeline. The route of the pipeline was divided into five, roughly equivalent sections, with each of the participating countries assuming financial and construction responsibilities for one of these sections. For its part, the Soviet Union would carry out geological explorations of the pipeline route, and provide the design documentation relating to the welding and laying of the pipeline. Upon completion of the pipeline, the Soviet Union would also be responsible for its operation and maintenance.

Under the arrangement, the U.S.S.R. was also required to complete the third-phase construction of the Orenburg gas complex. Romania agreed to help finance the purchase of equipment from Western industrialised countries for this gas complex.

Under the terms of the General Agreement, the East European countries were to receive 15.5 billion cubic metres of natural gas per year for a twenty-year period.⁴¹ Of this amount, the five countries building the pipeline would each receive 2.8 billion cubic metres annually, while Romania's share would be 1.5 billion.

A brief word about Romania's special role in the joint investment project is appropriate. Unlike the other countries, Romania did not participate in any part of the actual construction. It simply provided gas refinery equipment, purchased in the West on its own account. There are several possible reasons why its contribution to the project differed from the other East European countries. Romania's special role was in line with its more independent stance within the CMEA and its policy of selected involvement in regional projects. Romania's

³⁹ Shulman (1976), pp. 16-17.

⁴⁰ Petrenko (1977), p. 95; and L. Vallev (1977), pp. 101-105.

⁴¹ *Nepszabadsag*, 20, 23, 24 August 1976, p. 19 (*JPRS*, No. 68085, p. 19); *Czechoslovak Foreign Trade*, No. 9, 1979, p. 27; and *Polish Economic Survey*, No. 3, February 1979, p. 6.

indigenous reserves and production of natural gas reduced its import requirements. Also, the nature of Romania's role strongly suggests that its decision to participate in the project was taken only after the project had been formulated among the other countries. Rather than redraft that proposal, an alternate role was devised for Romania.

As Soviet construction enterprises were to build the gas refinery complex at Orenburg, its planning and construction would be no different from that of a domestic investment project involving some foreign procurement. However, the organization and coordination of construction of the Soyuz pipeline were far more complex, inasmuch as construction enterprises from five different countries would be operating on Soviet territory.

To formulate general policy and guidelines, a special intergovernmental group of representatives of the participating countries from the deputy-ministerial level was established under Soviet chairmanship. This committee met annually, while lower-level coordinating committees convened quarterly.⁴²

Each section of the pipeline was to be constructed on a "turnkey" basis, with the Soviet "General Contractor," Soyuzintergazstroi of the Ministry for the Construction of Petroleum and Gas Industry Enterprises, acting as general coordinator and supervisor of construction. The services of the designated East European construction enterprises were formally subcontracted by the Soviet general contractor. It in turn was responsible to the "General Client," in this case the industrial association Soyuzzarubezhgazprom of the USSR Ministry of Gas Industry.⁴³ Upon completion, ownership of the pipeline was, therefore, to be entirely in Soviet hands.

The conclusion of separate, bilateral contracts between Soyuzintergazstroi and the East European contracting enterprises reflects the bilateralism so common to intra-CMEA relations. In the absence of horizontal linkages among the sub-contracting enterprises, accounting was entirely between the Soviet Union and each East European country. Although this arrangement circumvented the problems associated with multilateral settlement, it limited the degree of specialization achieved within the framework of the project.

There were nevertheless certain cases of specialization in the supply of materials and equipment for use on the Soyuz pipeline. For example, Hungary provided "instruments and automation equipment" for the pipeline, while Poland apparently delivered certain types of pipe-laying machinery.⁴⁴ Moreover, specialized equipment was procured from Western sources.

To facilitate accounting, the five East European countries were originally given responsibility for the financing and construction of roughly equal sections of the pipeline. This proved infeasible in practice, however. In the final analysis, only one country, Poland, constructed all parts of its section of the pipeline. Because the others could not meet all of their obligations from domestic sources, they had to subcontract with enterprises of another participating country (or

⁴² *Gazovaya promyshlennost'*, No. 6, June 1977 (*JPRS*, No. 69525, p. 24).

⁴³ For a list of the various contracting enterprises from Eastern Europe, and a discussion of the contractual relationships among the various enterprises, see Hannigan (1980).

⁴⁴ *Vilaggydasag*, Budapest, Oct. 21, 1975, p. 3 (*JPRS*, No. 66118, p. 28); and *Glos Pracy*, Warsaw, Mar. 23, 1976, p. 1 (*JPRS*, No. 67066, p. 1).

countries), in most cases the Soviet Union, to build certain parts of their respective sections of the pipeline.

According to the 1974 General Agreement, responsibility for the five sections of the Soyuz pipeline was to be apportioned in the following way: the first, that is, most easterly, section was to have been financed and constructed by Poland, the second by Czechoslovakia, the third by Hungary, the fourth by the GDR, and the fifth by Bulgaria.⁴⁵ Within a year, when the bilateral agreements were being signed, important changes in these responsibilities had occurred. These changes and the possible reasons for them fall into three groups.

First, it would appear that the Soviet Union was anxious to complete quickly the first section of the pipeline, running from Orenburg to Aleksandrov-Gai. This section would form a crucial link in the Soviet Union's internal gas transportation network, as it would join (in Aleksandrov-Gai) with the main gas line from Central Asia. By hooking into this trunkline, Orenburg gas could be delivered to industrial users in European Russia and thus increase the overall flexibility of the domestic gas pipeline system.⁴⁶ Accordingly, several changes occurred relating directly to the construction of the first section. Initially, Poland was to build this section. But sometime after signing the General Agreement, Poland and Hungary switched sections.⁴⁷ Although actual reasons for this change are not known, it is possible that Poland could not complete the first section as quickly as the U.S.S.R. would have liked. Hungary then took over financial responsibility for the section, but did not undertake actual construction. Instead, the Soviet Union with the aid of Bulgarian workers built this section of the pipeline, apparently completing it in 1976, far in advance of the other sections.⁴⁸

The Soviet Union performed the construction work on the first section of the pipeline partly to ensure its early completion, but also because Hungarian workers proved unskilled in laying and welding wide-diameter pipe. No matter which section the Hungarians were originally to build, Soviet workers would have had to lay the pipeline. The same situation applied to the Bulgarians. Therefore, the second reason for the changes in country roles was an absence of skilled pipeline construction workers in Hungary and Bulgaria.⁴⁹ Hungarian and Bulgarian workers did, however, build compressor stations.

The severe shortages of skilled labor in Czechoslovakia and the GDR comprised the third reason for the reorganization. Czechoslovakia had to withhold skilled pipeline construction workers from the Soyuz project, and employ them instead on a third pipeline in the transit gas system in Czechoslovakia.⁵⁰ The necessity to increase capacity of this system relates, at least in part, to Czechoslovakia's

⁴⁵ Trend (1975b), p. 11, citing *Nepszabadsag*, June 15, 1975.

⁴⁶ A report that Orenburg natural gas was reaching the industrial parts of European Russia via the Central Asia-Moscow mainline appeared in *Pravda* on Aug. 24, 1976, p. 4. This could not have been accomplished unless the first section of the Soyuz pipeline, as far as Aleksandrov-Gai, were completed.

⁴⁷ Trend (1975b), p. 11, citing *Nepszabadsag*, June 15, 1975.

⁴⁸ *Pravda*, Oct. 24, 1976, p. 1.

⁴⁹ "Orenburg Hitches", *EastWest Markets*, June 30, 1975, p. 8.

⁵⁰ The transit gas system consists of the main trunklines for transportation of gas to the GDR and countries of Western Europe (Austria, the FRG and Italy). The construction of the third line in this system increased capacity from 28 billion to 37 billion cubic meters per year. Orudzhev (1976), p. 128.

participation in the complex trilateral gas swap agreement of 1975 among Iran, the Soviet Union, and a consortium of Western gas companies headed by Ruhrgas AG of the FRG.⁵¹ To accommodate the gas destined for Czechoslovakia, plus that in transit to Western Europe, Czechoslovakia required its pipeline construction workers to expand domestic pipeline capacity. Hence, the Soviet Union agreed to undertake the laying of all pipe on the Czechoslovak section of the Soyuz pipeline.⁵² Soviet workers also laid one-half of the pipeline in the fourth (GDR) section. Although precise reasons are again unknown, the most reasonable guess would be the labour shortage in the GDR.

In the original concept of the pipeline project, the U.S.S.R. had no construction responsibilities. Ultimately, however, Soviet workers laid approximately 1,800 kilometres of the 2,677-kilometre pipeline, and also assisted in the installation of the compressor stations for the first section of the pipeline. The remaining portions of the construction (pipeline, compressor stations and infrastructural needs) were carried out by East European workers.⁵³

It is apparent that the systemically determined logic of the original organizational structure was undermined by the shortage of available skilled workers in Eastern Europe.⁵⁴ The consequent reorganization of construction created further problems of accounting, as each country employing services of foreign workers for its section would now have to settle their wage bill in foreign prices and currencies.⁵⁵ Given the difficulties encountered in the joint construction format for the Soyuz pipeline, it is hardly surprising to find that it has not been replicated (see sec. VIII below).

2. Financing the Project

The Orenburg project was financed from domestic and foreign sources.⁵⁶ The costs of labour and domestically-produced materials could be financed from the internal funds of each individual country, sometimes through special-purpose bank credits.⁵⁷ Materials and supplies purchased by one participating country from another CMEA country could be financed in transferable rubles extended on credit by the IIB or the International Bank for Economic Cooperation (IBEC). In the special case of Orenburg, the IIB extended transferable ruble credits at 2 percent for a 15-year period.⁵⁸ (Usually IIB credits in transferable rubles carry an interest charge of between 3

⁵¹ This arrangement has been analyzed in an unpublished report prepared by the Institute of Soviet and East European Studies at Carleton University. See Hannigan and McMillan (1979), 54 pages.

⁵² *Zahranici Obchod*, No. 9, 1976, pp. 408 (*JPRS*, No. 68739, p. 16).

⁵³ "Infrastructural needs" included residences, schools, shops, hospitals, warehouses, access roads, a power transmission line, and other service buildings.

⁵⁴ In this and other issues related to labor migration in Eastern Europe, see F. Levelk, "Migration and Employment of Foreign Workers in the CMEA Countries and their Problems", in Joint Economic Committee, Congress of the United States, *East European Economics Post-Helsinki*, Washington: Government Printing Office, 1977, pp. 458-478.

⁵⁵ It has been reported that Hungary compensated the Soviet Union for its work on the Hungarian section by supplying Ikarus buses. These are "hard goods" which could have otherwise been sold for hard currency, or exchanged for other "hard goods", e.g. raw materials and fuels, from other CMEA countries. *Nepszabadsag*, Budapest, 20, 23, 24 August 1976 (*JPRS*, No. 68085, p. 20).

⁵⁶ Boratynski (1976).

⁵⁷ *Hospodarske Noviny*, Prague, No. 47, Nov. 21, 1975, pp. 8-9 (*JPRS*, No. 66824, p. 21).

⁵⁸ Konstantinov (1977), p. 5.

and 5 percent.⁵⁹ One report has indicated interest charges up to 6 percent.)⁶⁰

Materials and equipment purchased in hard currency from the West were financed largely, if not exclusively, through the IIB.⁶¹ The IIB raised between \$2 billion and \$2.5 billion in credits on the Eurocurrency market, apparently to be used for Orenburg-related, hard-currency purchases.⁶² These credits were extended to the participating countries at the interest rates at which the funds were initially secured on foreign markets, plus a service charge.⁶³ As hard-currency credits raised by the IIB were meant for the entire joint investment project, that is, the Orenburg gas refinery complex and the Soyuz pipeline, it may be assumed that these credits were made available to all seven countries participating in the project. However, the major share probably went to the East European countries, including Romania, as the Soviet Union apparently made use of a credit protocol extended by France to finance the third-phase gas refinery plant for Orenburg, purchased from the French firm Technip SA.⁶⁴

3. The Terms of Repayment

Recalling the compensation format for joint investment projects outlined in Section II above, there are two distinct time periods associated with any given joint investment. The "full term" of the Orenburg project as stated in the terms of the General Agreement, is twenty years. The Soviet Union is thereby obligated to deliver to the East European investing countries a specified quantity of natural gas (15.5 billion cubic metres) each and every year of the 20-year full term, beginning in 1980.

The length of the expected "repayment period" in the case of Orenburg (i.e., the amount of time required for the Soviet Union to repay the principal and interest of the East European countries' investment) has not been made public.⁶⁵ The period is determined by relating the amount of the principal investment and the interest charge on it to the volume and unit price of the natural gas deliveries in repayment.

The amount of the East European investment is the value of their contributions to the cost of the pipeline construction. In CMEA practice, contributions are accounted for in transferable rubles. Thus, all non-ruble expenditures must be translated into transferable rubles, a process which requires the use of various exchange rates. The hard-currency expenditures can be transposed using contemporary official exchange rates. On the other hand, soft currency expenditures by in-

⁵⁹ Boratynski (1976), p. 12; and Konstantinov (1977), p. 5.

⁶⁰ *East-West*, VI, 68/69 (Sept. 28, 1979), p. 4.

⁶¹ Throughout the course of our investigation into the costs of the Orenburg project, no mention was ever made to the raising of hard-currency loans for Orenburg-related purchases by national banks in any of the participating East European countries. Thus, it is quite possible that all hard-currency financing was through the IIB.

⁶² The lower estimate is from Hannigan (1980); the higher comes from Kohn (1979), p. 254.

⁶³ Trend (1977), p. 2. It is estimated that the average total charge to the countries receiving the credit was in the vicinity of 8-9 percent.

⁶⁴ Trend (1975b), p. 2.

⁶⁵ We have found only one Eastern source which gave any indication of the term of repayment. In this report, it was noted that, "Hungarian expenditures (for Orenburg) will be repaid within 6-9 years from the returns of the imported Orenburg gas." No explanation or methodology was given as to how these figures were derived; however, it is significant that the Hungarian state secretary for heavy industry, Adam Juhasz, made the remark. *Hungaropress*, Nos. 13-14, 1978, p. 6.

dividual East European countries are more difficult to inter-relate. In this instance, three different "conversion factors" for each East European currency are applied, to arrive at a cost figure in transferable rubles: one for materials and equipment, a different one for wages and salaries, and yet another for overhead expenses.⁶⁶ The overall cost figure thus determined in transferable rubles serves as the amount of investment principal.

Painstaking examination of published source materials has made it possible to estimate the total "nominal cost" for the construction of the Soyuz pipeline at \$5,129 million.⁶⁷ (This is a mid-range estimate of costs, as shown in column 2 of table 2.) Of this estimated total amount, \$4,253 million is made up of installation and materials costs, while the remaining \$876 million represents costs to the East European countries of financing these expenditures. In establishing the

TABLE 2.—COST OF CONSTRUCTING THE SOYUZ PIPELINE

[In millions of dollars; 0.74 rubles equals \$1]

	Low estimate	Midrange estimate	High estimate
Installation costs ¹	\$1,216	\$1,284	\$1,351
Materials costs:			
Pipe ²	919	1,081	1,460
Compressor stations ³	772	772	772
Machinery and equipment ⁴	550	650	740
Subtotal.....	2,241	2,503	2,972
Financing costs:			
Hard currency ⁵	529	595	726
Soft currency ⁶	259	281	303
Subtotal.....	788	876	1,029
Total of above costs.....	4,245	4,663	5,352
Estimate of unknown costs ⁷ (10 percent of calculated total).....	425	466	535
Total cost.....	4,670	5,129	5,887

¹ Estimated, using Soviet data given in *Ekonomika Stroitel'stva*, No. 11, November 1977 (Joint Publication Research Service, (JPRS), No. 70591, p. 77). "Installation costs" are assumed to include labour costs, plus operating and service costs during the period of construction.

² Based upon various estimates of tonnage of pipe used, and cost of wide-diameter (1.42 m) pipe from known Western suppliers. The difference in estimates results from a wide variation in estimates of total tonnage of pipe used. See Hannigan (1980) for details of derivation.

³ This figure was often reported in Western business publications, including *Soviet Business and Trade*, V, 1, (June 9, 1976, p. 1); *East-West Markets*, June 14, 1976, p. 4; and *Business Eastern Europe*, July 9, 1976, p. 216.

⁴ This amount includes hard-currency purchases from Western countries of from \$150,000,000-\$240,000,000 and soft-currency expenditures on machinery and equipment produced in Eastern Europe, roughly estimated to be between \$400,000,000-\$500,000,000. The estimate of hard-currency purchases was compiled from numerous Western business publications. The figure for soft-currency expenditures was more crudely determined, based upon scant reports in the Eastern European press. The latter figure includes a certain portion of the infrastructural costs, but these are difficult to assess and remain largely undetermined. For more detail, see Hannigan (1980), app. C.

⁵ We estimated the amount of hard-currency debt raised for Orenburg at \$2,050,000,000, based again on numerous Western sources. Another Western estimate put the amount at \$2,500 (Kohn (1979), p. 254). The lower figure is used for the low and midrange estimates; the greater, for the high estimate. Using known terms and payment periods for the various credits, we employed an 8 percent per annum rate of interest to calculate the low estimate cost of financing, and a 9-percent rate for both the medium and high estimates. See Hannigan (1980).

⁶ Calculated at 2 percent per annum over 15 years, corresponding to the terms at which transferable ruble credits were extended by the IIB, specifically for Orenburg (Konstantinov (1977), p. 5). We have lumped together costs of financing IIB credits in transferable rubles, and domestic currency financing.

⁷ This 10-percent figure is a rough guess, but is meant to incorporate the costs of infrastructure which are unknown, an escalation in costs, particularly hard currency, due to inflation; the increase, in dollar terms, of an appreciating ruble over the construction period; and any associated costs of financing needed for these additional expenditures.

⁶⁶ Konstantinov (1976), p. 20.

⁶⁷ The "nominal cost" is based upon prevailing prices, wages, interest charges and exchange rates. A detailed account of how this figure was reached, including disaggregated cost data, is given in Hannigan (1980).

amount of principal upon which the fraternal rate of interest is to be paid by the Soviet Union to the East European countries, the \$4,253 million figure must be used.

Interest is charged on the principal from the moment the first deliveries of supplies to the construction project begin. The "fraternal", 2-percent interest rate is applied, with interest calculated on principal only, not on interest.⁶⁸

Once the amount of principal and interest is determined, the repayment period can be calculated by valuing the quantities of natural gas which the U.S.S.R. is committed to deliver in return. The value of these deliveries depends upon their price. In principle, they may be priced on a fixed or variable basis.⁶⁹ If the price were variable and rising (such as the CMEA contract price for gas under the modified Bucharest formula), then successive annual increases in the price for repayment deliveries of natural gas would result in a shorter repayment period than would be the case with a fixed price. Unfortunately, in the example of the Orenburg joint investment project, it is not clear from either published or unpublished sources whether the gas is to be delivered at a fixed or variable price.

Looking specifically at the case of the five East European countries investing in the Soyuz pipeline, it should be clear that if we estimate the costs to them of building the pipeline, and the terms (henceforth to be referred to as the "accounting price") at which deliveries of gas were valued for purposes of repayment, then the period of repayment can be established. On the basis of the determined repayment period, it would be possible in turn to calculate a rate of return on their investment.

Not knowing the accounting price or the pricing format, we first select hypothetical repayment periods which permit calculation of associated accounting prices. We then judge the feasibility of any period by its related accounting price. The range of possible repayment periods for Orenburg is limited at the upper end by the full term of twenty years.

Selecting hypothetical repayment periods of 20, 15 and 12 years, the related magnitudes are readily calculated. These data are presented in table 3, which show, for example, that in order to repay the total amount of principal and interest in the East European investment over a period of 20 years, the accounting price for Orenburg natural gas deliveries to Eastern Europe would have to be fixed at \$18.90/1000 cubic metres. This price is only slightly below the actual 1974 average export price of Soviet gas deliveries to Eastern Europe of \$20.27 (15 rubles) per 1000 cubic metres.⁷⁰ Alternatively, if the investment was to be repaid in 12 years, the return deliveries of natural gas would have to be priced at \$29.33/1000 cubic metres. We may conclude that if a fixed accounting price for deliveries of natural gas under the Orenburg agreement had been set within the range of approximately \$20-\$30/1000 cubic metres, then the East European investment would be repaid within 20 to 12 years.

⁶⁸ Lebedinskas (1976), p. 74.

⁶⁹ *Ibid.*, p. 73.

⁷⁰ *Vneshniaya torgovlia* (1975). The average 1974 rate of \$1=0.74 rubles has been used here. Recall that 1974 was the year the Orenburg agreement was signed.

TABLE 3.—IMPLIED ACCOUNTING PRICE FOR RETURN DELIVERIES OF ORENBURG NATURAL GAS UNDER 3 DIFFERENT REPAYMENT PERIODS

Repayment period	Volume of natural gas deliveries * (billion cubic meters.)	Amount of principal and interest † (millions)	Accounting price for gas deliveries ‡ (dollars/1,000 m ³)
20 yr.-----	288	\$5, 443	\$18. 90
15 yr.-----	218	5, 230	23. 99
12 yr.-----	174	5, 103	29. 33

* Includes the estimated 8,000,000,000 m³ delivered during 1979, and the annual delivery of 14,000,000,000 m³ over the designated repayment period.

† The figure used for principal is \$4,253 (the estimated \$5,129,000,000 cost of the Soyuz pipeline minus the \$876,000,000 financing costs). Interest is calculated at the fraternal 2-percent rate, beginning with the first shipment of materials and equipment by the Eastern European countries, i.e., during the construction period interest accumulated on the principal. It has been assumed that the total principal was divided evenly among the 4 years. As repayments were made, beginning with those in 1980, the amount of principal declines with every year. Interest is not calculated on interest. Therefore, the equation used to calculate interest over the repayment period is the constant ratio formula.

$$r = \frac{2NI}{P(n+1)}$$

where, r = rate of interest
 N = number of installments per year
 I = amount of interest
 P = principal
 n = number of years

‡ This price is assumed to be fixed over the repayment period.

Is it realistic to think that the contract price for natural gas deliveries would remain fixed over such a long term? On the one hand, it can be argued that the East European countries should have acquired, through their construction of the pipeline, a claim to a specific quantity of Orenburg natural gas at a designated price. As the year of the agreement was 1974, fixed prices of between \$20 and \$30 per 1,000 cubic metres would seem not unrealistic. From the Soviet standpoint, though, it is hard to imagine planners agreeing to such terms, particularly in the 1974, post-OPEC environment. It is just as conceivable, therefore, that the agreement envisaged a variable price, pegged to fluctuations in world prices for natural gas. (A variation of the fixed-variable dichotomy in the pricing format may have seen a variable price, moving upward until it reached a predetermined ceiling price.)

A possible alternative scenario, therefore, less advantageous to Eastern Europe, would be one in which Orenburg natural gas deliveries were to be valued at the contemporary CMEA contract price for Soviet gas exports to Eastern Europe, beginning in 1980 and changing annually according to the modified Bucharest formula introduced in 1975. If this in fact were the case, what would be the consequent period of repayment? We estimate that the 1980 contract price for natural gas exports to Eastern Europe could be as high as \$75 per 1,000 cubic metres (approximately 50 rubles at present exchange rates).⁷¹ Assuming that prices rise by only 5 percent per annum from 1980 on, the repayment period would be reduced to 4½ years!

⁷¹ The 1977 average price for Soviet exports to Eastern Europe was 37.91 rubles per 1,000 cubic metres. This represented a 13.3 percent increase over the average 1976 price. The 1976 price had risen by 18.8 percent over the 1975 price. If the 1978-80 prices rose by 10 percent per annum, then the 1980 contract price would be about 50 rubles/1000 cubic metres. Soviet foreign trade statistics from 1977 on, have not given gas exports in volume; therefore a post-1977 unit contract price cannot be determined from Soviet sources. Source: *Vnesnnaia trgovlia*, various years, and *Statisticheskii ezhegodnik* (1979).

4. Costs, Benefits, and the Rate of Return on East European Investments

We turn now to an attempt to relate the economic costs and benefits to the East European countries of their participation in the Orenburg project. We do so through the formulation of a cost-benefit equation by means of which the internal rate of return on the East European investment can be calculated. This requires data on the following:

- (1) The value of the principal investment;
- (2) The cost to the investing countries of tying up that amount of capital in the gestation period;
- (3) The volume of natural gas received in repayment; and
- (4) The value of those return deliveries.

For selected repayment periods, the estimated investment and the agreed volume of natural gas to be received in payment (points 1 and 3 above) are known. The other two components remain to be introduced. We turn first to point 2.

Our estimate of \$5,129 million for the full cost of East European investment in Orenburg has been termed the "nominal" cost, because it is based on administered prices, wages, interest and exchange rates. While it represents the cost of Orenburg in the units of accounting of the member countries, it incorporates a variety of elements which distort its meaning in terms of actual resource scarcities. Some of these may be offsetting. For example, price subsidies on materials supplied to Orenburg result in undervaluation of the East European contribution. On the other hand, overvaluation of the ruble by the official exchange rate results in overestimation of soft-currency expenditures converted to dollars at that rate.

A major source of underestimation of the "true" or "effective" cost of investment in Orenburg to the East European participants is calculation of the costs of financing at nominal interest rates which do not represent the opportunity costs of these funds. During the five-year gestation period (the four-year construction period plus a one-year startup period), the East European countries had funds tied up which could otherwise have been invested to earn a return. We have therefore reestimated the costs of financing, under the assumption that a return of 15 percent could be earned on alternative investments in this period.⁷² (A further assumption employed is that funds were distributed evenly over the four years of construction.)

In table 4 we see that had the sum of \$1,063 million been invested in each of the first four years and compounded annually at a 15 percent rate, then at the end of the fifth year, the value of the investment would have grown to \$7,021 million. The opportunity cost to the East European countries of tying up funds in Orenburg rather than in alternative investments in the five-year gestation period is therefore \$2,768 million, and the full "effective" cost of investment in the pipeline is \$7,021 million.

⁷² This 15-percent rate of interest corresponds to the coefficient used to determine the effectiveness of foreign trade-related investments in the socialist economies. See Lebedinskas (1973), p. 48. The average coefficient for capital investment effectiveness in CMEA is 12 percent. "Standard Methodology" (1971), n. 32. Therefore an interest rate of 15 percent to determine the opportunity cost for East European investment in Orenburg is not unreasonable.

TABLE 4.—CALCULATING THE OPPORTUNITY COST OF EAST EUROPEAN FUNDS INVESTED IN THE ORENBURG PROJECT

[In millions]

	Principal	Accumulated interest	Principal plus interest	Year-end interest (calculated at 15 percent)
Year 1.....	\$1,063	-----	\$1,063	\$159
Year 2.....	2,126	\$159	2,285	343
Year 3.....	3,189	502	3,691	554
Year 4.....	4,253	1,056	5,309	796
Year 5.....	4,253	1,852	6,105	916
At end of 5-yr gestation period.....	4,253	2,768	7,021	-----

This \$7,021 million will be tied up for the duration of the repayment period, resulting in a further opportunity cost. However, if the stream of benefits to the East European countries is discounted to that value, at the time these benefits begin to accrue, the internal rate of return will provide an alternative measure of the opportunity cost of the investment over the repayment period. To arrive at the appropriate discount rate, the stream of benefits first has to be evaluated. This brings us to point 4.

The appropriate method of measuring the benefit from repayment deliveries of gas is in terms of replacement cost, i.e., the cost of the most realistic alternative to gas deliveries through the Soyuz pipeline. The question to be answered then is, if the East European countries had not invested in the Orenburg project, where would they now secure equivalent supplies, and what would be the cost?

Oil imports from the Middle East seem the most relevant alternative to Orenburg gas and have thus been selected as the most appropriate basis for valuing Orenburg deliveries.⁷³ As shown in footnote 1 of table 5, this method of calculating the replacement cost places the value of 1000 cubic metres of natural gas at \$176.72. Using this unit value, the stream of benefits over a given repayment period can be calculated. Discounting the stream of benefits to a present value of \$7,021 million, yields an internal rate of return on investment for the repayment period. The results, along with explanations on methodology, are presented in table 5.

How can we evaluate these estimated rates of return on the East European investment in Orenburg? In the socialist countries the average industry-wide coefficient for the effectiveness of capital investment is 0.12, as formulated in the Soviet "Standard Methodology for Determining Economic Effectiveness of Capital Investment".⁷⁴ Based upon this standard of comparison, we see that even if the East European countries receive deliveries over a repayment period of only 4.5

⁷³ OPEC oil would seem to be the most feasible alternative to Orenburg gas, because of the lack of transport facilities for the import of equivalent amounts of Middle Eastern or North African gas and well known constraints on significant increases in Soviet oil deliveries. Coal and nuclear power are effectively ruled out as alternatives, since Orenburg gas is to be used primarily as feedstock for chemical plants (*Zycie Warszawy*, Sept. 25, 1976, p. 6, in *JPRS*, No. 65993, pp. 1-3.) Major economies of industrial use face structural and systemic obstacles.

⁷⁴ "Standard Methodology" (1971), p. 32. Although this is the Soviet methodology, the same standard methods are employed by CMEA member countries. See Khachaturov (1978), p. 95.

TABLE 5.—RATES OF RETURN ON THE EAST EUROPEAN INVESTMENT IN THE ORENBURG PROJECT OVER SELECTED POSSIBLE REPAYMENT PERIODS

Repayment period	Volume of natural gas deliveries (billion cubic meters)	Value of natural gas deliveries ¹ (billions)	Approximate rate of return on investment ²
20 yr.....			
15 yr.....	288	\$50.9	31.5
12 yr.....	218	38.5	31.0
4.5 yr.....	71	12.5	30.0
			19.5

¹ The value is based on the January 1980 price of Iraqi crude, which was posted at \$28 per barrel. (Financial Times of London, Jan. 30, 1980, p. 1.) As the oil equivalent of 1,000 m³ of natural gas is 0.86 metric tons of crude oil, and as there are 7.33 bbl of crude oil in a metric ton, it can be shown that in terms of an oil equivalent, the value of 1,000 m³ of natural gas is \$176.72. To calculate value over the entire repayment period, this price has been held constant.

² The formula for calculating the internal rate of return is:

$$\sum_{t=0}^n \frac{B_t}{(1+r)^t} = 0$$

where B_t is the benefit in year t ;
 n is the number of years in the repayment period; and
 r is the discount rate (rate of return).

The discount rate is solved for in the polynomial equation:

$$B_0 + \frac{B_1}{(1+r)^1} + \frac{B_2}{(1+r)^2} + \dots + \frac{B_n}{(1+r)^n} = 0$$

At time t_0 , which has been equated with the time when gas deliveries first began, the cost outlay (negative benefit) was -7,020,000,000. In year t_1 (the end of 1979) 8,000,000,000 m³ of gas had been delivered to Eastern Europe, for a benefit of \$1,413,000,000. In the subsequent years which make up the repayment period, the value of gas deliveries equaled \$2,474,000,000 each year (14,000,000,000 m³ × \$176.72/1,000 m³).

years the return is higher than the coefficient of effectiveness. Over a 12-year, or greater, term, the associated returns on investment of 30–31.5 percent greatly exceed this standard coefficient.

A no less interesting standard for assessing the return on Orenburg is offered by the rates earned on similar investment projects in a market economy. Drawing on Canadian experience, we find that expected internal rates of return (before tax) on investment in analogous pipeline projects are in the vicinity of 17–20 percent, depending upon the degree of risk involved.⁷⁵ By this standard, even the return associated with a repayment period of 4.5 years for the East European investment in Orenburg is adequate.

Based upon our analysis, and the assumptions we have been forced to make because of gaps in the available data, we can put forward the following conditional conclusions. By CMEA planning criteria of investment effectiveness, Orenburg appears to have been a clearly justified investment for the participating East European countries. If, in repayment for their investment in Orenburg the East European countries receive deliveries of natural gas in the agreed amounts for at least 4.5 years, then the return on their investment will be profitable as well by contemporary Western, market-determined standards.

We have calculated what may be regarded as average rates of return to the East European countries from their investments in the Soyuz pipeline. Because of approximately equal sharing of the East European countries in the costs of the pipeline, and the prospect of return deliveries proportionate to contributions, this approach seemed

⁷⁵ We are indebted to Mr. Bob Jones of the Financial Regulatory Board, National Energy Board (Canada); for providing us with this information.

appropriate.⁷⁶ Nevertheless, because of differences in the nature and size of the East European economies, the burden of the investment cost and the importance of the resulting benefits will differ among them in ways not captured by our average calculations. Furthermore, we have considered only those costs which applied to delivery of natural gas to the western border of the U.S.S.R. The differential costs to individual countries of transporting the gas beyond that point have not been included.⁷⁷

Indirect benefits and costs, in the form of external economies and diseconomies, are not measured by the rate of return calculation. For example, the expertise gained by East European enterprises in planning and constructing a major pipeline project could be profitably applied domestically or in third countries. The greatest indirect cost, environmental damage, was sustained by the Soviet Union and thus represented a saving to the East European participants relative to the possible environmental cost of developing alternative domestic sources of energy and fuels.

The most obvious benefit to Eastern Europe not measured by our rate of return calculations is assured, long-term access to a major source of natural gas. The internal rate of return measured only the net benefit associated with deliveries over the repayment period. The East European countries will also benefit from gas deliveries through the full, 20-year term of the agreement, and possibly beyond if the supply commitment is extended. Net returns beyond the repayment period will result from deliveries at contract prices (including transport costs) below the cost of alternative supplies.⁷⁸

There is a cost side to the benefit of a long-term supply commitment: the risk of over-dependence on a single, external source. East European dependence on the U.S.S.R. for supplies of hydrocarbons grew markedly between 1965 and 1975, because of the increased role of oil and gas in the area's fuels-energy mix. In 1965, oil and gas imports from the U.S.S.R. accounted for about 8 percent of total energy consumption in Eastern Europe. By 1975 that figure had increased to 21 percent.⁷⁹ At the same time, the structure of this dependence has changed, with Soviet gas increasingly substituting for Soviet oil. Orenburg will contribute importantly to that shift. In 1980, it is estimated that Orenburg-related deliveries of gas (15.5 billion cubic metres per year) will alone account for about 2.8 percent of total energy consumption in Eastern Europe.⁸⁰

⁷⁶ Romania, which did not participate in the construction of the pipeline, is not included in our rate of return calculation. While we know the volume of return deliveries of gas which Romania was to receive for its contribution to the Orenburg gas complex, we have found no information on the value of this contribution and are unable to say how closely Romania's return may have conformed to the average calculated for the other East European countries.

⁷⁷ The Soyuz pipeline hooks into the East European pipeline system at Uzhgorod on the Soviet border with Czechoslovakia. It is not clear to what extent existing East European pipeline capacities have had to be expanded in order to accommodate the increased flows.

⁷⁸ Of course, should the CMEA price rise above the world price, there would be a loss from the continuing supply agreement.

⁷⁹ Hannigan (1980).

⁸⁰ This percentage share is based upon an estimate of total East European energy consumption in 1980 of 661 million tons of standard fuel equivalent. The figure for total energy consumption is from Haberstroh (1977), p. 381.

VII. THE IMPACT OF JOINT PROJECTS

1. *Impact on East European Economies*

It has been reported that 7.5 billion rubles were allocated to joint investments by the CMEA member countries in their 1976-80 national plans.⁸¹ The East European share was 3.4 billion rubles, or about 45 percent.⁸² Total investment planned by the East European countries in 1976-80 was approximately 335 billion rubles.⁸³ On the basis of these figures, investment in joint development projects would represent only about one percent of Eastern Europe's total planned investment in the period.⁸⁴ The share of joint investments in total planned investments by the Soviet Union in the same period was 0.6 percent.⁸⁵

On the basis of these estimates, their investments in multilateral projects cannot, on average, be regarded as overly burdensome for the participating countries. The investment burden weighs unequally, however. Bulgaria, for example, has invested roughly the same amount in multilateral projects as Poland, yet Poland's total annual allocations to investment are roughly four times greater than Bulgaria's. If joint projects have served to equalize the investment burden of new resource development between the U.S.S.R. and Eastern Europe, they have not distributed the burden equitably among the East European countries.

Data on the annual volume and value of return deliveries from East European investments in resource development projects are presented in table 6. The total value of annual return deliveries from four of these projects is estimated at close to 940 million rubles (in Soviet export prices to Eastern Europe of the late 1970's). The other projects, which are thought to be smaller in scale, could easily bring the annual value of return flows of output from the seven major joint development projects above the one billion ruble mark. This amount may be compared with a projected 55-60 billion rubles in total East European imports in 1980, with fuels, minerals and metals making up about 30 percent of that total.⁸⁶

In order to measure the sectoral dependence of Eastern Europe on Soviet sources of supply, we have attempted to estimate the share of return deliveries scheduled under the four principal joint development agreements in total East European imports and "apparent consumption" of the products in question. The results are presented in table 7, which draws on the estimates of table 6. We find these deliveries to account for a projected 9-51 percent of total imports. The high share

⁸¹ This figure is from Lascelles (1976), p. 37. The actual amounts invested were undoubtedly higher. Our estimate of the cost of the Soyuz pipeline would alone account for almost half of this total. Recall that the amount targeted for joint investments in the regional plan was announced at 9 billion rubles (see sec. IV above).

⁸² Radio Free Europe, Hungarian Situation Report/11, Apr. 27, 1978, p. 11, citing *Figyelo*, April 12, 1978.

⁸³ Derived from Lascelles (1976).

⁸⁴ Several East European sources give alternative, somewhat higher, shares for the East European countries. *Figyelo*, Apr. 12, 1978, cites joint investment commitments for individual East European countries of between 2 and 4 percent. Dobozi (1980) reports shares for Hungary and the GDR at 4 percent and 3 percent respectively. One explanation for the higher shares is that they include bilateral, as well as multilateral, projects.

⁸⁵ Derived from Lascelles (1976).

⁸⁶ These projections are based on 1977 figures from *Statisticheskii ezhegodnik* (1979).

for Orenburg gas indicates its importance in Eastern Europe's energy strategy. This is borne out by its projected share in apparent consumption of gas, with Orenburg accounting for 17 percent of Eastern Europe's 1980 consumption. By way of comparison, it may be noted that German imports of natural gas under another large deal, the tri-lateral gas swap agreement concluded among Iran, the U.S.S.R. and the FRG in 1975, were expected to account for about 9 percent of the FRG's natural gas consumption in 1985.⁸⁷

TABLE 6.—ANNUAL RETURN DELIVERIES UNDER JOINT DEVELOPMENT PROJECTS

Project	Annual volume of return deliveries	Estimated unit value *	Value of return deliveries
Ust-Ilimsk (cellulose).....	205,000 tonnes.....	230 rubles per metric ton.....	47,150,000 rubles.
Kiembaev (asbestos).....	40,000-50,000 tonnes.....	Not available.....	Not available.
Orenburg (natural gas).....	15,500,000,000 m ³	50 rubles per 1,000 m ³ b.....	775,000,000 rubles.
Iron ore plants.....	5,290,000 tonnes.....	11.05 rubles per metric ton.....	58,454,500 rubles.
Ferroalloy plants.....	Not available.....	Not available.....	Not available.
Vinnitsa-Albertirsa (electric power).....	3,000,000,000 kWh.....	19.48 rubles per 1,000 kWh.....	58,440,000 rubles.
Nickel and cobalt facilities.....	Not available.....	Not available.....	Not available.

* Average 1978 price of Soviet exports of the particular product to Eastern Europe. Vneshniaia torgovlia (1979).

^b Estimated 1980 price.

° Estimate.

Sources: Based principally on data from Statisticheskii ezhegodnik (1979); Vneshniaia torgovlia (1979); and Lascelles (1976).

TABLE 7.—RETURN DELIVERIES FROM JOINT PROJECTS IN THE PROJECTED IMPORTS AND APPARENT CONSUMPTION OF EASTERN EUROPE IN 1980

	Total imports	Approximate share of return deliveries from joint projects in imports (percent)	Apparent consumption	Approximate share of return deliveries from joint projects in apparent consumption (percent)
Cellulose (1,000 tons).....	1 1,000	21	13,400	6
Gas (billion cubic meters).....	2 30.5	51	2 92.0	17
Iron ore (1,000 tons).....	1 62,000	9	1 70,000	8
Electric power (billion kilowatt-hours).....	1 19	16	1 415	1

¹ Estimates based on imports and "apparent consumption" (domestic output less net exports) in 1977, calculated from Statisticheskii ezhegodnik (1979), and projected to include the return deliveries plus a growth factor of 5 percent.

² From G. W. Hoffman, "Energy Projections-Oil, Natural Gas and Coal in the U.S.S.R. and Eastern Europe", Energy Policy, vol. 7, No. 3 (September 1979), p. 234.

2. Impact on Regional Relations

As envisaged by the Comprehensive Program, joint development projects were to be the vehicle for sectoral integration in the key areas of energy, fuels and raw materials. Because they incorporate joint planning, joint construction and joint financing through regional institutions like the IIB, joint projects are cited as important examples of progress toward integration of the CMEA economies. In fact, how-

⁸⁷ The deal, which was abrogated in the summer of 1979, would have provided the FRG with 5.5 billion cubic meters of gas annually, starting in 1983. Ruhrgas (FRG) projected FRG consumption of gas at 61 billion cubic meters in 1985. ("Gas Supply/Demand Gaps Forecast for Western Europe", *The Oil and Gas Journal*, August 14, 1978, p. 35.)

ever, we have seen that they involve no lasting collaboration among the parties. In particular, they entail no ongoing relationship of joint ownership or management of the jointly constructed facilities. The only continuing relationship after construction is completed is a supply commitment.

In their organization, joint development projects were seen to exemplify rather than to resolve traditional obstacles to specialization within the CMEA. They exhibited a high degree of bilateralism in actual relations within their formal, multilateral framework, and were severely constrained in other structural and functional aspects. These organizational limitations were reflections of long-standing institutional obstacles to multilateral accounting and settlement in regional relations. Joint projects, then, can only be regarded as a very modest advance in CMEA institutional relationships. Without Orenburg, there would be very little to point to in the way of institutional innovation. Nor did these projects represent much in the way of progress in intra-regional specialization except of the most obvious sort, based on inescapable differences in resource endowment. By their nature and structure they served primarily to reinforce the traditional pattern of bilateral links between the Soviet Union and individual East European countries. The metaphorical allusion to the spokes of a wheel, with Moscow at the center, still captures the essence of regional relations.

Of all the issues arising from joint investment projects, the most contentious is their impact on Soviet-East European relations. Joint projects gave the appearance of an almost feudal relationship, with the "vassal" East European states forced to render services to the Soviet "lord." Our analysis has shown that this appearance of economic exploitation is unfounded and that the available evidence indicates a mutuality of advantage, in the important case of Orenburg at the very least. Appearances are nonetheless politically important. Moreover, despite the favourable terms of East European participation indicated by the Orenburg example, joint projects have served to bind the East European economies to Soviet supplies of essential energy products and basic industrial raw materials for extended periods of time. Evidence of the extent of this dependence was presented in the previous section.

How much the supply dependence resulting from joint projects limits East European autonomy and increases Soviet leverage can only be a matter of conjecture. The favorable terms gained by Eastern Europe in the Orenburg case, as well as other forms of economic assistance provided by the Soviet Union to Eastern Europe in the late 1970's suggest that to some degree the U.S.S.R. is a hostage to Eastern Europe's economic weakness.⁸⁸

The impact of joint projects on regional economic relations is not limited to the question of import dependence. A more subtle, indirect cost of participation was its effect on the structure of East European investment. By reorienting investment towards Soviet development requirements, participation in joint projects presumably limited the amounts available for an alternative goal—the desired restructuring

⁸⁸ For an excellent review of the various facets of Soviet-East European economic relations in this period, see Kohn (1979).

of the East European economies to improve their performance on world markets. Regional investment commitments may thus have slowed the development of internationally competitive, export-oriented industries in Eastern Europe. (Paradoxically, the development of such industries was rendered all the more essential by the increased hard-currency indebtedness which the East European countries assumed as part of their contribution to joint development projects.) It is impossible to estimate the magnitude of this structural effect, except to recall that the value of contributions to joint projects constituted only a small share of total East European investment in the period.

Joint development projects do not serve solely to obstruct Eastern Europe's integration into a broader international division of labor. By assuring Eastern Europe supplies of raw materials below the cost of alternative sources of supply, these joint investments may also in the longer term facilitate the development of internationally competitive industries.

In sum, joint projects contributed little to the improvement of the institutional mechanism of CMEA integration or to the advancement of the regional goal of multilateral specialization. Joint projects did serve a cruder form of integration, extended East European dependence on Soviet energy and raw materials, and increased orientation of East European industries to Soviet capital requirements. On the other hand, the financial terms of Eastern Europe's participation were not unfavourable. Meanwhile, the continuing rise in prices and Eastern Europe's mounting indebtedness have altered the conditions for further evolution of the Soviet-East European relationship in the 1981-85 plan period.

VIII. PROSPECTS

As table 1 indicates, the principal multilateral development projects for the 1976-80 plan period were all formulated and announced in the first half of the 1970's. They have not been followed up by announcement of a new series of analogous projects for the 1981-85 plan period. Orenburg still stands alone in both its size and format.

The major innovation introduced in the CMEA framework in the latter half of the 1970's is the "Long-Term Target Programs for Cooperation," hailed as a "new stage in the development of socialist economic integration."⁸⁹ The decision was taken at the 30th Session of the Council, in 1976, to work out the details of what were to be the "first five" long-term target programs in designated areas of cooperation. At the 32nd Session of the Council, in 1978, three, long-term target programs were approved, in the spheres of energy; fuels and raw materials; agriculture and the food industry; and engineering.⁹⁰ The elaboration of long-term target programs is described as having "given planning activities of the CMEA countries a new orientation, characterized by greater utilization of the possibilities enshrined in the Comprehensive Program," (i.e., joint planning).⁹¹

⁸⁹ Balbakov (1978).

⁹⁰ Communiqué of the 32d Session of the CMEA; full text published in *Pravda*, June 30, 1978, pp. 1 and 4. The other two areas of long-term cooperation which had been designated in 1976 were consumer goods (non-food) and transport.

⁹¹ Balbakov (1978) and Kozlov and Iakushin (1977). It is noteworthy that discussions of the target programs stress not only measures to develop new production capacity but also to promote "more economic and rational use" of resources.

This is not the place to embark on a discussion of these programs and their significance, except to note that they represent once again the transferal to the regional level of a feature of recent national institutional emphasis, in this case, long-term planning. It remains to be seen whether there can be any more success regionally than nationally in establishing long-term goals which will determine medium- and short-term plan targets.⁹² In any case, the sectoral approach to socialist integration is retained.

What is of interest for the purposes of this paper are the implications of these developments for joint investments. There is certainly nothing in the concept of the long-term target programs which would preclude multilateral investment projects; on the contrary, the latter would seem to be easily incorporable into the former. This in fact appears to have been the intention, as reflected in reports of the Council's decisions. For example, in what may be regarded as an authoritative article, the Chairman of the Soviet State Planning Commission, N. K. Baibakov, has written, "According to preliminary estimates, implementation of the measures for joint projects included in the long-term target programs . . . will require the CMEA countries to make considerable investments."⁹³ Cited in particular in this regard, are plans for accelerated expansion of regional nuclear energy capacity, including the construction of nuclear power plants in the U.S.S.R. through the cooperation of interested CMEA countries. Other joint project possibilities which have been mentioned in connection with the long-term target program in energy, fuels and raw materials include the further development of Soviet iron ore deposits and the Kursk metallurgical complex.⁹⁴ It has become apparent, however, that "joint project" in this context has acquired a new meaning.

Recent evidence suggests a backing away from the format of the 1970's for future resource development. According to the "General Agreements on Multilateral Investment Cooperation" signed at the 88th Meeting of the CMEA Executive Committee, in January 1979, the member countries will no longer participate in the development of Soviet resources on the former joint investment basis.⁹⁵ Instead, they are to invest individually in industries within their own economies.⁹⁶ These investments will be made primarily with a view to developing export capabilities through which Eastern Europe can better compensate the U.S.S.R. for future deliveries of energy and raw materials. Long-standing Soviet complaints about the quality of East European manufactures received in return for Soviet deliveries must be recalled here.⁹⁷

The old, two-stage compensation basis for cooperation is thus to give way to short-term, countertrade arrangements.⁹⁸ There will accordingly be less emphasis on the extension of credit and the transfer

⁹² The objective of long-term national economic planning has proved difficult to achieve; and the 15-year plans envisaged for the period 1975-1990 have been converted to 10-year plans as the result of delays in their preparation.

⁹³ Baibakov (1978), p. 6.

⁹⁴ G. Sergeev (1978), p. 89.

⁹⁵ As reported in *East-West*, vol. VI, Nos. 68/69, Sept. 28, 1979, pp. 4-7.

⁹⁶ Brainard (1979), p. 30, and also points made by him in extension, based on discussions he had with knowledgeable officials in Moscow in mid-1979. We are grateful to Dr. Brainard for his help in clarifying the new approach.

⁹⁷ Baibakov reflects this continuing Soviet concern thus (in the context of nuclear energy projects), "The volumes of annual supplies of energy . . . will be fixed in bilateral agreements and will be specified more precisely according to the value of actual deliveries of goods from the individual countries." (Baibakov (1978), p. 8, emphasis added).

⁹⁸ cf. Karavaev [1979], p. 93; and Pecsli [1979], p. 97.

of capital, and more on specialization in each country. Of course, the development of new domestic capacities, and the resulting delivery of goods, may be directed specifically to development projects agreed to under the target programs (capital goods for the nuclear program, for example). It is apparent that under these arrangements the U.S.S.R. will have a good deal to say about East European investment programs and the composition of deliveries from individual CMEA countries.

Why this abandonment of the joint investment approach of the 1970's for what in many respects would seem to be essentially a return to the earlier basis of regional relations, centered on short-term trade agreements (albeit dressed up in the new guise of co-operation in long-term investment planning)? Is it in deference to East European concern about the terms of joint projects?⁹⁹ While our analysis has suggested that in direct economic terms, participation in these projects was not disadvantageous to the East European countries, we have also stressed the difficulties in assessing relative gains and losses owing to the complexities and anomalies of the CMEA accounting system. In these circumstances, joint projects have been perceived more as imposing an unwelcome burden in a period of general economic stress than as affording needed relief in the face of growing raw materials constraints. Politically, therefore, the new arrangements may prove easier to justify in Eastern Europe than the joint investment format, with its large transfers of resources to the U.S.S.R. on poor nominal interest rates.

Altered economic conditions also appear to have required the shift in approach. Eastern Europe has become increasingly indebted to the U.S.S.R. since 1975, primarily as the result of the new intra-CMEA pricing formula and the consequent deterioration in its terms of trade with the U.S.S.R.¹⁰⁰ In these circumstances, it makes little sense for Eastern Europe to assume the burden of further long-term investment in Soviet development. The growing scarcity of labor in Eastern Europe has already required adjustments in existing joint projects, such as Orenburg. Moreover, the major joint investments of the 1970's were negotiated at a time when world prices were more stable and CMEA contract prices fixed. With world prices changing rapidly, and the intra-CMEA pricing formula under further review, long-term agreements are increasingly difficult to negotiate. In sum, quite apart from any dissatisfaction with the old joint investment format, compelling economic circumstances have overtaken it, and have virtually dictated its abandonment.

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⁹⁹ See for example, Tömpe (1978) and citations therein.

¹⁰⁰ See Kohn (1979), p. 250ff.

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EASTERN EUROPE: TRENDS IN IMPORTS OF WESTERN COMPUTER EQUIPMENT AND TECHNOLOGY

By Kenneth Tasky*

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I. SUMMARY

The East European computer industries in the early 1970's were small, technologically backward and little able to satisfy domestic demands. Yet by 1978 most of these countries were producing and exchanging advanced computer equipment that was vastly superior to earlier hardware though still not up to Western standards. In part, the advance of computers in Eastern Europe was a result of the RYAD¹ program—a joint Soviet and East European effort to build a family of modern, compatible data processing computers. To a major extent, however, East European accomplishments are the result of imports of Western computers and associated technology.²

During 1972-78 Eastern Europe imported nearly \$639 million worth of computer equipment from the West. Expressed in dollar terms computer systems accounted for 56 percent of the total; followed by peripheral equipment (26 percent), spare parts (10 percent), and technology (8 percent). The largest importers were Czechoslovakia and Poland, together accounting for 60 percent of the total. The largest supplier of equipment over the period was the United States (41 percent) followed by West Germany (25 percent) and the United Kingdom (19 percent).

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¹ RYAD is a Russian word meaning series.

² Technology imports are defined in this paper as: technical data for design and manufacturing; production and testing equipment; and large quantity shipments of parts and components (including peripherals) that are to be incorporated by East European computer manufacturers into computer systems.

In the same time frame, Eastern Europe imported more than 1,300 computer systems: 86 percent of these (1,126) were minicomputers; and 14 percent (177) were large computer systems. The U.S. directly supplied more than half of all the computers purchased by Eastern Europe, and if U.S. models produced overseas or resold by other Western countries are added to the totals, the U.S. share jumps to a whopping 80 percent of total imports. Again, Czechoslovakia and Poland were the largest purchasers importing nearly two-thirds of all computers.

Importation of Western manufacturing technology and components has enabled the East European countries to establish a significant capability for the manufacture of computer peripherals, a traditional weakness of Communist computer industries. Imported computers are being used in variegated applications and industries, ranging from metals and minerals, electronics, and machinery industries to government and scientific communities. The major uses for imported computers are research and development, and process control.

Eastern Europe imports Western computers partly because the RYAD program has failed to provide computers in the quantities and diversity needed. Western equipment offers technical advantages for priority applications that are unmatched by Communist models. In addition, the training and support that accompany Western computers are superior to anything available domestically, and, indeed, provide an additional benefit that can be directly utilized in developing domestic training programs. Technology imports have allowed the countries to achieve more rapid growth of domestic computer industries than would have been possible otherwise.

Imports of computers and related equipment may be expected to decline in the future owing to the competing demand on hard currency and the growing capabilities of Eastern Europe to satisfy its own needs. On the other hand, technology imports probably will continue to grow over the next few years. This is because growing Soviet capabilities presage a decline in Soviet purchases of East European computer equipment. With their current reliance on sales to the U.S.S.R. to spur growth and the foreseeable loss of this market, Eastern Europe will be forced to look to the West to sell computer equipment. Currently, East European products cannot compete in Western markets, and newer manufacturing and design technology will be needed on a broad front if these countries are to compete successfully. Even with newer technology, however, East European computer products probably will continue to lag Western state-of-the-art. In that event, Eastern Europe will face the dilemma of whether to continue pouring funds into an industry with diminishing prospects for exports.

II. INTRODUCTION

Computers have long played an important role in Communist countries for scientific and technical applications; but only during the past 10 years have they come to be used significantly for economic and industrial tasks in these countries. It is in these latter applications, however, that domestically produced computers were particularly ill-suited, leading East European countries to become increasingly de-

pendent upon imports from the West. To date, comprehensive data on East European computer imports have not appeared in Western literature. This paper is intended to fill that vacuum. The paper provides detailed data on imports in recent years, discusses their uses and impact, and assesses the prospects for continued imports in the future.³ By way of background the size and growth of the East European computer industries as well as their markets are also discussed.

III. BACKGROUND

A. General

Until the early 1970's the countries of Eastern Europe,⁴ hindered partly by small domestic and export markets and partly by the lack of required technology, did not develop significant computer industries. Indeed, only East Germany and Poland produced computers in any meaningful quantity; the two countries combined produced less than 150 relatively unsophisticated machines in 1970. The other four countries in Eastern Europe, for all practical purposes, did not even produce computers.⁵ Hence, the decade of the sixties was a period of almost total dependence on imports, mostly from the U.S.S.R. but also from the West.

Toward the end of the 1960's, pressures were building for a new direction in most of the East European countries. Some countries such as Bulgaria, wanted to import Western design and manufacturing technology and build their own families of computers for the domestic market. Other countries, such as Poland, wanted to build computers for export, and seemed just as willing to produce foreign designed models as domestic ones. To varying degrees, all of the East European countries except East Germany had entered or were preparing to enter into license agreements with West European countries or Japan to manufacture or assemble contemporary computers of Western design. However, in the event, domestic aspirations had little opportunity to take root, and had to be subordinated to the grand design of the Soviet Union.

Because the Soviets saw an opportunity to carry out a large-scale development and production program without substantially shifting resources away from its own on-going computer programs, Moscow directed CMEA members to depend for the most part on a collegial effort. More importantly, perhaps, Soviet computer technology was itself backward by Western standards and Moscow probably saw Eastern Europe as able to upgrade Soviet state-of-the-art due to its more ready access to Western technology suppliers.

In 1969, under pressure from the Soviet Union, all East European countries, except Romania, became members of the Intergovernmental Commission for Cooperation in the Area of Computer Equipment.⁶

³ The use of "imports" or "imported computers" in this paper refers to Western, not inter-CEMA, sources. The data were compiled by the author from U.S. government estimates of Western (including Japan) exports of computers and related equipment to Eastern Europe.

⁴ For the purpose of this article, Eastern Europe is taken to include Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, and Romania.

⁵ In this period, several of the countries made only prototypes or very limited quantities of computers.

⁶ S. Popov, "Dynamically and Effectively", *Ikonomicheski Zhivot*, Sofia, 30 May 1979, p. 8.

Thus began Eastern Europe's involvement in the so-called RYAD computer program, a Soviet-directed effort to build a family of modern, compatible, data-processing computers.⁷

The Soviet enthusiasm for a joint computer production program with Eastern Europe was not initially shared by the East Europeans. Poland, for example, felt that the products of its small industry were technologically superior to those the Soviets were proposing to produce. Romania even refused to join the project until 1974 when it became an associate member.⁸ East European reluctance to cooperate was overcome in part by Soviet arguments that a large export market existed in the U.S.S.R. and that Eastern Europe could advantageously exploit that market.⁹ That is because computers are produced with a relatively large input of unskilled labor which East European countries had in adequate supply, and a relatively small input of plant and equipment and raw materials which were in short supply.

B. Production Trends

The RYAD computer program provided a large new impetus for the expansion of computer output in the industries of Eastern Europe. Table 1 provides estimates of the numbers of RYAD computers produced by these countries through 1978. Table 2 gives some important performance characteristics of the RYAD models produced in Eastern Europe. In addition to RYADs, some countries continued to produce other models of computers: for example, Poland produced Odra models;¹⁰ Romania produced the FELIX series;¹¹ and East Germany produced the PRS and KRS models.¹² Finally, two countries, Hungary and Bulgaria, began producing for the first time large quantities of peripheral equipments. In 1978 about one-half of the total value of production of Hungary's largest computer manufacturer, Videoton, consisted of peripheral equipment.¹³ Bulgaria produced large quantities of magnetic disk equipment. Peripherals were and are being produced to support the RYAD program; hence, most of these products are exported to other East European countries and the U.S.S.R. For example, according to one report, Videoton exports 80 to 85 percent of its peripheral production.¹⁴

The new emphasis on RYAD computers and peripheral equipment led to explosive rates of growth in computer output throughout the first half of the 1970's (table 3). As may be seen, countries with poorly developed computer industries (Bulgaria, Hungary) experienced the highest rates of growth during the first five years of this period (1971-75). East Germany, which technologically had the most advanced computer industry in Eastern Europe, grew at a much slower rate of 13 percent a year.¹⁵

⁷ For a full discussion of the RYAD program, see N. C. Davis and S. E. Goodman, "The Soviet Bloc's Unified System of Computers," *Computing Surveys*, Vol. 10, No. 2, June 1978, pp. 93-112.

⁸ Summary of World Broadcasts, Part 2, Eastern Europe, Weekly Economic Report, Second Series, EE/W811, 23 January 1975, p. A/1.

⁹ I. Dudinskiy, "The Strategy of Cooperation", *Znamya*, Moscow, No. 6, 1978, pp. 180-192.

¹⁰ Odra is the name of a river in Poland.

¹¹ Felix is a proper name in Romania.

¹² PRS—prozės rechnersystem—process computer system; KRS—kleinrechnersystem—small computer system.

¹³ *Heti Vilaggazdasag*, Budapest, No. 6, 14 July 1979, pp. 18-19.

¹⁴ *Ibid.* p. 18-19.

¹⁵ *Handbook of Economic Statistics 1979*, National Foreign Assessment Center, Central Intelligence Agency, ER 79-10274, August 1979, p. 189.

TABLE 1.—EASTERN EUROPE: ESTIMATED PRODUCTION OF RYAD COMPUTERS, 1972-78

	[In units]							
	1972	1973	1974	1975	1976	1977	1978	1972-78
Bulgaria ¹		5	15	25	55	50	50	200
Czechoslovakia ²		5	15	20	40	50	55	185
East Germany ³	5	15	30	50	50	50	50	250
Hungary ⁴		10	50	100	105	120	140	525
Poland ⁵		5	5	10	25	50	50	145
Total.....	5	40	115	205	275	320	345	1,305

¹ ES-1020 and ES-1022.² ES-1021 and ES-1025.³ ES-1040 and ES-1055.⁴ ES-1010, ES-1011, and ES-1012.⁵ ES-1030 and ES-1032.

TABLE 2.—KEY PERFORMANCE CHARACTERISTICS OF RYAD COMPUTER MODELS PRODUCED IN EASTERN EUROPE

Model	Operating speed ¹ (in thousands of operations per second)	Primary memory capacity ² (in thousands of bytes)	Memory cycle time ³ (in microseconds)
ES-1010 (Hungary).....	10	8-64	1.0
ES-1012 (Hungary).....	(*)	8-64	1.0
ES-1015 (Hungary).....	15	64-160	(*)
ES-1020 (Bulgaria).....	20	64-256	2.0
ES-1022 (Bulgaria).....	80	128-512	2.0
ES-1035 (Bulgaria).....	100-140	256-512	2.0
ES-1021 (Czechoslovakia).....	40	16-64	1.5
ES-1025 (Czechoslovakia).....	30-40	128-256	1.25
ES-1030 (Poland).....	100	128-512	1.25
ES-1032 (Poland).....	200	128-1,024	1.2
ES-1045 (Poland).....	400-500	256-3,072	1.0
ES-1040 (East Germany).....	320	128-1,024	1.35
ES-1055 (East Germany).....	750	256-4,096	1.2

¹ This performance measure is often used by Communist countries without precise definition. It appears to refer to a mix weighted heavily toward fast arithmetic operations.² Minimum and maximum capacity of main internal memory. A byte is a basic unit of memory used to form words.³ Time required to read and restore a specified number of bytes.⁴ Not available.

Source: N. C. Davis and S. E. Goodman, "The Soviet Bloc's Unified System of Computers," Computing Surveys, vol. 10, No. 2, June 1978, pp. 93-122.

TABLE 3.—EASTERN EUROPE: GROWTH IN OUTPUT OF COMPUTER EQUIPMENT.

	Average annual growth rate (in percent)		Value of output 1978 ¹ (in millions of U.S. dollars)
	1971-75	1976-78	
Bulgaria ²	61	*15	(*)
Czechoslovakia.....	(*)	(*)	(*)
East Germany ³	13	6	696
Hungary.....	85	21	121
Poland.....	*33	4	489
Romania ⁷	*25	*25	(*)

¹ Native currencies converted to 1978 U.S. dollars at official rates of exchange.² Includes office equipment.³ Planned. Actual rates are not available.⁴ Not available.⁵ Includes business machines.⁶ 1972-75.⁷ Includes automation equipment.

Sources: East Germany, Hungary, and Poland: Based on the output figures in the Handbook of Economic Statistics 1979, National Foreign Assessment Center, Central Intelligence Agency, ER 79-10274, August 1979, p. 189; Bulgaria: Average annual rate of growth based on the 1971-75 plan fulfillment in Zemedelsko Dname, Sofia, May 27, 1979, pp. 1-2 and the 1976-80 plan in Summary of World Broadcasts, pt. 2, Eastern Europe, Weekly Economic Report, Second Series, EE/W903, November 4, 1976, p. A/2; Romania: Average annual rate of growth based on the planned increase for 1975 over 1970 in Agerpres, Bucharest, Dec. 11, 1974, and the planned increase for 1980 over 1975 in Foreign Broadcast Information Service, vol. 11, supplement 41, No. 74-175, Sept. 9, 1974, p. 8.

Since 1975, with the exception of Hungary and Romania, computer production growth rates fell drastically. Hungary continued to grow at a fairly rapid rate mainly because the Hungarian version of the RYAD was designed around Western components which were readily available. In other East European countries, growth in output was impeded by a short supply of domestically-produced components. Romania's continued high rate of growth was the result of new capacity for computer peripherals added with assistance from a U.S. firm, Control Data Corporation.¹⁶ Although growth rates for Czechoslovakia for the 1975-78 period are not available, it is believed that they also slowed. Like East Germany the Czechoslovakian computer industry is an older, more established industry.

Despite impressive growth, the East European computer industries continue to be relatively small by world standards. For example, East Germany, with the largest industry in Eastern Europe, produced \$696 million worth of computer equipment in 1978 (table 3). This may be compared, with computer production in West Germany, which reached \$2,711 million in 1978 or nearly four times the East German figure.¹⁷ Corresponding output in the United States was more than 20 times that of East Germany.¹⁸ The importance, however, of the East European countries lies not in the size of their industries but rather in their complementary and supplementary contributions to the computer capabilities of each other and the Soviet Union.

IV. IMPORTS FROM THE WEST

The six countries of Eastern Europe began importing Western computers in significant numbers during the 1960's. At least 237 Western computers were obtained during the decade by these countries and by 1970 these imports comprised nearly one-fifth of their installed inventory.¹⁹ The importance of these imports, however, varied from country to country. For example, Western machines made up only 4 percent of East Germany's 1970 inventory while they comprised nearly 50 percent of the total in Hungary. The remaining machines in these countries were obtained mainly from the U.S.S.R., except in East Germany and Poland where domestically-produced computers made up a substantial share of their total. All of the Eastern countries desired to lessen their dependence on Western models, but the non-availability of modern, reliable computers from the U.S.S.R., or each other forced them to continue their reliance on the West for priority needs.

A. Value

Partly as a result of a substantial liberalization of the COCOM²⁰ embargo on computer sales to Communist countries, Western exports to Eastern Europe began to pick up speed in the early 1970's. In 1972,

¹⁶ J. Toth, "Developments in Romania—On the Basis of Licenses", Szamitastechnika, Budapest, July-August 1979, p. 9.

¹⁷ Based on figures for West Germany in *Statistisches Jahrbuch 1979*, Stuttgart, 1979, pp. 185-189.

¹⁸ Value of shipments data. See *Handbook of Economic Statistics 1979*, op. cit. p. 189.

¹⁹ I. Berenyi, "Computers in Eastern Europe," *Scientific American*, October 1970, pp. 102-108.

²⁰ COCOM (Coordinating Committee) is a voluntary organization of NATO countries (minus Iceland) and Japan that was established in 1950 to develop and administer export control policies. COCOM meets regularly in Paris to consider changes in the list of embargoed commodities and to decide on requests for exceptions to the embargo.

the first year for which detailed statistics have been compiled, the value of exports of all computer equipment was more than \$51 million. Since then, shipments have increased yearly (with the exception of 1976), reaching a peak of \$119 million in 1978. During 1972-78 total shipments were roughly \$639 million, almost double the comparable figure for the U.S.S.R. Tables 4 through 10 provide data on the value of imports from the West for each Eastern country individually and for the region as a whole; table 11 shows comparative figures for the U.S.S.R.²¹

TABLE 4.—BULGARIA: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78¹

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Large computer systems:								
United States ²	763	0	0	2, 188	0	2, 960	10, 589	16, 500
Western Europe:								
West Germany.....	0	0	1, 718	2, 547	0	0	0	4, 265
United Kingdom.....	0	0	954	0	0	0	0	954
Subtotal.....	0	0	2, 671	2, 547	0	0	0	5, 219
Japan.....	0	0	1, 888	0	3, 028	1, 181	0	6, 097
Subtotal, large computers.....	763	0	4, 559	4, 735	3, 028	4, 140	10, 589	27, 815
Minicomputer systems:								
United States.....	58	265	1, 334	35	2, 424	338	562	5, 015
Western Europe:								
West Germany.....	0	0	47	226	1, 294	0	15	1, 582
United Kingdom.....	93	237	0	0	91	374	0	795
Denmark.....	0	590	307	376	0	1, 255	0	2, 528
Subtotal.....	93	827	354	601	1, 385	1, 629	15	4, 904
Japan.....	0	0	0	0	0	197	0	197
Subtotal, minicomputers.....	151	1, 092	1, 688	637	3, 808	2, 165	577	10, 117
Peripheral equipment:								
United States.....	361	28	88	1, 442	75	34	621	2, 650
Western Europe:³								
West Germany.....	7	104	114	3	262	503	945	1, 939
United Kingdom.....	587	354	113	753	173	0	0	1, 980
Belgium.....	0	0	472	97	0	0	104	673
France.....	0	0	0	157	0	0	0	157
Denmark.....	0	0	0	88	0	0	0	88
Italy.....	21	0	0	0	0	26	0	46
Canada.....	0	0	0	0	0	9	0	9
Subtotal.....	615	459	699	1, 097	435	537	1, 049	4, 891
Japan.....	81	0	0	228	0	0	0	309
Subtotal, peripheral equipment.....	1, 057	486	787	2, 767	510	572	1, 670	7, 849
Technology:								
United States.....	0	674	1, 260	66	71	0	0	2, 069
Western Europe:								
West Germany.....	0	0	3	0	0	0	0	3
United Kingdom.....	67	16	731	0	0	0	0	815
Netherlands.....	133	0	0	0	0	0	0	133
Subtotal.....	200	16	734	0	0	0	0	950
Subtotal, technology.....	200	690	1, 993	66	71	0	0	3, 019

See footnotes at end of table.

²¹ For a complete discussion of Soviet imports, see K. Tasky, "Soviet Technology Gap and Dependence on the West: The Case of Computers," *Soviet Economy in a Time of Change*, Joint Economic Committee, Congress of the United States, Washington, D.C., 1979, Vol. I, pp. 510-523.

TABLE 4.—BULGARIA: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78¹—Continued

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Spare parts:								
United States.....	81	59	588	271	562	167	434	2,161
Western Europe:								
West Germany.....	16	0	0	0	41	53	101	211
United Kingdom.....	184	4	127	160	0	0	0	475
France.....	0	0	0	0	21	0	0	21
Denmark.....	0	0	0	77	0	0	0	77
Subtotal.....	200	4	127	236	62	53	101	783
Japan.....	0	0	0	25	0	0	0	25
Subtotal, spare parts.....	281	63	715	533	624	220	534	2,970
Total equipment:								
United States.....	1,263	1,025	3,270	4,002	3,131	3,499	12,206	28,395
Western Europe:								
West Germany.....	23	104	1,881	2,776	1,597	556	1,060	7,998
United Kingdom.....	932	611	1,925	913	264	374	0	5,019
Belgium.....	0	0	472	97	0	0	104	673
France.....	0	0	0	157	21	0	0	178
Denmark.....	0	590	307	540	0	1,255	0	2,692
Netherlands.....	133	0	0	0	0	0	0	133
Italy.....	21	0	0	0	0	26	0	46
Canada.....	0	0	0	0	0	9	0	9
Subtotal.....	1,108	1,306	4,585	4,482	1,882	2,220	1,164	16,747
Japan.....	81	0	1,888	254	3,028	1,378	0	6,628
Total.....	2,452	2,331	9,743	8,737	8,041	7,096	13,370	51,770

¹ Totals may not add due to rounding.² All U.S. figures exclude equipment produced by overseas subsidiaries.³ For the purpose of this table, includes Canada.TABLE 5.—CZECHOSLOVAKIA: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78¹

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Large computer systems:								
United States ²	202	441	850	2,970	6,353	5,578	2,226	18,619
Western Europe:								
West Germany.....	4,843	7,754	2,007	5,652	1,574	15,616	6,042	43,488
United Kingdom.....	0	2,628	1,003	5,394	0	4,190	1,281	14,496
France.....	98	0	0	0	0	51	0	148
Italy.....	0	0	225	0	0	0	0	225
Subtotal.....	4,940	10,382	3,235	11,046	1,574	19,857	7,323	58,357
Subtotal, large computers.....	5,142	10,823	4,085	14,017	7,926	25,435	9,549	76,977
Minicomputer systems:								
United States.....	1,256	1,044	2,200	5,815	5,310	2,863	4,990	23,478
Western Europe:								
West Germany.....	1,823	594	3,496	1,074	2,943	605	3,081	13,617
United Kingdom.....	187	232	2,193	2,528	265	448	1,661	7,513
Belgium.....	0	0	0	0	0	0	309	309
France.....	0	0	0	21	0	0	571	591
Denmark.....	0	0	194	0	0	1,419	513	2,127
Netherlands.....	59	97	0	22	0	0	0	178
Subtotal.....	2,069	922	5,884	3,645	3,208	2,473	6,134	24,335
Japan.....	0	0	0	0	0	100	1,296	1,396
Subtotal, minicomputers.....	3,325	1,966	8,084	9,460	8,518	5,435	12,420	49,209

See footnotes at end of table.

TABLE 5.—CZECHOSLOVAKIA: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78¹—Con.

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Peripheral equipment:								
United States.....	1,653	1,664	1,820	1,897	1,398	2,224	5,580	16,236
Western Europe:								
West Germany.....	2,146	1,825	2,545	3,266	1,311	1,695	2,129	14,916
United Kingdom.....	1,323	1,305	1,342	1,829	1,383	128	2,297	9,606
Belgium.....	474	751	187	400	235	1,232	604	3,883
France.....	41	0	0	21	0	0	0	62
Denmark.....	0	0	0	59	0	173	0	233
Netherlands.....	335	117	6	25	73	47	52	655
Italy.....	40	64	39	0	73	597	0	814
Subtotal.....	4,359	4,062	4,120	5,600	3,075	3,871	5,081	30,169
Subtotal, peripheral equip- ment.....	6,013	5,726	5,940	7,497	4,473	6,095	10,661	46,405
Technology:								
United States.....	66	177	43	70	83	286	281	1,006
Western Europe:								
West Germany.....	0	1	0	0	0	0	0	1
United Kingdom.....	0	0	21	0	0	0	0	21
Belgium.....	0	2	0	0	0	0	0	2
Netherlands.....	2	25	0	0	0	11	0	37
Subtotal.....	2	28	21	0	0	11	0	62
Subtotal, technology.....	68	206	64	70	83	296	281	1,068
Spare parts:								
United States.....	1,428	1,000	1,807	1,893	1,857	812	895	9,692
Western Europe:								
West Germany.....	96	51	197	118	262	533	653	1,909
United Kingdom.....	1,314	33	955	1,499	513	1,579	691	6,586
Belgium.....	0	22	0	21	23	43	0	109
Denmark.....	0	0	0	39	0	0	0	39
Italy.....	0	0	0	1	0	0	0	1
Subtotal.....	1,410	107	1,152	1,678	799	2,155	1,344	8,644
Subtotal, spare parts.....	2,838	1,107	2,960	3,571	2,656	2,967	2,239	18,336
Total equipment:								
United States.....	4,606	4,326	6,721	12,645	14,999	11,762	13,972	69,032
Western Europe:								
West Germany.....	8,908	10,225	8,246	10,110	6,090	18,449	11,904	73,932
United Kingdom.....	2,823	4,198	5,514	11,250	2,162	6,345	5,930	38,223
Belgium.....	474	775	187	420	259	1,275	912	4,303
France.....	139	0	0	42	0	51	571	802
Denmark.....	0	0	194	98	0	1,593	513	2,398
Netherlands.....	396	239	6	47	73	57	52	870
Italy.....	40	64	264	1	73	597	0	1,040
Subtotal.....	12,781	15,502	14,412	21,969	8,656	28,366	19,883	121,568
Japan.....	0	0	0	0	0	100	1,296	1,396
Total.....	17,387	19,828	21,133	34,614	23,656	40,228	35,150	191,995

¹ Totals may not add due to rounding.² All U.S. figures exclude equipment produced by overseas subsidiaries.

TABLE 6.—EAST GERMANY: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78¹

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Large computer systems:								
Western Europe:								
West Germany.....	0	0	0	0	3,696	734	0	4,430
Minicomputer systems:								
United States ²	49	322	326	467	1,940	331	2,458	5,895
Western Europe:								
West Germany.....	0	268	72	0	1,068	0	165	1,574
United Kingdom.....	0	0	0	0	0	173	25	198
Denmark.....	0	0	57	0	0	0	0	57
Subtotal.....	0	268	129	0	1,068	173	190	1,829
Japan.....	951	0	0	0	0	0	1,243	2,193
Subtotal, minicomputers.....	1,000	590	456	467	3,008	504	3,891	9,917
Peripheral equipment:								
United States.....	655	180	499	263	9	201	31	1,839
Western Europe:								
West Germany.....	1,397	0	258	681	0	126	0	2,462
United Kingdom.....	131	0	0	522	0	23	0	675
Belgium.....	0	0	0	81	31	0	0	111
France.....	79	0	107	0	0	0	0	186
Netherlands.....	0	0	0	0	75	0	738	813
Italy.....	0	0	0	55	0	0	0	55
Subtotal.....	1,606	0	365	1,338	106	150	738	4,302
Subtotal, peripheral equipment.....	2,261	180	864	1,600	115	350	769	6,141
Technology:								
United States.....	0	18	0	0	0	14	868	901
Western Europe: Denmark.....	0	0	0	0	0	121	0	121
Subtotal, technology.....	0	18	0	0	0	135	868	1,022
Spare parts:								
United States.....	744	104	907	486	1,099	122	726	4,188
Western Europe:								
West Germany.....	50	21	160	185	7	121	49	591
United Kingdom.....	340	0	257	10	0	306	0	914
Subtotal.....	391	21	417	196	7	427	49	1,506
Subtotal, spare parts.....	1,135	124	1,324	682	1,106	549	774	5,694
Total equipment:								
United States.....	1,449	625	1,732	1,216	3,049	668	4,084	12,823
Western Europe:								
West Germany.....	1,447	289	490	866	4,770	981	214	9,057
United Kingdom.....	471	0	257	532	0	502	25	1,787
Belgium.....	0	0	0	81	31	0	0	111
France.....	79	0	107	0	0	0	0	186
Denmark.....	0	0	57	0	0	121	0	178
Netherlands.....	0	0	0	0	75	0	738	813
Italy.....	0	0	0	55	0	0	0	55
Subtotal.....	1,997	289	911	1,533	4,876	1,604	977	12,186
Japan.....	951	0	0	0	0	0	1,243	2,193
Total.....	4,397	914	2,643	2,749	7,925	2,272	6,303	27,203

¹ Totals may not add due to rounding.² All U.S. figures exclude equipment produced by overseas subsidiaries.

TABLE 7.—HUNGARY: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78¹

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Large computer systems:								
United States ²	806	0	2,713	0	0	0	0	3,518
Western Europe:								
West Germany.....	1,728	6,585	1,582	0	2,128	3,039	2,486	17,548
United Kingdom.....	1,179	0	0	0	0	0	0	1,179
Belgium.....	0	0	1,326	0	0	0	0	1,326
France.....	0	0	671	3,279	995	0	0	4,945
Italy.....	0	0	110	0	0	0	0	110
Subtotal.....	2,907	6,585	3,689	3,279	3,124	3,039	2,486	25,108
Subtotal, large computers.....	3,713	6,585	6,401	3,279	3,124	3,039	2,486	28,626
Minicomputer systems:								
United States.....	690	68	23	1,770	1,961	1,229	1,111	6,851
Western Europe:³								
West Germany.....	0	111	103	622	130	263	212	1,440
United Kingdom.....	0	264	223	103	0	0	103	693
France.....	0	0	0	1	0	0	0	1
Denmark.....	0	0	1,759	230	392	603	1,922	4,906
Netherlands.....	0	1,001	22	0	0	0	0	1,023
Canada.....	0	0	0	0	0	0	299	299
Subtotal.....	0	1,375	2,107	955	522	866	2,536	8,361
Japan.....	0	0	0	0	1,131	0	0	1,131
Subtotal, minicomputers.....	690	1,444	2,130	2,724	3,614	2,095	3,647	16,343
Peripheral equipment:								
United States.....	2,382	1,261	869	1,632	892	303	2,944	10,282
Western Europe:								
West Germany.....	397	167	1,517	908	740	2,254	1,060	7,043
United Kingdom.....	295	718	856	527	1,891	114	760	5,160
Belgium.....	137	246	163	301	428	2,081	1,692	5,048
France.....	148	0	0	0	39	114	0	300
Denmark.....	0	0	58	200	0	0	84	342
Netherlands.....	0	0	12	76	18	167	237	510
Italy.....	0	54	0	0	0	0	0	54
Subtotal.....	977	1,184	2,606	2,011	3,117	4,729	3,834	18,457
Subtotal, peripheral equipment.....	3,358	2,445	3,475	3,643	4,009	5,031	6,777	28,739
Technology:								
United States.....	424	434	3,686	495	2,158	1,479	0	8,675
Western Europe:								
United States.....	0	97	0	52	0	0	0	148
United Kingdom.....	0	270	806	0	0	0	0	1,075
Denmark.....	0	0	0	0	0	17	0	17
Subtotal.....	0	366	806	52	0	17	0	1,240
Subtotal, technology.....	424	800	4,491	546	2,158	1,496	0	9,916
Spare parts:								
United States.....	759	328	951	958	886	504	1,213	5,597
Western Europe:								
West Germany.....	160	239	162	2	289	51	347	1,249
United Kingdom.....	973	5	1,076	926	13	1,015	0	4,008
France.....	0	0	0	0	653	0	0	653
Denmark.....	0	0	0	59	0	0	0	59
Italy.....	5	3	0	0	0	0	0	8
Subtotal.....	1,137	247	1,238	987	955	1,065	347	5,976
Subtotal, spare parts.....	1,896	575	2,189	1,945	1,840	1,569	1,560	11,573

See footnotes at end of table.

TABLE 7.—HUNGARY: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78—Continued

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Total equipment:								
United States.....	5,060	2,090	8,241	4,854	5,896	3,514	5,268	34,924
Western Europe:								
West Germany.....	2,285	7,197	3,364	1,583	3,287	5,606	4,104	27,427
United Kingdom.....	2,447	1,257	2,960	1,556	1,904	1,129	863	12,115
Belgium.....	137	246	1,489	301	428	2,081	1,692	6,374
France.....	148	0	671	3,280	1,686	114	0	5,898
Denmark.....	0	0	1,817	489	392	620	2,006	5,325
Netherlands.....	0	1,001	34	76	18	167	237	1,533
Italy.....	5	57	110	0	0	0	0	172
Canada.....	0	0	0	0	0	0	299	299
Subtotal.....	5,021	9,758	10,445	7,284	7,717	9,716	9,202	59,143
Japan.....	0	0	0	0	1,131	0	0	1,131
Total.....	10,081	11,848	18,686	12,138	14,744	13,230	14,469	95,197

1 Totals may not add due to rounding.

2 All U.S. figures exclude equipment produced by overseas subsidiaries.

3 For the purpose of this table, includes Canada.

TABLE 8.—POLAND: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78¹

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Large computer systems:								
United States ²	3,119	2,424	1,387	5,879	2,448	2,200	2,935	20,392
Minicomputer systems:								
Western Europe:								
West Germany.....	0	3,755	8,535	2,075	0	3,920	3,466	21,751
United Kingdom.....	3,801	2,741	2,645	2,363	0	0	0	11,551
Belgium.....	0	1,801	95	0	0	0	0	1,896
France.....	0	2,874	0	2,849	0	806	0	6,529
Subtotal.....	3,801	11,171	11,276	7,288	0	4,726	3,466	41,727
Subtotal, large computers.....	6,920	13,595	12,663	13,166	2,448	6,926	6,400	62,118
Minicomputer systems:								
United States.....	47	1,929	1,595	2,566	4,918	2,852	1,246	15,154
Western Europe:³								
West Germany.....	114	786	398	613	561	957	338	3,766
United Kingdom.....	0	844	4,246	6,726	1,187	569	1,587	15,159
Belgium.....	0	0	0	1,113	0	46	72	1,232
France.....	0	0	0	410	378	716	0	1,504
Denmark.....	0	0	1,487	2,607	196	1,528	385	6,202
Italy.....	0	0	831	0	138	0	0	969
Canada.....	0	0	0	0	0	801	93	894
Norway.....	0	0	0	201	0	0	0	201
Subtotal.....	114	1,630	6,961	11,669	2,460	4,617	2,475	29,926
Japan.....	937	0	0	0	3,756	1,735	4,698	11,126
Subtotal, minicomputers.....	1,098	3,559	8,556	14,235	11,135	9,204	8,420	56,206

See footnotes at end of table.

TABLE 8.—POLAND: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78—Continued

(In thousands of U.S. dollars)

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Peripheral equipment:								
United States.....	316	1,542	685	3,233	1,663	802	1,039	9,279
Western Europe:								
West Germany.....	544	409	2,149	3,326	747	725	1,152	9,050
United Kingdom.....	2,636	3,484	5,661	3,606	2,960	4,240	1,376	23,962
Belgium.....	1	0	294	244	196	1,059	232	2,026
France.....	0	755	0	786	42	316	288	2,188
Denmark.....	0	0	0	246	0	38	193	477
Netherlands.....	9	0	5	0	0	50	36	99
Italy.....	0	0	0	534	46	0	0	581
Subtotal.....	3,189	4,648	8,109	8,742	3,990	6,427	3,275	38,382
Japan.....	0	0	0	0	0	592	0	592
Subtotal, peripheral equipment.....	3,505	6,190	8,794	11,975	5,654	7,821	4,314	48,253
Technology:								
United States.....	1,245	680	755	63	1,365	138	151	4,397
Western Europe:								
West Germany.....	0	34	0	6	6	0	32	78
United Kingdom.....	12	241	780	119	0	18	0	1,171
France.....	0	0	0	314	0	0	0	314
Netherlands.....	0	111	0	0	0	0	0	111
Subtotal.....	12	386	780	439	6	18	32	1,674
Japan.....	0	0	0	0	80	0	0	80
Subtotal, technology.....	1,257	1,066	1,535	503	1,451	157	183	6,151
Spare parts:								
United States.....	454	648	1,067	1,677	2,142	502	1,151	7,642
Western Europe:								
West Germany.....	0	0	0	49	253	91	105	497
United Kingdom.....	680	0	1,613	1,945	347	3,954	50	8,590
Belgium.....	0	0	0	0	0	16	0	16
France.....	0	0	0	0	130	0	0	130
Denmark.....	0	0	0	40	0	0	0	40
Subtotal.....	680	0	1,613	2,034	731	4,060	155	9,273
Subtotal, spare parts.....	1,135	648	2,681	3,711	2,873	4,562	1,306	16,915
Total equipment:								
United States.....	5,181	7,223	5,489	13,418	12,536	6,495	6,522	56,863
Western Europe:								
West Germany.....	658	4,984	11,082	6,068	1,566	5,692	5,092	35,143
United Kingdom.....	7,129	7,310	14,946	14,759	4,494	8,780	3,013	60,431
Belgium.....	1	1,801	390	1,357	196	1,120	304	5,169
France.....	0	3,629	0	4,359	551	1,839	288	10,665
Denmark.....	0	0	1,487	2,893	196	1,566	578	6,719
Netherlands.....	9	111	5	0	0	50	36	210
Italy.....	0	0	831	534	184	0	0	1,549
Canada.....	0	0	0	0	0	801	93	894
Norway.....	0	0	0	201	0	0	0	201
Subtotal.....	7,797	17,835	28,739	30,172	7,186	19,848	9,403	120,981
Japan.....	937	0	0	0	3,837	2,327	4,698	11,799
Total.....	13,915	25,057	34,228	43,590	23,560	28,669	20,624	189,643

1 Totals may not add due to rounding.

2 All U.S. figures exclude equipment produced by overseas subsidiaries.

3 For the purpose of this table, includes Canada

TABLE 9.—ROMANIA: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78¹

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Large computer systems:								
United States	0	1,360	980	1,769	0	0	0	4,109
Western Europe:								
West Germany	0	0	0	33	0	0	0	33
United Kingdom	610	0	684	0	0	1,569	0	2,864
France	518	0	0	0	0	0	0	518
Subtotal	1,128	0	684	33	0	1,569	0	3,414
Subtotal, large computers	1,128	1,360	1,664	1,802	0	1,569	0	7,523
Minicomputer systems:								
United States	46	600	364	2,400	26	2,035	1,687	7,156
Western Europe:								
West Germany	0	281	1,301	436	101	0	188	2,307
United Kingdom	29	0	22	0	65	0	432	548
Belgium	0	0	0	0	0	12	0	12
France	51	0	0	155	0	0	0	206
Denmark	0	0	144	208	0	0	339	692
Subtotal	79	281	1,467	800	166	12	959	3,764
Subtotal, minicomputers	125	881	1,831	3,199	191	2,047	2,646	10,921
Peripheral equipment:								
United States	310	100	119	713	1,034	2,130	9,245	13,651
Western Europe:								
West Germany	465	20	23	190	64	8	0	771
United Kingdom	364	396	461	578	186	0	0	1,986
Belgium	15	2,006	1,726	1,802	882	2,093	426	8,951
France	33	102	0	0	0	0	0	136
Denmark	0	0	0	0	0	75	0	75
Netherlands	0	0	0	0	0	128	398	526
Italy	0	358	20	0	0	0	0	378
Subtotal	878	2,884	2,230	2,571	1,132	2,303	825	12,822
Subtotal, peripheral equip- ment	1,187	2,984	2,349	3,284	2,166	4,434	10,070	26,473
Technology:								
United States	0	4,415	129	4,014	1,232	6,729	13,948	30,466
Western Europe:								
Belgium	151	251	0	652	4	0	821	1,878
Netherlands	0	0	0	0	0	6	77	84
Subtotal	151	251	0	652	4	6	898	1,962
Subtotal, technology	151	4,665	129	4,665	1,236	6,736	14,846	32,428
Spare parts:								
United States	51	289	522	1,074	169	737	1,586	4,428
Western Europe:								
West Germany	0	73	86	0	108	0	0	268
United Kingdom	170	3	222	161	0	0	0	557
Belgium	0	24	129	103	61	149	11	476
Denmark	0	0	0	0	11	0	0	11
Subtotal	170	101	437	264	179	149	11	1,311
Subtotal, spare parts	221	390	959	1,338	349	886	1,597	5,739

See footnotes at end of table.

TABLE 9.—ROMANIA: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78:—Continued

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Total equipment:								
United States.....	407	6,764	2,113	9,969	2,460	11,631	26,465	59,810
Western Europe:								
West Germany.....	465	375	1,411	659	273	8	188	3,378
United Kingdom.....	1,173	400	1,389	739	251	1,569	432	5,954
Belgium.....	167	2,280	1,855	2,556	946	2,254	1,258	11,317
France.....	602	102	0	155	0	0	0	859
Denmark.....	0	0	144	208	11	75	339	777
Netherlands.....	0	0	0	0	0	134	476	610
Italy.....	0	358	20	0	0	0	0	378
Subtotal.....	2,407	3,516	4,818	4,318	1,481	4,040	2,694	23,274
Total.....	2,813	10,280	6,932	14,288	3,942	15,671	29,158	83,084

¹ Totals may not add due to rounding.² All U.S. figures exclude equipment produced by overseas subsidiaries.TABLE 10.—EASTERN EUROPE: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78¹

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Large computer systems:								
United States ²	4,889	4,226	5,930	12,806	8,800	10,738	15,750	63,138
Western Europe:								
West Germany.....	6,571	18,094	13,842	10,307	7,398	23,309	11,993	91,514
United Kingdom.....	5,590	5,369	5,285	7,757	0	5,760	1,281	31,042
Belgium.....	0	1,801	1,421	0	0	0	0	3,222
France.....	616	2,874	671	6,129	995	857	0	12,141
Italy.....	0	0	336	0	0	0	0	336
Subtotal.....	12,777	28,138	21,555	24,193	8,393	29,925	13,274	138,255
Japan.....	0	0	1,888	0	3,028	1,181	0	6,097
Subtotal, large computers.....	17,666	32,363	29,372	36,999	20,222	41,844	29,024	207,490
Minicomputer systems:								
United States.....	2,145	4,228	5,842	13,053	16,579	9,648	12,054	63,549
Western Europe:³								
West Germany.....	1,938	2,039	5,417	2,970	6,096	1,826	3,999	24,286
United Kingdom.....	309	1,577	6,684	9,357	1,608	1,564	3,807	24,906
Belgium.....	0	0	0	1,113	0	58	381	1,552
France.....	51	0	0	586	378	716	571	2,301
Denmark.....	0	590	3,948	3,420	588	4,805	3,160	16,511
Netherlands.....	59	1,097	22	22	0	0	0	1,201
Italy.....	0	0	831	0	138	0	0	969
Canada.....	0	0	0	0	0	801	392	1,193
Norway.....	0	0	0	201	0	0	0	201
Subtotal.....	2,356	5,304	16,902	17,669	8,808	9,770	12,310	73,119
Japan.....	1,888	0	0	0	4,887	2,032	7,236	16,043
Subtotal, minicomputers.....	6,389	9,531	22,744	30,722	30,274	21,450	31,600	152,712

See footnotes at end of table.

TABLE 10.—EASTERN EUROPE: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78—Con.

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Peripheral equipment:								
United States.....	5,677	4,774	4,081	9,180	5,071	5,693	19,460	53,936
Western Europe:								
West Germany.....	4,956	2,525	6,606	8,374	3,124	5,310	5,285	36,180
United Kingdom.....	5,335	6,258	8,433	7,814	6,593	4,504	4,433	43,370
Belgium.....	628	3,003	2,843	2,924	1,772	6,456	3,058	20,692
France.....	301	858	107	964	81	430	288	3,028
Denmark.....	0	0	58	593	0	286	277	1,214
Netherlands.....	344	117	23	101	166	392	1,461	2,603
Italy.....	60	476	59	589	120	623	0	1,926
Canada.....	0	0	0	0	0	9	0	9
Subtotal.....	11,624	13,237	18,128	21,358	11,856	18,017	14,802	109,022
Japan.....	81	0	0	228	0	592	0	901
Subtotal, peripheral equipment.....	17,382	18,011	22,209	30,766	16,927	24,303	34,262	163,859
Technology:								
United States.....	1,735	6,398	5,872	4,707	4,908	8,647	15,248	47,515
Western Europe:								
West Germany.....	0	132	3	57	6	0	32	230
United Kingdom.....	80	526	2,338	119	0	18	0	3,082
Belgium.....	151	253	0	652	4	0	821	1,880
France.....	0	0	0	314	0	0	0	314
Denmark.....	0	0	0	0	0	138	0	138
Netherlands.....	135	136	0	0	0	17	77	365
Subtotal.....	366	1,047	2,341	1,142	9	173	930	6,009
Japan.....	0	0	0	0	80	0	0	80
Subtotal, technology.....	2,101	7,445	8,213	5,849	4,997	8,820	16,178	53,603
Spare Parts:								
United States.....	3,518	2,428	5,841	6,359	6,715	2,842	6,005	33,709
Western Europe:								
West Germany.....	322	383	605	354	960	848	1,253	4,725
United Kingdom.....	3,661	46	4,251	4,702	874	6,854	742	21,130
Belgium.....	0	46	129	123	84	207	11	600
France.....	0	0	0	0	804	0	0	804
Denmark.....	0	0	0	214	11	0	0	225
Italy.....	5	3	0	1	0	0	0	9
Subtotal.....	3,988	479	4,985	5,395	2,732	7,909	2,006	27,494
Japan.....	0	0	0	25	0	0	0	25
Subtotal, spare parts.....	7,506	2,907	10,827	11,779	9,447	10,751	8,010	61,228
Total equipment:								
United States.....	17,964	22,053	27,566	46,105	42,072	37,569	68,517	261,847
Western Europe:								
West Germany.....	13,787	23,174	26,473	22,062	17,584	31,292	22,563	156,936
United Kingdom.....	14,975	13,777	26,992	29,749	9,075	18,700	10,263	123,530
Belgium.....	779	5,103	4,392	4,812	1,860	6,730	4,270	27,946
France.....	968	3,731	777	7,993	2,258	2,003	858	18,588
Denmark.....	0	590	4,006	4,227	598	5,228	3,437	18,087
Netherlands.....	538	1,350	45	123	166	409	1,539	4,169
Italy.....	65	479	1,225	590	257	623	0	3,240
Canada.....	0	0	0	0	0	809	392	1,201
Norway.....	0	0	0	201	0	0	0	201
Subtotal.....	31,111	48,204	63,911	69,757	31,799	65,794	43,322	353,898
Japan.....	1,969	0	1,888	254	7,996	3,804	7,236	23,147
Total.....	51,044	70,257	93,365	116,116	81,867	107,167	119,075	638,892

1 Totals may not add due to rounding.

2 All U.S. figures exclude equipment produced by overseas subsidiaries.

3 For the purpose of this table, includes Canada.

TABLE 11.—U.S.S.R.: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78¹

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Large computer systems:								
United States ²	3,621	0	2,302	15,293	13,629	12,725	29,485	77,056
Western Europe:								
West Germany.....	6,102	0	0	2,411	0	10,799	10,113	29,425
United Kingdom.....	1,290	1,192	0	0	0	0	789	3,270
France.....	4,117	1,691	3,404	4,394	4,361	4,561	4,182	26,710
Italy.....	494	0	0	0	0	0	0	494
Subtotal.....	12,003	2,882	3,404	6,805	4,361	15,360	15,085	59,900
Japan.....	861	0	0	0	0	5,522	0	6,382
Subtotal, large computers.....	16,484	2,882	5,706	22,098	17,990	33,607	44,570	143,338
Minicomputers:								
United States.....	4,870	4,773	6,331	18,320	12,792	9,261	26,543	82,890
Western Europe:³								
West Germany.....	206	3,058	3,092	7,155	2,514	1,957	1,259	19,240
United Kingdom.....	489	1,428	540	5,830	6,442	8,709	4,694	28,133
Belgium.....	0	0	0	0	0	0	275	275
France.....	0	0	89	537	201	0	5,230	6,056
Denmark.....	0	0	11	141	0	0	0	152
Netherlands.....	65	66	312	293	0	0	0	736
Canada.....	0	0	31	0	115	0	0	146
Norway.....	0	0	0	0	0	0	345	345
Subtotal.....	759	4,552	4,076	13,955	9,273	10,666	11,802	55,083
Japan.....	0	941	1,002	58	2,973	1,031	4,620	10,626
Subtotal, minicomputers.....	5,629	10,266	11,409	32,334	25,037	20,959	42,966	148,599
Peripheral equipment:								
United States.....	1,545	1,246	840	1,844	2,257	5,018	3,185	15,935
Western Europe:								
West Germany.....	28	915	543	787	229	1,318	4,538	8,358
United Kingdom.....	1,425	2,105	1,284	3,998	1,189	1,773	682	12,455
Belgium.....	0	71	0	0	128	25	182	406
France.....	739	551	38	46	147	1,724	1,219	4,464
Netherlands.....	33	10	20	6	0	8	0	77
Italy.....	0	0	19	0	0	0	0	19
Subtotal.....	2,225	3,653	1,903	4,837	1,693	4,848	6,622	25,780
Japan.....	64	0	0	0	0	0	0	64
Subtotal, peripheral equipment.....	3,834	4,898	2,744	6,681	3,950	9,866	9,806	41,779
Technology:								
United States.....	0	73	94	165	20	0	131	482
Western Europe:								
West Germany.....	0	0	2	0	0	0	0	2
Belgium.....	0	0	0	0	9	0	0	9
Canada.....	0	0	0	0	0	561	0	561
Subtotal.....	0	0	2	0	9	561	0	571
Japan.....	0	824	0	0	0	0	0	824
Subtotal, technology.....	0	896	96	165	28	561	131	1,876
Spare parts:								
United States.....	896	326	1,041	1,632	2,415	3,448	1,246	11,005
Western Europe:								
West Germany.....	27	89	0	127	340	5	654	1,243
United Kingdom.....	587	0	1,097	1,354	0	755	0	3,793
France.....	0	0	0	282	0	451	409	1,142
Subtotal.....	614	89	1,097	1,762	340	1,211	1,064	6,177
Subtotal, spare parts.....	1,510	415	2,138	3,394	2,756	4,659	2,310	17,182

See footnotes at end of table.

TABLE 11.—U.S.S.R.: VALUE OF IMPORTS OF COMPUTER EQUIPMENT FROM THE WEST, 1972-78—Continued

[In thousands of U.S. dollars]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Total computers:								
United States.....	10,932	6,417	10,608	37,254	31,113	30,453	60,590	187,368
Western Europe:								
West Germany.....	6,362	4,063	3,637	10,480	3,083	14,079	16,565	58,268
United Kingdom.....	3,790	4,724	2,921	11,181	7,632	11,237	6,165	47,651
Belgium.....	0	71	0	0	136	25	457	689
France.....	4,856	2,241	3,531	5,259	4,709	6,736	11,040	38,372
Denmark.....	0	0	11	141	0	0	0	152
Netherlands.....	99	76	332	299	0	8	0	813
Italy.....	494	0	19	0	0	0	0	514
Canada.....	0	0	31	0	115	561	0	706
Norway.....	0	0	0	0	0	0	345	345
Subtotal.....	15,601	11,176	10,482	27,360	15,675	32,645	34,572	147,511
Japan.....	924	1,764	1,002	58	2,973	6,553	4,620	17,896
Total.....	27,458	19,358	22,092	64,672	49,760	69,652	99,782	352,774

¹ Totals may not add due to rounding.² All U.S. figures exclude equipment produced by overseas subsidiaries.³ For the purpose of this table, includes Canada.

For the total period in Eastern Europe, computers comprised more than half (56 percent) the value of imports.²² About 26 percent of the total was composed of peripheral equipment²³ with the remainder consisting of spare parts (10 percent) and technology imports (8 percent). This pattern contrasts sharply with that for the U.S.S.R. where the value of Western computer imports during 1972-78 made up 83 percent of total imports, nearly equally divided between large systems and minicomputers. Peripheral equipment was 12 percent, spare parts were 5 percent, and the value of technology imports was less than 1 percent of total Soviet imports.

Several factors help account for these differences. First, the Soviet Union purchased larger, more costly computer systems than did the East Europeans.²⁴ Second, East European computer users have relied more on the West for peripherals to support indigenous computers than has the U.S.S.R. Soviet requests for peripherals to support domestically-produced computers have generally not been approved. Finally, technology imports have played a much more significant role in Eastern Europe than in the U.S.S.R. The computer industries of Eastern Europe are generally less advanced than their Soviet counterparts and find it useful to buy older technology that the West is willing to provide. The Soviets, on the other hand, have been looking for more

²² 58 percent of this is large computers and 42 percent is minicomputers.²³ The separate figures for peripherals include only those sold to computer users for upgrading the capability of their computers, and not those sold to computer manufacturers.²⁴ The average cost of a large computer system imported by the U.S.S.R. was over \$2.1 million versus about \$1.2 million for Eastern Europe; corresponding figures for minicomputers were \$163.7 thousand versus \$135.6 thousand.

advanced technology to upgrade their industry that the West, for the most part, has not been willing to sell them.

The largest importers of Western computer equipment over the 1972-78 period were Czechoslovakia and Poland (table 12). Each accounted for about 30 percent of the value of imports. They were followed by Hungary, Romania, Bulgaria, and East Germany. Many factors account for this varying dependence on Western imports, including the size and stage of development of the indigenous computer industry, the extent of use of computers in the economy, and the tradition of dependence on Western imports. Thus, for example, Czechoslovakia had little computer manufacturing capability and a historical orientation toward trade with the West. Similarly, although Bulgaria's computer industry was small and its desires for imports from the West were great, the amount of computer equipment it was able to import was restricted by its ability to pay and by the lack of trained personnel to use the imports. East Germany, on the other hand, had a relatively large, well developed computer industry and was able to meet many of its needs internally. Also East Germany, historically, has favored the Soviets for those items it could not produce itself. Thus, it exhibits a pattern of very small computer imports from the West.

TABLE 12.—EASTERN EUROPE: DISTRIBUTION OF THE VALUE OF COMPUTER IMPORTS FROM THE WEST, 1972-78¹

[In percent]

	1972	1973	1974	1975	1976	1977	1978	1972-78
Bulgaria.....	5	3	10	8	10	7	11	8
Czechoslovakia.....	34	28	23	30	29	38	30	30
East Germany.....	9	1	3	2	10	2	5	4
Hungary.....	20	17	20	10	18	12	12	15
Poland.....	27	36	37	38	29	27	17	30
Romania.....	6	15	7	12	5	15	24	13
Total.....	100	100	100	100	100	100	100	100

¹ Totals may not add due to rounding.

The United States dominates the overall shipments of computer equipment to Eastern Europe although not to the extent that it does to the U.S.S.R. (table 13).²⁵ Although the United States is the largest single supplier to Eastern Europe, imports from all of Western Europe make up 55 percent of the total value as against 41 percent for the United States. The United States is the leading supplier to Bulgaria, East Germany, Hungary, and Romania, while West Germany and the United Kingdom are the primary partners in Czechoslovakia and Poland, respectively. Japan and the other West European exporters play only a minor role.

²⁵ The share of the United States in exports to both the U.S.S.R. and Eastern Europe would be higher than indicated in table 10 if deliveries from foreign subsidiaries of U.S. companies, and the use of U.S. parts and peripherals in foreign systems, were credited to the United States.

TABLE 13.—U.S.S.R. AND EASTERN EUROPE: DISTRIBUTION OF THE VALUE OF COMPUTER IMPORTS BY COUNTRY OF ORIGIN AND DESTINATION, 1972-78¹

[In percent]

	Bulgaria	Czecho- slovakia	East Germany	Hungary	Poland	Romania	Total, Eastern Europe	U.S.S.R.
United States.....	55	36	47	37	30	72	41	53
Western Europe: ²								
West Germany.....	15	39	33	29	19	4	25	17
United Kingdom.....	10	20	7	13	32	7	19	14
Belgium.....	1	2	(?)	7	3	14	4	(?)
France.....	(?)	(?)	1	6	6	1	3	11
Denmark.....	5	1	1	6	4	1	3	(?)
Others ⁴	(?)	1	3	2	2	1	1	(?)
Subtotal.....	32	63	45	62	64	28	55	42
Japan.....	13	1	8	1	6	0	4	5
Total.....	100	100	100	100	100	100	100	100

¹ Totals may not add due to rounding.² Includes Canada.³ Negligible.⁴ Includes the Netherlands, Italy, Canada, and Norway.*B. Units*

The United States also figures prominently in the shipment of individual computer units to Eastern Europe (table 14). Imports over the 1972-78 period totaled 1303 units of which the U.S. directly supplied 51 percent and other countries 49 percent (table 15). If U.S. designed computers produced overseas and those purchased in the United States and resold by West Europeans are added to the U.S. figure, a total of 1055 (81 percent) were supplied directly and indirectly by the United States.

TABLE 14.—EASTERN EUROPE: IMPORTS OF COMPUTERS FROM THE WEST, 1972-78

[In units]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Bulgaria:								
Large computer systems:								
United States ¹	1	0	0	1	0	1	4	7
Other countries ²	0	0	3	1	2	1	0	7
Subtotal.....	1	0	3	2	2	2	4	14
Minicomputer systems:								
United States.....	2	1	6	1	16	6	2	34
Other countries.....	1	2	3	5	4	9	1	25
Subtotal.....	3	3	9	6	20	15	3	59
Total computers:								
United States.....	3	1	6	2	16	7	6	41
Other countries.....	1	2	6	6	6	10	1	32
Total, Bulgaria.....	4	3	12	8	22	17	7	73

See footnotes at end of table.

TABLE 14.—EASTERN EUROPE: IMPORTS OF COMPUTERS FROM THE WEST, 1972-78—Continued

(In units)

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Czechoslovakia:								
Large computer systems:								
United States.....	1	6	2	4	11	5	4	33
Other countries.....	7	8	3	12	1	9	6	46
Subtotal.....	8	14	5	16	12	14	10	79
Minicomputer systems:								
United States.....	15	8	25	46	43	34	47	218
Other countries.....	16	13	44	45	11	7	5	171
Subtotal.....	31	21	69	91	54	41	82	389
Total computers:								
United States.....	16	14	27	50	54	39	51	251
Other countries.....	23	21	47	57	12	16	41	217
Total, Czechoslovakia.....	39	35	74	107	66	55	92	468
East Germany:								
Large computer systems:								
Other countries.....	0	0	0	0	1	1	0	2
Minicomputer systems:								
United States.....	2	3	7	12	19	6	10	59
Other countries.....	1	1	4	0	1	1	6	14
Subtotal.....	3	4	11	12	20	7	16	73
Total computers:								
United States.....	2	3	7	12	19	6	10	59
Other countries.....	1	1	4	0	2	2	6	16
Total, East Germany.....	3	4	11	12	21	8	16	75
Hungary:								
Large computer systems:								
United States.....	1	0	1	0	0	0	0	2
Other countries.....	3	5	5	2	3	2	2	22
Subtotal.....	4	5	6	2	3	2	2	24
Minicomputer systems:								
United States.....	10	2	1	18	15	12	10	68
Other countries.....	0	7	20	10	8	4	16	65
Subtotal.....	10	9	21	28	23	16	26	133
Total computers:								
United States.....	11	2	2	18	15	12	10	70
Other countries.....	3	12	25	12	11	6	18	87
Total, Hungary.....	14	14	27	30	26	18	28	157
Poland:								
Large computer systems:								
United States.....	5	1	1	4	1	2	1	15
Other countries.....	2	10	12	6	0	3	1	34
Subtotal.....	7	11	13	10	1	5	2	49
Minicomputer systems:								
United States.....	2	17	25	26	26	25	18	139
Other countries.....	4	9	56	64	17	28	24	202
Subtotal.....	6	26	81	90	43	53	42	341
Total computers:								
United States.....	7	18	26	30	27	27	19	154
Other countries.....	6	19	68	70	17	31	25	236
Total, Poland.....	13	37	94	100	44	58	44	390

TABLE 14.—EASTERN EUROPE: IMPORTS OF COMPUTERS FROM THE WEST, 1972-78—Continued

[In units]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Romania:								
Large computer systems:								
United States.....	0	1	2	1	0	0	0	4
Other countries.....	2	0	1	1	0	1	0	5
Subtotal.....	2	1	3	2	0	1	0	9
Minicomputer systems:								
United States.....	1	6	9	23	1	31	17	88
Other countries.....	2	3	10	15	4	1	8	43
Subtotal.....	3	9	19	38	5	32	25	131
Total Computers:								
United States.....	1	7	11	24	1	31	17	92
Other Countries.....	4	3	11	16	4	2	8	48
Total, Romania.....	5	10	22	40	5	33	25	140
Eastern Europe:								
Large computer systems:								
United States.....	8	8	6	10	12	8	9	61
Other countries.....	14	23	24	22	7	17	9	116
Subtotal.....	22	31	30	32	19	25	18	177
Minicomputer systems:								
United States.....	32	37	73	126	120	114	104	606
Other countries.....	24	35	137	139	45	50	90	520
Subtotal.....	56	72	210	265	165	164	194	1,126
Total computers:								
United States.....	40	45	79	136	132	122	113	667
Other countries.....	38	58	161	161	52	67	99	636
Total.....	78	103	240	297	184	189	212	1,303

¹ All U.S. figures exclude equipment produced by overseas subsidiaries.² Includes Western Europe, Canada, and Japan.TABLE 15.—U.S.S.R. AND EASTERN EUROPE: DISTRIBUTION OF IMPORTED COMPUTERS BY COUNTRY OF ORIGIN AND DESTINATION, 1972-78¹

[In percent]

	Bulgaria	Czecho- slovakia	East Germany	Hungary	Poland	Romania	Total, Eastern Europe	U.S.S.R.
Large computers:								
United States.....	50	42	0	8	31	44	34	43
Other countries ²	50	58	100	92	69	56	65	57
	100	100	100	100	100	100	100	100
Minicomputers:								
United States.....	58	56	81	51	41	67	54	61
Other countries.....	43	44	19	49	59	33	46	39
	100	100	100	100	100	100	100	100
Total computers:								
United States.....	56	54	79	45	39	66	51	60
Other countries.....	44	46	21	55	60	34	49	40
Total.....	100	100	100	100	100	100	100	100

¹ Totals may not add due to rounding.² Includes Western Europe, Canada, and Japan.

East European imports consisted predominantly of minicomputers—1126 versus 177 large computer systems. The U.S. supplied 606 of the minicomputers and 61 of the large computers. If reexports and foreign produced U.S. designs were included, the U.S. contribution would rise to 932 minicomputers and 123 large computers. The ranking of importing countries by number of units (table 16) is parallel to the ranking by value of computer imports (table 13).

TABLE 16.—EASTERN EUROPE: DISTRIBUTION OF THE NUMBER OF COMPUTERS IMPORTED FROM THE WEST, 1972-78¹

[In percent]

	1972	1973	1974	1975	1976	1977	1978	1972-78
Bulgaria.....	5	3	5	3	12	9	3	6
Czechoslovakia.....	50	34	31	36	36	29	43	36
East Germany.....	4	4	5	4	11	4	8	6
Hungary.....	18	14	11	10	14	10	13	12
Poland.....	17	36	39	34	24	31	21	30
Romania.....	6	10	9	13	3	17	12	11
Total.....	100	100	100	100	100	100	100	100

¹ Totals may not add due to rounding.

For comparison, Soviet imports of Western computers are shown in table 17, together with the distribution by exporting countries included in table 15. The United States dominates this trade as well, accounting for more than two-fifths of the large computers and three-fifths of the minicomputers. If U.S. computers supplied by other countries are included, 85 percent of all the Western computers shipped to the U.S.S.R. are U.S. models—a figure close to the 81 percent figure for Eastern Europe.

TABLE 17.—U.S.S.R.: IMPORTS OF COMPUTERS FROM THE WEST, 1972-78

[In units]

Exporting country	1972	1973	1974	1975	1976	1977	1978	Total
Large computer systems:								
United States ¹	3	0	1	6	4	5	10	29
Other countries ²	8	3	3	4	2	7	12	39
Subtotal.....	11	3	4	10	6	12	22	68
Minicomputer systems:								
United States.....	17	40	56	159	120	69	96	557
Other countries.....	10	33	34	92	33	67	82	351
Subtotal.....	27	73	90	251	153	136	178	908
Total computers:								
United States.....	20	40	57	165	124	74	106	586
Other countries.....	18	36	37	96	35	74	94	390
Total.....	38	76	94	261	159	148	200	976

¹ All U.S. figures exclude equipment produced by overseas subsidiaries.
² Includes Western Europe, Canada, and Japan.

C. Technology

An important aspect of the development of East European computer industries has been the stress on importation of Western technology. During 1972-78 East European countries imported manufacturing equipment and know-how, design information, and components valued at \$54 million (tables 4 through 10). Romania was by far the largest importer of technology accounting for more than 60 percent of the total (\$32.4 million). Czechoslovakia and East Germany were the smallest importers of technology, each importing about \$1 million worth over the period. Table 18 provides a listing of the major items of technology imported during the period.

TABLE 18.—EASTERN EUROPE: MAJOR TYPES OF TECHNOLOGY IMPORTED FROM THE WEST, 1972-78

Country	Type of technology	End product
Bulgaria	Technical data	Card reader, line printer, disk drive.
	Manufacturing equipment	Disk drive.
	Parts and components	Card reader, line printer, disk drive, disk pack, tape drive.
Czechoslovakia	Parts and components	Magnetic core memory.
East Germany	Manufacturing equipment	Magnetic tape.
Hungary	Technical data	Disk drive, line printer.
	Parts and components	Disk drive, line printer, card reader, magnetic core memory, tape drive.
Poland	Technical data	Disk drive, disk pack, disk drive refurbishment.
	Manufacturing equipment	Disk drive, data input device.
	Parts and components	Disk drive, disk pack, disk cassette, magnetic core memory.
Romania	Technical data	Card reader, line printer, tape drive, disk drive, card punch.
	Manufacturing equipment	Card reader, line printer, tape drive, disk drive, card punch.
	Parts and components	Card reader, line printer, tape drive, disk drive, card punch, batch terminal, magnetic core memory.

As indicated most of the technology acquired is in the area of computer peripherals, which had long been neglected by Communist countries. Four countries—Bulgaria, East Germany, Poland, and Romania—received manufacturing assistance for peripherals. Manufacturing and design technology for computers proper had been acquired from the West prior to 1972, and did not figure prominently in Eastern Europe's technology imports during this period. Nevertheless, several countries imported parts and components for computer main memories. In addition, some East European countries imported electronic components for central processors, and in some cases, component manufacturing technology as well.²⁶ In general, most of the ingredients needed to develop and expand the computer industries of Eastern Europe have come from the West. A discussion of computer developments and technology imports for individual countries is given below.

²⁶ A discussion of the extent of this type of transfer is beyond the scope of this paper.

BULGARIA

Bulgaria had only a rudimentary computer industry until the late 1960's. Nevertheless, by the end of the 1970's it had become the leading supplier to CEMA of magnetic disk peripheral equipment. Indeed, thanks to imported technology and an energetic program of government support, Bulgaria has established a modern, though modest, peripherals industry. As can be seen from table 18, imported technology for disk equipment has covered the entire spectrum from technical data and manufacturing equipment for disk drives to large quantity imports of parts and components for both disk drives and disk packs. Drives and packs of varying capacities currently are being produced at a plant established for that purpose in Stara Zagora.

Beginning in 1969 Bulgaria also obtained licenses and technical assistance from Japan for other types of computer technology that resulted in the manufacture of the ZIT-151 computer at the Plant for Computer Techniques (ZIT) in Plovdiv. The ZIT-151 is the Bulgarian version of a Japanese medium-sized machine. Initially, Bulgaria assembled Japanese parts and components but later produced much of the computer from its own resources. Japanese-supplied technology also provided Sofia with the experience needed to meaningfully participate with the U.S.S.R. in the development and production of RYAD's. Bulgaria assembled the ES-1020 until 1976, mainly for domestic end-users. Since that date, they have been cooperating with the U.S.S.R. in the development of the ES-1035 computer in the RYAD II series, and may be preparing to assemble it in Bulgaria.²⁷

CZECHOSLOVAKIA

Czechoslovakia has been in the computer business since the early 1950's, but has had great difficulty establishing series production of indigenous computers. In 1969, prior to its involvement in the RYAD program, Czechoslovakia produced the TESLA 200 under French license at the Control and Automation Industries Plant (ZPA) in Cakovice. Czechoslovakia had to import many French components for this computer. The ZPA program, which never shifted into high gear, was abandoned in the early 1970's as the RYAD program came into force. A new computer (the ES-1021) was developed for the RYAD program by the Research Institute for Mathematical Machines (VUMS), the major research arm of ZPA. However, this model was not compatible with other members of the Ryad family and failed to receive acceptance outside of Czechoslovakia. A small number were produced for domestic use. Currently, Czechoslovakia has responsibility for development of a more advanced RYAD model, the ES-

²⁷ The RYAD program is currently in a second phase, called RYAD II. The ES models in this phase are much more modern than those in RYAD I.

1025. A few prototypes have been made but it is not known if this model will be compatible with other RYAD computers and therefore acceptable for export to other CEMA countries.

To date, Czechoslovakia's contribution to the RYAD program has been mainly in the area of peripherals, providing other CEMA countries with typewriters, punched tape and punched card equipment, and plotters. Production of these products has been reasonably successful because of earlier collaboration with the French. Recent Czechoslovakian imports of technology have been very limited, consisting only of parts and components for the assembly of computer memories.

EAST GERMANY

Under the RYAD program, East Germany was given responsibility for the development and production of the ES-1040, for many years the largest and most successful model of the RYAD family. This assignment was logical since East Germany with a long and successful tradition developing business machines and a large pool of skilled engineers and technicians had the greatest indigenous computer capability in Eastern Europe. Although table 18 shows that East Germany has imported only manufacturing equipment for the production of magnetic tape, it is likely that this understates the role of Western assistance in the development of the East German computer industry. East Germany probably was aided in its development and production efforts by acquisition of Western technical data, manufacturing equipment, parts, components, training, and support through non-conventional channels.²⁸

Currently, East Germany is producing the ES-1055 at the Robotron Plant in Dresden, the largest and most important computer plant in East Germany. This computer, like its predecessor, the ES-1040, will be used domestically and exported to the U.S.S.R. In addition, East Germany is producing small-scale process control minicomputers and magnetic tape units and is pushing software development, and operating and maintenance training. Indeed, the Western-style training and service programs underway in East Germany seem very impressive relative to the meager efforts of the other East European countries and the U.S.S.R. The Robotron Training Center in Leipzig is developing into a source of common concern providing modern training to all CEMA countries.

HUNGARY

In the late 1960's the Hungarian Videoton computer factory acquired a license from France for production of a small computer. Based on this French-supplied design Hungary began producing the RYAD ES-1010 in 1973,²⁹ and modified versions in later years. For several years, the ES-1010 utilized 90 percent imported Western components. Recently the Western content has dropped to 12 percent.³⁰ Budapest has also acquired licenses from United States and Swedish firms making it possible to produce some peripherals for use with the

²⁸ See for example, *Electronic News*, Oct. 8, 1979, p. 32; *Electronics*, Jan. 8, 1976, pp. 68-74; *Electronic News*, Aug. 11, 1975, p. 4.

²⁹ *Nepszabadsag*, Budapest, Mar. 4, 1976, p. 5.

³⁰ *Ibid.*, p. 5.

Hungarian RYAD computers.³¹ These peripherals include disk and tape drives, line printers and card readers.

Widespread use of Western technology and components enabled Hungary to develop a substantial export market for her products. By late 1978, an estimated 300 ES-1010 computers (out of a total production of 500) had been exported to other CEMA countries including roughly 150 to the U.S.S.R.³² Hungary also sells separate graphic and alphanumeric display terminals which are used extensively by the other CEMA countries in various computer systems and is currently developing a follow-on computer model (the ES-1015) in the RYAD II series.

POLAND

Poland was one of the earliest and most successful of the CEMA countries to develop and produce computers. In the early 1960's, Poland produced small general-purpose transistorized computers (the ODRA series) of indigenous design for domestic use. In the late 1960's Poland acquired British design technology which led to the development of a third-generation (based on integrated circuits) machine, also called ODRA.³³ A substantial number of these were exported to the U.S.S.R., Czechoslovakia, East Germany, and in a few cases, to developing countries. Polish computer production is centered at the Automation and Measurement Apparatus Industries Plant (MERA-ELWRO) in Wroclaw.

Because of its success with ODRA, Moscow entered into a joint arrangement with Warsaw for the development of the RYAD ES-1030. Poland was a reluctant participant in this joint venture preferring to concentrate resources on the development of a higher performance model, the ES-1032. In the event, the Polish version of the ES-1030 was not successful. The ES-1032 is now being produced, apparently for domestic use. Joint Polish-Soviet cooperation is continuing on a RYAD II machine, the ES-1045.

Poland's most important contribution to the RYAD program has been as a supplier of peripherals which have been built under Western licenses. Poland has provided large quantities of high speed line printers, produced under an early British license, as well as display terminals and disk drive equipment made under license from other Western partners.

ROMANIA

Romania's computer industry, concentrated at the Electronic Computer Factory (ICE) in Bucharest, has been built almost entirely through Western license agreements. The major item of production is the Felix C-256 computer built under French license. Romania, in a joint venture with an American company at a new plant in Bucharest, also produces various types of peripheral equipment using many U.S. supplied parts and assemblies. For the most part, this production consists of low performance electromechanical peripherals for the domestic market.

³¹ *Ibid.*, p. 5.

³² *Szamitastechnik*, Budapest, No. 9, September 1978, p. 3.

³³ The main models in the ODRA family were the ODRA 1305 and ODRA 1325.

Romania is not directly involved in the RYAD program. Its role appears to be limited to that of an interested observer with, however, some unspecified responsibility for software development. Romania's Felix computers are not compatible with RYAD machines and the peripherals have not met CEMA standards. Recently, however, Romania acquired a U.S. license to produce a magnetic disk drive at its joint venture facility.³⁴ This more modern item of peripheral equipment may find acceptance as part of the RYAD line and thus offer Romania increased export opportunities in the future.

V. USES OF IMPORTED COMPUTERS

Computer sales to Communist countries are approved by COCOM members for civilian end-uses. Table 19 categorizes the use of Western computers in Eastern Europe by end-use as follows: research and development (R. & D.) (basic and applied), industrial (management and production control), and economic (banking, trade, administration, and other services).³⁵

The figures in the table point up some general conclusions regarding the use of imported computers, as well as a few unique patterns for individual countries. With the exception of Romania the East European countries use one-fourth of the computers for R. & D.

Again with the exception of Bulgaria, the other countries are fairly close to the regional figure (39 percent) for the industrial end-use. More divergence from the average is found in the "economic" category where the percentages range from 26 percent for Romania to 58 percent for Bulgaria. In summary, it can be said that nearly every East European country has imported Western computers mainly for technical end-uses, that is to improve R. & D. and to support industrial development. Only Bulgaria is using most Western computers for "economic" applications.

Additional insights into the use of Western computers can be gained from table 20 where imports are categorized according to sector of the economy being served. Whereas the previous table shows how Western computers are being used, table 20 shows where they are being used. Any given sector may include imported computers with any or all of the end-uses specified in table 19. Thus, the "government" category includes computers used for R. & D. and economic purposes. The "science" sector includes computers used for R. & D., economic, and even industrial purposes. The sectors listed are themselves relatively general categories that include a variety of activities and organizations. For example, the "science" category includes computers used for atomic energy and theoretical physics among others; computers in "government" are used directly by government organizations for administration, planning, and other functions.

³⁴ Romanian Engineering, No. 2/79, February 1979, p. 6.

³⁵ Often, end-uses are given only in general terms or cover multiple uses. For example, a computer sold to a factory for "industrial uses" can be used for: (a) administration; (b) planning; (c) process control; and (d) industrial R. & D. Table 19 categorizes when possible according to the unambiguous stated end-use; otherwise the major activity of the end-user is used. Thus a computer used in a factory only for industrial R. & D. is found in the R. & D. category. A computer used in a factory for plant management, process control, and industrial R. & D. has been placed in the industrial category.

TABLE 19.—EASTERN EUROPE: DISTRIBUTION OF IMPORTED COMPUTERS BY END USE, 1972-78

End use	Units			Percent ¹		
	Large computers	Mini-computers	Total	Large computers	Mini-computers	Total
Bulgaria:						
R. & D.....	3	17	20	21	29	27
Industrial.....	1	10	11	7	17	15
Economic.....	10	32	42	71	54	58
Total.....	14	59	73	100	100	100
Czechoslovakia:						
R. & D.....	8	96	104	10	25	22
Industrial.....	34	159	193	43	41	41
Economic.....	37	134	171	47	34	37
Total.....	79	389	468	100	100	100
East Germany:						
R. & D.....	0	17	17	0	23	23
Industrial.....	1	28	29	50	38	39
Economic.....	1	28	29	50	38	39
Total.....	2	73	75	100	100	100
Hungary:						
R. & D.....	5	29	34	21	22	22
Industrial.....	4	44	48	17	33	31
Economic.....	15	60	75	62	45	48
Total.....	24	133	157	100	100	100
Poland:						
R. & D.....	12	95	107	14	28	27
Industrial.....	21	141	162	43	41	42
Economic.....	16	105	121	33	31	31
Total.....	49	341	390	100	100	100
Romania:						
R. & D.....	3	42	45	33	32	32
Industrial.....	1	58	59	11	44	42
Economic.....	5	31	36	56	24	26
Total.....	9	131	140	100	100	100
Eastern Europe:						
R. & D.....	31	296	327	18	26	25
Industrial.....	62	440	502	35	39	39
Economic.....	84	390	474	47	35	36
Total.....	177	1,126	1,303	100	100	100

¹ Totals may not add due to rounding.

Since imports of Western computers signify both the expenditure of scarce foreign exchange and the requirement for a type or performance that cannot be met domestically or from other CEMA countries, the economic activities utilizing the greatest number of these computers represent areas marked for high priority development. Thus, from table 20, Bulgaria's imports are highly concentrated in three areas utilizing nearly two-thirds of all Western computers: transportation, electronics, and government. The stress on transportation is in major contrast to the pattern exhibited by the other East European countries.

East Germany also exhibits marked deviations from the regional averages, choosing to concentrate imports in biology, medicine, and education to a much greater extent than the other countries. The absence of Western computers in government activities is also highly

TABLE 20.—EASTERN EUROPE: DISTRIBUTION OF IMPORTED COMPUTERS BY MAJOR SECTOR OF END USE, 1972-78¹

[In percent]

	Bulgaria	Czecho- slovakia	East Germany	Hungary	Poland	Romania	Total, Eastern Europe
Metals/minerals.....	1	15	11	10	17	13	14
Government ²	19	13	0	27	7	5	12
Electronic.....	21	7	15	13	10	15	11
Science ³	7	9	9	11	10	18	11
Machinery ⁴	7	8	4	3	15	17	10
Light industry.....	4	11	13	7	7	9	9
Trade.....	3	9	4	5	6	4	6
Chemical.....	4	7	7	3	3	6	5
Biological/medical.....	1	4	16	6	6	1	5
Other ⁵	1	5	9	6	3	6	5
Construction.....	3	7	0	3	3	0	4
Transportation.....	25	2	0	2	6	0	4
Education.....	4	1	12	4	3	4	4
Automotive.....	0	1	0	0	5	2	3
Total.....	100	100	100	100	100	100	100

¹ Totals may not add due to rounding.² Planning commissions, banks, insurance commissions, and other organizations.³ Atomic energy, physics, among others.⁴ Agriculturally, electrical and other machinery producing sectors.⁵ Generally, joint-use data processing centers servicing a multitude of diverse users.

atypical. At the other extreme, Hungary has applied a higher than average number of Western computers to the government sector. In sum, the countries of Eastern Europe are using Western computers in metals and minerals, government, electronics, science, and machinery. This is quite different than the Soviet case where it was found that the most important sectors in descending order were automotive, science, chemicals, biological and medical, and metals and minerals.³⁶

VI. IMPACT OF WESTERN COMPUTERS AND TECHNOLOGY

Eastern Europe turns to the West for computers partly because of insufficient production within CEMA, and partly because Western models have technical advantages over CEMA products. Most imported computers offer advantages over Communist models in such areas as speed of operation, memory capacity, small physical size, reliability, the availability of particular software, and the ability to support advanced computing concepts such as time-sharing. In all cases the imported computers satisfy priority requirements. By 1978 imports made up a significant portion of the total computers in use in Eastern Europe, exceeding 20 percent.³⁷

As seen in the previous section, one of the principal applications for Western computers is for modernization of industry. Within industry the metals and electronic sectors seem to have been singled out for priority attention. Most of these industrial applications have involved minicomputers for process control, or large systems with advanced software for production planning and scheduling.

³⁶ K. Tasky, *op. cit.*, p. 520.³⁷ The percentage is based on the 1303 Western computers imported during 1972-78 and a total stock of 6000 computers installed in 1978. This latter figure was estimated by the author extrapolating from a 1976 benchmark of 3817 computers published in EDP Industry Report, International Data Corporation, Waltham, Mass., Vol. 13, No. 5, Sept. 6, 1977, p. 2.

Other important recipients have been government planning and banking organs which have imported large time-shared computer systems. Although it is not possible to quantify the impact of these imports, it can be said that Eastern Europe gains considerably in efficiency and reliability when Western computers are used. In addition certain tasks would be impossible using existing Communist computers. For example, current computer and data communication hardware and software probably are inadequate to provide large network systems such as used for airline reservations.

An additional benefit provided with Western computers is training. This type of support can be passed on by the end-user of the computer and allows the East Europeans to upgrade their maintenance, programming, and training capabilities.

Perhaps the greatest impact has resulted from the imports of Western technology allowing several of the countries to become successful producers of selected types of equipment, principally computer peripherals. Furthermore, this specialization has allowed the countries to expand their industries far beyond what would be necessary to support their own relatively small domestic requirements. For example, Bulgaria has become the major supplier of magnetic disk drives and disk packs to the CEMA countries.³⁸

However, the export potential within Eastern Europe remains relatively small and all the countries depend to a major extent on sales to the U.S.S.R. This market is substantial: for example, between 1971 and 1978 the largest computer producer in Hungary exported more than 80 percent of its production, of which the major share was sold to the U.S.S.R.³⁹ The existence of a foreign market for Eastern Europe was made possible, in part, because Western technology was used to develop and modernize their industries.

VII. FUTURE TRENDS

Although figures have not been compiled for 1979, preliminary evidence indicates that East European imports of Western computer equipment continued at a brisk pace last year. Import patterns discussed in earlier sections apparently were repeated in 1979. Additional imports of computers can be expected in the future as the East Europeans will need Western computers for high priority applications where requirements exceed the capabilities of their own models. The volume of these imports, however, cannot be predicted with any certainty since this will depend partly on hard currency considerations and partly on the speed with which they can upgrade their own capabilities to meet their needs. Both these factors seem to weigh toward a reduction in the value and number of computer imports in the future.

Technology imports, however, which have played such an important role in developing the industries of Eastern Europe, may come in for more emphasis in the future. Two factors lead to this conclusion: first, the Soviet market for East European products probably will begin to

³⁸ Summary of World Broadcasts, Part 2, Eastern Europe, Weekly Economic Report, Second Series EE/W1062, Dec. 13, 1979, p. A/21.

³⁹ Summary of World Broadcasts, Part 2, Eastern Europe, Weekly Economic Report, Second Series EE/W1055, Oct. 25, 1979, p. A/18.

decline in the next few years; and second, Eastern Europe will begin to look to the West for new markets and will have to upgrade their products significantly in order to compete.

At the moment, the computer industries in Eastern Europe prosper because a large share of their output is taken by the Soviet Union. Moscow generally has imported computer equipment of a type not manufactured in the U.S.S.R., such as large computers from East Germany, computer terminals from Hungary, and magnetic disk equipment from Bulgaria. However, the Soviets have been developing comparable and more advanced products of their own. For example, at a recent exhibit of computer equipment in Moscow, the Soviets displayed a large quantity of magnetic disk drives with a capacity greater than those generally available from Bulgaria.⁴⁰ As the Soviets begin to produce a complete line of equipment they will reduce purchases from Eastern Europe to an amount sufficient only to maintain a facade of CEMA cooperation.

The alternative for Eastern Europe is to look for markets in the West. Sales in this arena could bring the added advantage of hard currency earnings. However, it is not likely that these countries, with their current, relatively backward line of products, can compete with U.S., West European, and Japanese computer firms. This is true even in less developed countries unless the Communists are willing to price their equipment extremely low or perhaps deal on a barter basis. Thus the East Europeans have an important incentive to import more modern Western technology in the hope of competing in Western markets. However, by itself, an upgrading of domestic capability from the acquisition of this technology will not ensure success in Western markets, and the East Europeans may face the dilemma of whether to increase investments in possibly declining industries.

⁴⁰ "New Glimpse of EE Computers," *Business Eastern Europe*, vol. 8, No. 36, Sept. 7, 1979, p. 285.

CONSUMER PRICE DEVELOPMENTS IN EASTERN EUROPE

By Martin J. Kohn*

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I. SUMMARY

Five of the six countries of Eastern Europe¹ officially raised prices of consumer goods and services sold in the state sector in 1979. Hungary and Bulgaria sharply increased prices for a broad range of items including many mass consumption goods and services, causing a steep rise in the overall price level. The higher prices in Romania and Czechoslovakia affected a smaller array of goods, but the resulting increase in the cost of living, although more moderate than in Hungary and Bulgaria, was still substantial. In Poland, while the regime officially announced price increases on only a few items—with negligible impact on the general consumer price level—it indirectly also took a variety of steps to raise consumer prices in the state sector in 1979.

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¹Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, and Romania.

Only the GDR failed to officially boost consumer prices at all. There, too, however, the regime moved to raise some prices in state retail outlets without publicizing its actions. Furthermore, there have been indications that the GDR may soon openly raise some consumer prices.

The developments in 1979—particularly the open and explicit role the governments of Bulgaria, Hungary, Romania, and Czechoslovakia played in instituting sizable price increases—suggest a significant change in policy. It appears that virtually all Eastern European regimes have abandoned a commitment to stable prices for consumer goods sold in the state sector. The price movements and governmental actions in 1979 indicate that the authorities may now view flexible—and rising—prices as a distasteful but useful and necessary tool for restraining consumer demand.

More specifically, we believe that Eastern European regimes, for the most part, are seeking to reduce consumer demand in the state sector. They are apparently motivated by fear that the imbalance between supply and demand generated by immobile prices for consumer goods can be particularly disruptive under current economic conditions. Because of a variety of tightening internal and external economic constraints, economic growth, already slowing, will be slight and in some countries may cease altogether. Furthermore, the need to narrow balance of payments deficits to preserve credit worthiness will require a decrease in the share of output allocated to domestic uses, including personal consumption. Under these circumstances, consumer demand must be kept under a particularly tight rein. Achievement of this objective is undermined, however, by excess demand, which leads to an accumulation of so-called forced savings and/or to an immediate “spillover”—to quote a phrase used by Donald W. Green²—of demand into sectors of the economy where state control is absent or minimal. The state is thus threatened by diversion of resources, now and/or in the future, from authorized or planned uses. The desire to head off such diversion—by absorbing some of the purchasing power that now flows away from state stores—appears to be the key explanation for the apparent change in consumer price policy.

II. INTRODUCTION

Officially announced consumer price changes in 1979 suggest that in at least four Eastern European countries—Bulgaria, Czechoslovakia, Hungary and Romania—consumer price policy may be undergoing a significant change. It appears that these countries have become more willing—in response to increasingly stringent internal and external economic constraints—to raise state retail prices. Restraint of consumer demand appears to be the prime objective.

Section III below discusses consumer price inflation in Eastern Europe in the 1970–78 period. We compare price changes as officially recorded and as measured by alternative Western indexes. We then explore the reasons for the differences.

In section IV we look into the price increases in 1979. We (a) sum up the increases; (b) outline the official explanations for the increases;

² Donald W. Green, “Household Expenditures and the Demand for Money in the German Democratic Republic,” unpublished paper, December 1978.

(c) evaluate these explanations; and (d) present our own view of the reasons for the hikes.

Section V describes and evaluates the public's response to the price rises and the implications of that response for future consumer price policy.

III. CONSUMER PRICES IN EASTERN EUROPE, 1970-78

East European regimes have consistently enunciated two contradictory consumer price policies: (a) Retail prices should be set to clear markets; and (b) both relative prices and the overall level of retail prices should remain stable. In fact, most of these regimes have tended to make a fetish of price stability, giving priority to the second objective and thus undermining the first. As table 1³ indicates, at least three of these countries lay claim to having achieved such stability, the consumer price indices for Czechoslovakia, the GDR, and Romania showing negligible changes. Bulgaria's state retail trade index also records almost no change in prices. However, the index for goods sold in the cooperative market—mainly food items sold at essentially market-determined prices—reveals inflation outside the state sector. The official indices for Poland and Hungary, however, register rates of inflation well above those in the other four countries. The difference is partly explained by the nature of the Polish and Hungarian indices. But it also reflects the fact that inflation in the two countries, particularly Poland, has indeed been greater.

TABLE 1.—EAST EUROPEAN CONSUMER PRICE INDEXES

	Price indexes 1970 equals 100		Average annual change (percent)			
	1975	1978	1971-75	1976-78	1978	1979
Bulgaria:						
Official: state retail trade ¹	100.9	102.8	0.2	0.5	1.2	(²)
Official: cooperative market ¹	123.6	137.6	4.3	5.5	(²)	(²)
Alternative.....	116.0	129.1	3.0	3.2	2.5	(²)
Czechoslovakia:						
Official: consumer retail prices ¹	100.7	103.6	.1	.9	.9	2.5
Alternative.....	111.4	116.2	2.2	1.6	1.8	(²)
German Democratic Republic:						
Official: consumer retail prices ¹	98.4	98.2	-.3	0	0	(²)
Alternative.....	103.3	108.6	.7	1.3	.6	(²)
Hungary:						
Official: consumer prices ¹	114.5	130.8	2.9	4.3	4.6	9.0
Alternative.....	122.4	139.8	4.1	4.4	4.5	(²)
Poland:						
Official: consumer retail prices ¹	113.3	134.1	2.5	5.9	8.1	(²)
Alternative.....	131.8	168.5	5.7	8.0	8.9	(²)
Romania:						
Official: commodity prices and service tariffs....	102.6	105.4	.5	.7	1.5	2.5
Alternative.....	(²)	(²)	(²)	(²)	(²)	(²)

¹ The official price indexes are described in detail in Alton (see sources below).

² Not available.

³ 1977.

⁴ 1976-77.

Sources: Thad P. Alton, Gregor Lazarcik, Elizabeth M. Bass, George J. Staller, Wassyl Znayenko, "Official and Alternative Consumer Price Indexes in Eastern Europe, Selected Years, 1960-78," in Working Papers, September 1979, Economic Studies, L. W. International Financial Research, Inc., New York, September 1979.

⁵ Table 1 reproduces in slightly rearranged form tables compiled by Thad P. Alton and Associates in their study, "Official and Alternative Consumer Price Indexes in Eastern Europe, Selected Years, 1960-78." (For full citation, see table 1.) This entire section draws heavily on the Alton study. (The only material in table 1 not from Alton is the Romanian official price index, which was taken directly from official Romanian sources.)

The official indexes—except possibly the Hungarian one in recent years—invite skepticism. Their major flaw appears to be use of official list prices for an assortment of goods that is not altered to take account of the addition of new items. The indexes thus suffer from downward bias, since official list prices tend to remain unchanged, even though actual prices (through means discussed below) may be on the rise. Furthermore, even if actual prices of the goods do hold steady, the exclusion of new goods from the indexes gives the fixed price goods—to the extent that the indexes are base-year weighted—a disproportionate weight.

Suspicion of the official indexes has led Western observers to calculate alternative measures of consumer price movements in Eastern Europe, such as the Alton estimates in table 1. Each of his indexes is derived by dividing official consumption indexes in current prices by estimates he has made of consumption in constant prices.⁴ Alton's results indicate an actual rate of consumer price inflation perceptibly higher than that officially reported in all five countries.⁵ The lone exception is Hungary in 1975-78, where the Alton and official indexes report virtually identical rates of inflation. This is not surprising and confirms other indications that the Hungarian index is a much more accurate measure of consumer price movements than the indexes elsewhere in Eastern Europe. In contrast to the other countries, Hungary has not sought to deny or conceal inflation and has indeed several times in recent years officially introduced price rises, with considerable advance publicity.

The Alton results give strong quantitative corroboration to the thesis that consumer price inflation in Eastern Europe is worse than the authorities acknowledge.⁶ His findings suggest at least three questions: What gives rise to consumer price inflation in Eastern Europe? By what means do prices rise above officially stable list prices? and How severe has inflation in fact been in the 1970's? Short answers to these questions would stress the following elements:

⁴Thad P. Alton, Elizabeth M. Bass, Gregor Lazarcik, and Wassyl Znayenko, "Personal Consumption in Eastern Europe, Selected Years, 1960-78," Occasional Papers of the Research Project on National Income in East Central Europe (OP-57), L. W. International Financial Research, Inc., New York, 1979.

⁵Because of lack of data, Alton was not able to compute an alternative index for Romania. The official Romanian index of commodity prices, however—the closest thing to a consumer price index—shows little change and is thus suspect.

⁶Alton's results tally closely with other, independent estimates. For example, his calculations match almost perfectly estimates made by Kazmier Laski. Making comparisons of purchasing power parity between France, Poland, Austria, and the FRG, Laski computes actual rate of inflation in Poland between 1964 and 1973 at 3.5 percent a year. (See *Eastern European Economies*; a Journal of Translations, Vol. XII, No. 4, summer 1979. [Kazmier Laski] (Austria): "The Problem of Inflation in Socialist Countries" (Forschungsberichte 1977 No. 38), p. 3-84. (See in particular Appendix IV, "Hidden Inflation in Poland," pp. 69-71.) Alton's estimate for 1966-73 (his table does not include years between 1960 and 1965) is 3.3 percent annually.

Alton's measures of actual inflation in the GDR correspond closely with estimates based on purchasing power parities in the GDR and FRG made by the Deutsche Institut für Wirtschaftsforschung (DIW) for the 1960s. The DIW estimates for mid-1960 to mid-1969 range from 1.4 to 1.7 percent a year. Alton's estimates for 1960 to 1968 and 1960 to 1970 (he shows no figure for 1969) range from 1.2 to 1.4 percent a year. On the other hand, the DIW calculates a rate of GDR consumer price inflation of 3.4 to 3.7 percent a year from mid-1969 to the beginning of 1973. Alton's estimates for 1968-1972 are much lower—1.6 to 1.8 percent annually. (The DIW results are reported by Michael Keren. "The Return of the Ancien Régime: The GDR in the 1970s." *East European Economies Post Helsinki*, Joint Economic Committee, Congress of the United States, Aug. 25, 1977, pp. 736-737, pp. 764-65.)

Calculations by Michael Keren of divergent movements between retail prices and enterprise prices in 1973-75 imply a rate of inflation in the GDR of 1.4 percent a year, close to Alton's estimates of 1.6 to 1.8 percent a year for the same period. (Keren, op. cit., p. 736.) The official GDR consumer price index in 1960-75 showed almost no change.

(1) Inflationary pressure appears to be a built-in feature of the economies of the Warsaw Pact countries. The strong emphasis on economic growth manifested in high investment rates and overambitious planning marked by overly sanguine expectations of increases in factor productivity make for sellers markets. The tendency to treat consumers as residual claimants on resources—while giving priority to defense and, at least until recently, investment—makes the demand pull inflationary bias in the consumer sector particularly strong. Exogenous factors have in recent years intensified inherent inflationary tendencies in most of Eastern Europe. Rapidly rising energy and raw materials prices have moved the terms of trade in an unfavorable direction for many of these countries vis-a-vis the non-communist world and the Soviet Union, the leading trade partner of all six Eastern European countries.

(2) Sellers of consumer goods respond to inflationary pressures by disregarding list prices. They can—and do—openly raise prices above officially prescribed levels. But more often they resort to subterfuge. For example, goods are repackaged and/or relabeled and their prices then raised. Or prices are raised on goods that have actually been modified but in trivial ways—"the proverbial extra button on a shirt," to quote Laski. To cite another variant of the same game, prices may be held the same but the quality reduced, for instance by lowering the nutritive value of a given quantity of food. Whatever the technique, actual prices diverge increasingly from list prices with the passage of time.

The central authorities themselves seem to be abetting inflation by differential pricing that appears, at best, to be only partly picked up in the official indices. Eastern European regimes are increasingly resorting to special state stores in which goods, some of which are also available in normal retail outlets, are sold at higher prices. As Newcomb (in "Polish Agriculture: Policy and Performance," published elsewhere in this volume) observes, the Polish government is attempting to reduce excess demand for meat by expanding the network of special stores, in which a rising proportion of the country's meat is sold at prices twice the level in the regular stores. In the GDR, the regime appears to be placing increasing reliance on special state stores known as Delikat Shops to help keep retail trade in balance.⁷

In addition, not all goods and services sold outside state outlets, in markets where prices are freely determined, are recorded in the indices. (Interestingly, however, free market food sales where such sales account for a significant share of the total—e.g., in Poland—are included in the official index.)

⁷ According to a West German commentary (quoted in Summary of World Broadcasts, Part 2, Eastern Europe, Feb. 27, 1980, EE/6356.B/4), "The high prices in the Delikat shops are meeting with increasing criticism. Information Bureau West reports on 21st February that the number of these shops, which sell high quality foods and luxury items such as chocolates, cocoa and coffee, has sharply increased in recent months in all parts of the country. Their share in the general turnover of luxury and other foods of the state trading organization, HO, is increasing correspondingly. In the Leipzig area it is already 6 percent. The official purpose of the Delikat shops is to meet the "higher demand" for quality products, from both domestic production and Western imports. Their higher prices and ensuing profits serve increasingly to subsidize—for political reasons—the lower prices charged for many every day commodities. Many goods have disappeared from the normal shops and re-appeared in the Delikat shops with new packaging and higher prices."

It is not self-evident of course that higher prices in special state stores and free markets contribute to inflation. The average price level at any given time may be higher than the price level in official outlets but need not be changing at a faster rate. In fact, however, prices do appear to be increasing faster outside the regular state retail trade network. Furthermore, the proportion of trade in special state stores is on the rise, which would also contribute to a rise in the overall price level, even if price differentials remained the same.

(3) Alton's alternative indices indicate that, despite the inflationary pressures, consumer prices rose at moderate rates in the GDR and Czechoslovakia and at rates that do not seem excessive, especially when compared to the pace of inflation in the Western world in recent years, in Bulgaria and Hungary. Of the countries for which alternative indices are shown in table 1, only in Poland was inflation severe.

The success enjoyed by the GDR, Czechoslovakia, and Bulgaria in keeping inflation moderate probably stems from their: (a) having kept money income from rising very rapidly; and (b) increasing the supply of consumer goods, economy-wide, sufficiently to prevent an undue excess of demand over supply. (This does not mean that excess demand did not occur in individual sectors—i.e., ordinary state retail outlets.) This is indicated by the figures on wage increases and rises in per-capita real personal consumption in table 2.

TABLE 2.—EASTERN EUROPE: COMPARISON OF GROWTH IN WAGES AND GROWTH OF PER CAPITA REAL PERSONAL CONSUMPTION

	Average annual percentage growth	
	1971-75	1976-78
Bulgaria:		
Nominal wages.....	3.4	2.3
Per capita real consumption.....	3.3	1.8
Czechoslovakia:		
Nominal wages.....	3.5	3.0
Per capita real consumption.....	2.0	1.9
German Democratic Republic:		
Nominal wages.....	3.5	3.2
Per capita real consumption.....	3.6	2.2
Hungary:		
Nominal wages.....	7.7	7.8
Per capita real consumption.....	1.0	2.5
Poland:		
Nominal wages.....	9.8	9.6
Per capita real consumption.....	5.2	2.6
Romania:		
Nominal wages.....	4.3	8.0
Per capita real consumption.....	(¹)	(¹)

¹ Not available.

Sources: Alton, "Personal Consumption in Eastern Europe, Selected Years, 1960-1978," *op. cit.*, and statistical handbooks of East European countries.

The lag of per capita consumption behind wages was largest in Poland and Hungary, the countries with the highest inflation. Inflation in Hungary is apparently a consequence of the looser, less centralized way in which the economy is run, which gives greater scope for uncontrolled increases in income. The openness of the Hungarian economy (see below)—that is, the high ratio of foreign trade to GNP—also contributes to inflation. The "importation" of inflation has

been indirect, however. As is true of all East European countries, the exchange rate is mainly a unit of account in commercial transactions, linking foreign currency prices of imported goods with domestic prices of those goods. Indeed, Hungary has made copious use of subsidies to shield consumer prices from world inflation. The inflationary impact of price movements in the rest of the world arises from differential changes that have seen the prices of what Hungary sells abroad rise less than the prices of what it buys abroad. These adverse terms of trade movements can be inflationary, by requiring Hungary to devote more production to exports, thus reducing the supply of goods, including those for consumers, available domestically. However, the inflationary pressures generated by disadvantageous terms of trade changes have been mitigated by the balance-of-trade deficits Hungary has run vis-a-vis the West and the U.S.S.R. In effect, Hungary's trade partners have allowed her to pay for imports with credits as well as goods. This has been true in all of Eastern Europe.

Polish inflation is best explained by the regime's apparent loss of control over wages—despite a far greater degree of central planning and management than in Hungary. The inflation of the 1970's was not of the imported variety. Rather, it reflects Poland's overzealous economic growth and modernization goals. As a net exporter of energy, Poland was protected from the terms of trade deterioration that has made it difficult for other countries to maintain domestic price stability. The large balance-of-payments deficits Poland ran during the 1970's had a strong anti-inflationary influence, as they reduced the volume of domestic resources Warsaw had to allocate to its development program.

IV. THE PRICE CHANGES OF 1979

A. The Extent of the Changes

Consumer price inflation speeded up in much of Eastern Europe in 1979, as suggested by the officially recorded changes for 1979 shown in table 1 above for Czechoslovakia, Hungary and Romania. Table 3, which summarizes the officially announced price changes introduced in 1979, likewise implies accelerated inflation for Bulgaria, Czechoslovakia, Hungary, and Romania.⁸ It also indicates that the acceleration was in large measure deliberately engineered in these four countries.

Although there was no disposition in Poland in 1979 to announce price rises, inflation remained rapid. Poland has not yet published its official consumer price index, but has announced a rise in the cost of living of 6.7 percent, derived by dividing current price expenditures on consumption by the official measure of consumer expenditures in constant prices. (This is the same technique used by Alton, who used his own measure of real consumption, however.) The 1978 rise in the cost of living, according to this same method, was 8.7 percent, suggest-

⁸The impacts on the cost of living were derived by weighting the price changes by the share of the affected items in consumption in 1977, as reported by Alton and associates, "Personal Consumption in Eastern Europe, Selected Years, 1960-78," *op. cit.* (It should be noted that Table 3 records the effect of the official price changes during 1979 and does not compare, as does Table 1, changes in average annual price levels.)

TABLE 3.—EASTERN EUROPE: OFFICIALLY ANNOUNCED PRICE CHANGES, 1979

Country	Date	Products affected	Price change (percent)
Bulgaria ¹	May	Gasoline	82-95
	November	Food	35
		Alcoholic beverages	45
		Fuel and energy	50-100
		Children's clothing	20-30
		Printed materials, tickets, telephone, telegraph, postal services.	50-100
Impact on cost of living.		22	
Czechoslovakia	July	Gasoline, electricity, household fuels	50
		Telephone telegraph, and postal services	60-300
		Children's clothing	up to 300
Impact on cost of living.		2-3	
Hungary ²	January	Gasoline, tobacco, beer, rice, building materials, newspapers, some consumer durables.	25-50
	June	Gasoline	20
	July	Food	20
		Fuel and energy	34
		Shoes, other leather goods, laundry and dry cleaning, soap, detergent, furniture, cars, entertainment tickets.	16-30
		Restaurant food	30-75
Impact on cost of living.		13-14	
Poland ³	January	Gasoline	8
	July	Taxi fares	40
		Gasoline	15
		Taxi fares	10
		Fuel oil	20
	September	Postage	40-50
Matches		167	
Impact on cost of living.		1	
Romania	March	Household appliances, construction materials, children's clothing.	28
	May	Canned fruits, fish, vegetables	33
		Heating oil	100
	June-August	Some fuels and energy	50-100
Impact on cost of living.		5	

¹ Bulgaria, in April 1980, announced increases in tobacco and cigarette prices, ranging from 33 to 115 percent.

² Some restaurant food prices were subsequently reduced in Hungary. In January 1980, several minor increases and reductions in consumer prices on balance pushed the cost of living up by about 1 percent. In April 1980, gasoline prices were again boosted, by an average of 20 percent. Taxi fares were raised by 30 percent.

³ In March 1980, Polish gasoline, fuel, oil, motor oil and lubricant prices were raised by an average of 15 percent, and a fuel surcharge was placed on taxi fares.

ing a slight deceleration of inflation in 1979. However, since knowledgeable Polish sources have intimated that all official measures understate true inflation rates—and it is not clear that the degree of understatement is consistent—whether inflation slowed in 1979 is uncertain.

The explanation for Poland's obviously strong preference for the unpublicized, informal, frequently "hidden" price hikes discussed above is basically political. Officially introduced price rises have in the past triggered serious civil disturbances—in 1970 and 1976. The extraordinary magnitude of the increases, combined with poor timing and lack of communication with the populace, was mainly responsible for the public's violent reaction. Nonetheless, the regime evidently remains extremely leery of openly raising prices even by more moderate amounts than those that ignited the public's outraged response in 1970 and 1976.⁹

⁹ For a discussion of Polish disturbances, see Zbigniew M. Fallenbuchl, "The Polish Economy in the 1970's," *East European Economies Post Helsinki*, *op. cit.*, p. 816-864.

The absence of any officially disclosed price rises in the GDR in 1979 also reflects fear of public reaction. The obviously unfavorable contrast between the East and West German economies is an unending source of irritation and uneasiness in East Berlin. Price stability is one of the few favorable comparisons the GDR authorities can make with the FRG and is thus one they are obviously reluctant to relinquish. Official dissatisfaction in the GDR with price rigidity and the stresses it causes has been reported, however, and a round of overt price rises is not unlikely within the next year or so.

To soften the negative impact on real income, the publicly disclosed price increases were accompanied everywhere except in Romania by increases in wages and benefit payments.¹⁰ The increments to pay and benefits only partially canceled out the income-reducing impact of the price hikes. Hungary—which admitted that the offset was only about 75 percent—announced additional monthly supplements to workers and pensioners, increases in child allowances, education supplements, maternity allowances, and easier access to credit. In Czechoslovakia, pensions and family allowances were raised and “salary adjustments” were made for workers in selected occupations—teachers, nurses, and health workers. Bulgaria claims to have raised wages and salaries by 25 to 30 percent—more than enough to compensate for the dent in real income made by the price rises—and to also have increased allowances for children, pensions, and educational stipends. But the size of the wage boosts was linked to level of education, length of service, and importance and difficulty of work. The adjustments required by these factors may have lowered the average rate of the wage increases well below the claimed 25 to 30 percent. Sofia made no claim that the rise in transfer payments equalled the magnitude of the price boosts.

B. Explanations for the Changes

The countries that publicly raised prices offered many explanations, which fall into four broad categories. Allegedly, the increases were needed to: (1) Bring prices into line with those on the same items in neighboring communist countries; (2) promote efficiency; (3) conserve energy; and (4) make required adjustments to surging world inflation. The price adjustments can in fact be justified on all four of these grounds, although the arguments offered by the regimes do not always appear valid.

1. Neighboring country argument.—Administrative determination of prices and the absence of coordination in price planning among Eastern European countries make it likely that there are marked inter-country differences in prices for the same or similar goods. The Czech authorities, for example, justified the increases in children’s clothing on grounds that their lower prices were inducing disproportionately large purchases by non-residents flocking to Czechoslovakia to buy

¹⁰ Reference in this paragraph is to pay and benefit increases specifically associated with the price rises. Other increases in wages and transfer payments have also occurred. However, preliminary data indicate that in Bulgaria, Hungary and Czechoslovakia the percentage increase in the consumer price level from the end of 1978 to the end of 1979 was higher than the percentage increase in personal money income between these two points in time. Because of lack of data, we do not know whether this was also true in Romania. But official statements make clear that real personal income rose much more slowly in 1979 than in previous years.

children's wear that was much more expensive in their own countries. However, achievement of the relatively low priority goal of price equalization between communist countries could hardly have been a prime motivation for the large-scale, politically risky increase in 1979.

2. *Efficiency argument.*—The officially announced price increases in 1979 should improve efficiency—but only in a narrow way. As we demonstrate with indifference curves in the appendix, raising prices: (a) reduces the excess demand we believe exists in state retail outlets; and (b) thus leads (or can lead)—within the tighter constraint of reduced real income—to more “efficient” consumer behavior. The level of satisfaction attained by consumers may be lower after the price rises, but it comes closer to the maximum possible than was the case before the price increases. The higher consumer prices are not likely to bring about more rational or efficient use of resources in production, however.

The authorities in Eastern Europe, when speaking of greater efficiency, do not of course have in mind such abstractions as achieving tangencies between indifference curves and income lines (see appendix). They emphasize two points. First, they claim that the reduction in subsidies will relieve the government of a huge financial burden. Since, however, the governments in all East European countries face no obstacles in raising the taxes to finance the subsidies (budgets are routinely balanced in Eastern Europe), the subsidies appear to impose no burden on the government as a separate economic unit.

Second, the countries maintain that raising consumer prices will bring about a more realistic relationship between prices and production costs of consumer goods. The heavy subsidization of consumer goods, particularly of mass consumption items, has caused unit costs to exceed prices, often by a substantial amount, on a broad scale. However, the narrowing of the gap between costs and prices should not be expected to improve efficiency since this development will not, as far as we can tell, significantly influence the behavior of producers.

The increase in consumer prices in the centrally planned economies of Eastern Europe should not be confused with, say, the removal of price controls in a market economy. In the latter, excess demand is eliminated—using the pure competition model—by reduction in the amount of goods consumers desire (they move upward to the left on their demand curves) while producers respond by increasing production (they move upward and to the right on their supply or marginal cost curves).

The price increases in Eastern Europe, on the other hand, are not designed to stimulate additional production. Indeed, as we indicated, restraining demand seems the prime reason for the price rises. In Eastern Europe's centrally planned economies, consumer goods output—particularly in the period of economic stringency the countries there have now entered—will continue to be determined largely by central administrative direction. Prices are not likely to be used as an important signal for accomplishing the volume of output the central authorities desire. Indeed, price boosts on consumer goods are not likely to affect prices at the producer level very much if at all. The adjustment will apparently be made through cutting turnover (sales) taxes. To the extent that the producer directly receives the payments result-

ing from the higher prices, it alters the composition of his revenue in the direction of a lower share for subsidies, but does not increase the total sum received for each unit sold.

The retail price hikes in 1979—except possibly for Hungary—were not associated with an overall revamping of prices or reform in the price formulation process.¹¹ Production costs in much of Eastern Europe remain inadequate and misleading signals of relative scarcities. The consumer price hikes of 1979 leave untouched the misallocation of resources—the inefficiencies—resulting from centrally established and imposed prices.

Hungary is often cited as an exception to the general pattern of highly centralized economic control in Eastern Europe. Indeed, Budapest has said that the consumer price increases in 1979 were part of a comprehensive realignment intended to give prices a greater role in determining economic activity. But the distinction between Hungary and the rest of Eastern Europe should not be overstressed, the Hungarian economy is still centrally planned, and centralized control over resource allocation still prevails. If anything, such control is likely to strengthen because of the need to rectify an external financial imbalance under increasingly unfavorable economic conditions. The key features of the Hungarian price reform, as explained by Budapest, are the increase in consumer prices to reduce subsidies, restructuring of domestic prices to conform better to world price ratios, and ongoing alteration of prices to preserve these ratios. Adjusting domestic price ratios so that they mirror world price ratios does make economic sense in that in the substantially open Hungarian economy world price ratios should be a reasonably reliable guide to the opportunity costs of producing one good rather than another. The question nevertheless remains whether the sweeping revision of prices now under way—producer prices have been substantially changed in 1980—is really necessary to improve the balance of payments, which Budapest identifies as the overriding reason for the price overhaul (and the other reforms that are part of the revival of the New Economic Mechanism).

As pointed out above, in Hungary as in all Warsaw Pact countries, the central authorities control foreign trade and can thus achieve balance of payments objectives through administrative means. Indeed, in 1979, when the renewed NEM was just getting under way, Hungary markedly improved its trade and current account balances. The answer would seem to be, then, that reform is not necessary. Nevertheless, it could be helpful. Although balance-of-payments equilibrium can probably be restored through diligent and vigorous imposition of restraint and direction of foreign trade by fiat, establishing a price system that will harmonize the interests of enterprises with those of the central authorities may facilitate achievement of the desired external payments balance.¹²

3. *Energy conservation argument.*—Steep rises in prices of fuels and energy sold to consumers were common to all five countries that announced price increases in 1979, lending credence to official state-

¹¹ However, Bulgaria—when it announced the rises in retail prices—disclosed that increases in agricultural procurement prices would also go into effect, in 1980.

¹² See Paul Marer, "The Mechanism and Performance of Hungary's Foreign Trade," to appear in Paul Hare and Hugo Radice, *The Hungarian Economy: Ten Years On*, London: Geo. Allen and Unwin, 1980.

ments that energy conservation was one of the principal aims. Nonetheless, the impact of these boosts on energy consumption is not likely to be great. Only a small portion of total energy consumption—about 15 percent—is directly accounted for by the household sector, and energy is administratively allocated to the consumer sector—weakening the connection between prices and the amount consumed. Raising energy prices can serve state interests if—by bringing officially allocated supplies of energy into better balance with demand—it cuts down on unauthorized diversion of energy, through black market type sales.

4. *World inflation argument.*—As we indicated at the outset, we believe restraint of consumer demand on a broad scale, not just for energy, is the prime reason for the consumer price rises in 1979. It is the pursuit of this goal that underlies the argument that higher consumer prices were necessitated by inflation elsewhere in the world. The link between world inflation and the need to damp consumer demand is complex and can be summarized as follows:

Eastern European economic prospects over the next several years are discouraging. Economic growth will be slow at best, reflecting a variety of constraints. These include systemic rigidities that are becoming increasingly burdensome; declining increments to the working age population; dependence on energy and other raw material imports that are becoming more and more expensive and difficult to obtain; and balance-of-payments deficits that must be narrowed or eliminated. In this setting of waning, possibly vanishing growth, the need to devote an increasing share of GNP to net exports to deal with balance-of-payments requirements will inevitably squeeze the domestic economy, including personal consumption. World inflation is intensifying the squeeze. The problem is not inflation per se but the fact that in the 1970's prices have for the most part risen faster (as noted above) on Eastern Europe's imports than on its exports. That is, the terms of trade have been moving unfavorably for Eastern Europe, impeding efforts to cut balance of payments deficits. Terms-of-trade movements will continue to be adverse, in large measure because of Eastern Europe's disadvantageous energy situation. Most countries there heavily depend on the Soviet Union for energy, notably oil. But Soviet exports of oil, a large share of which is sold on more favorable terms than are available in non-Communist markets, are likely to level off, requiring Eastern Europe to turn to other, more expensive sources of supply if oil consumption is to grow at all.

Data on economic targets in Eastern Europe confirm that the regimes there are reducing the proportion of GNP allocated to domestic uses. Hungary's 1980 plan, for example, calls for a 3- to 3.5-percent increase in national income produced but a slight drop in national income utilized domestically. In Czechoslovakia, the projected growth rates in 1980 are 3.7 and 2.2 percent, respectively, for national income produced and national income used.

The brunt of the decline in the share of production for domestic use need not be borne entirely by the consumer. Indeed, sharp absolute decreases in capital investment are the principal means by which East European countries are now implementing the shift in resources to the foreign sector. Still, there are limits on how drastically investment

can be slashed, since the East European goal of higher quality goods more efficiently produced depends in part on introduction of new plant and equipment. Furthermore, the share of defense spending in national income is likely to increase amidst the increase in East-West tension generated by the Soviet invasion of Afghanistan. The consumer will therefore increasingly feel the impact of the ever more insistent claims of the external sector. Indeed, many East European officials have candidly warned of an impending stagnation in living standards.

C. How Price Rises Will Restrain Demand

The consumer price boosts of 1979 suggest that several Eastern European regimes now view upwardly flexible prices as a useful instrument for facilitating the restriction of personal consumption. The demand-inhibiting effects of higher retail prices is accomplished primarily by reducing excess demand for consumer goods sold in the state sector.¹³ By bringing supply and demand into better balance there, purchasing power is absorbed that would otherwise flow into savings and/or purchases outside the state sector, in the so-called second economy.¹⁴ These flows threaten or cause, currently or in the future, diversion of resources from uses desired by the state into unauthorized uses. To quote Green—whose analysis we have found particularly enlightening—"When the gap between the retail price level and market price levels becomes quite large, there can be serious repercussions on the planned sector of the economy. Labor effort (if not employment) and other resources may be diverted to second-economy activities with deleterious effects on state production."¹⁵ At present, and for the foreseeable future—when pressure on resources will be particularly intense—the regimes of Eastern Europe are doubtless especially eager to keep tight control over resource allocation.

D. A Note on the Excess Demand Issue

We have assumed—on the basis of an unending stream of reports of long lines, long-waiting periods, etc.—the existence of excess demand (or repressed inflation, as it sometimes is called) in the state sector in Eastern Europe.¹⁶ The validity of the excess demand assumption has been challenged in recent years, notably by Portes and Winter.¹⁷ They conclude, on the basis of econometric analysis, that demand for money and savings behavior by households over time were stable and predictable in the GDR, Czechoslovakia, Hungary, and Poland. They claim that their findings imply the absence of repressed inflation, under which, supposedly, money balances desired would be

¹³ Raising prices on goods for which demand was inelastic even where supply and demand were in equilibrium in the state sector would reduce the income available for purchasing other items.

¹⁴ We do not wish to imply that operations in the second economy are invariably inconsistent with state interests. The second economy often fills needs the state is unable or unwilling to meet.

¹⁵ Green, unpublished paper, *op. cit.*

¹⁶ Repressed inflation refers to a situation in which prices are successfully kept stable but would in fact rise if the administrative restrictions keeping the lid on were removed. It is not to be confused with hidden inflation, which refers to actual but covert or unacknowledged price rises.

¹⁷ Richard Portes and David Winter, "The Demand for Money and for Consumption Goods in Centrally Planned Economies," *The Review of Economics and Statistics*, Vol. LX, February 1978, pp.8-18.

out of line with actual balances and actual expenditures on consumption would be less than desired.

Portes and Winter's rejection of the excess demand thesis has been questioned, however. According to Green, for example, one major flaw is that the approach is too aggregative. Green argues that Portes and Winter could be correct about the stability of money demand and savings behavior even though disequilibrium—excess demand—prevailed in individual markets, and large and important markets at that. Green—also using econometric analysis—maintains that in the GDR overall consumer equilibrium has gone hand in hand with disequilibrium in the large and vital state food sector. Unsatisfied demand thus “spills over” into other areas, to the detriment—as we have said—of state control.¹⁸

E. Why Increase Prices To Restrain Demand?

Price rises are only one of the ways in which consumer demand can be curtailed. One can only speculate as to why this particular technique was chosen. East European regimes probably viewed it as the politically least unpalatable option. Income taxes are little used in Eastern Europe, so raising them or imposing them would have been particularly unpopular. Lowering wages would have been more provocative than raising prices. Economically, furthermore, increasing selected prices is presumably the most effective way to improve equilibrium in the state retail network, a goal to which we assume the regimes of Eastern Europe attach high priority.

Another question is why the particular mix of price and pay and benefit increases was selected. Why not, for example, raise prices by a smaller amount and leave wages and transfer payments as they were? Perhaps the authorities believed that steeper price increases accompanied by pay and benefit hikes would be less upsetting to the populace than lower price rises with no rise in money income. Combining selected pay and price boosts also afforded the opportunity of rearranging the structure of relative incomes at the same time prices were raised. Perhaps the size of the price increases was dictated by the goal of having prices cover production costs, although this seems unlikely since sizable subsidies remain on many of the goods whose prices were increased.

V. THE PUBLIC'S MODERATE REACTION

The rash of officially announced consumer price increases in 1979—despite manifest anxiety on the part of the regimes that introduced them and despite the fact that prices of essentials were affected—did not set off large-scale civil disorder or violent protest. The inevitable pervasive grumbling one can expect to accompany price increases anywhere seems to have been the predominant reaction. Panic buying in anticipation of further price increases appears to have been the most unsettling response from the leadership's standpoint. Scare buying seems to have been particularly heavy in Czechoslovakia. Perhaps because the price increases were limited to a few items, they invited expectations that increases would spread to other goods. The regime

¹⁸ Green, unpublished paper, *op. cit.*

seems to have emitted conflicting signals, sometimes denying further hikes were planned, at other times intimating that additional boosts were a possibility.

Four major factors seem to explain the public's generally moderate reaction:

1. As noted above, the publicly disclosed price increases were accompanied everywhere except in Romania by increases in wages and benefit payments.

2. The regimes that substantially increased prices prepared the public for the price increases in advance. Hungary—where retail price increases have become routine, although more modest than the 1979 increase—did a particularly thorough and skilled job of informing the public of its plans and of the reasons for them.

3. The populations of Eastern Europe, whatever their misgivings, feared the repression that would follow violent reaction to the price rises.

4. The Eastern European public is accustomed to inflation, disseminated as described above in a variety of informal, back-door ways. Thus while large-scale officially announced price increases may have been a disagreeable novelty, long experience with rising price levels mitigated the inevitably adverse reaction.

The reaction overall seems to have been sufficiently mild that Eastern European regimes may be emboldened to openly raise consumer prices more steeply and more frequently than in the past.

APPENDIX

EXCESS DEMAND AND CONSUMER WELFARE

The welfare reducing effects of excess demand are demonstrated below.

In all four figures, the horizontal axis represents goods sold in state retail outlets and the vertical axis—money income to be spent on all other goods and held as savings.

Figure 1 shows welfare maximization at Point A, where the consumer—here the collective of consumers—is free to distribute his income between any combination of X and Y lying along income line $Y_{\max} X_{\max}$. The consumer optimizes by spending $Y_{\max} Y_1$ to buy OX_1 of X and devoting Y_1O to the purchase of all other goods and/or to savings.

Figure 2 shows what happens when the supply of X is arbitrarily set at OX_1 , but money income and prices are kept the same. Excess demand emerges, with consumers now buying OX_2 of X—on which they spend $Y_{\max} Y_2$ —and spending Y_2O on all other goods and savings. The consumer ends up at Point B on his income line—or on a lower indifference curve than in figure 1. He is thus obtaining less satisfaction from his spending than before.

In figure 3, the authorities eliminate excess demand for the given output of X (OX_2) but do so in such a way as to permit consumers to maximize satisfaction, by raising the price of X by the amount implied by the new income line $Y_{\max} X'_{\max}$. Real income has been reduced and with it the level of consumer satisfaction. But, subject to the tighter constraint, consumer welfare is maximized at Point C. Savings and spending on other (second economy) goods have been cut by Y_2Y_3 .

Figure 4 shows what would happen if the authorities were overzealous and raised the price of X as reflected in income line $Y_{\max} X''_{\max}$ while continuing to produce X at the rate of OX_2 . This is the worst of all possible worlds. Inventories of X_2 accumulate, and expenditures on other goods and savings are higher by Y_2Y_4 , than they would have been had the price been raised only to $Y_{\max} X'_{\max}$. The consumer is losing out because his level of satisfaction has been reduced compared with his position in figure 3. The state suffers because more is being

spent in the second economy and saved, by the amount Y_3Y_4 . The price of X was set so high that demand was elastic over the price range from $Y_{max} X_{max}'$ to $Y_{max} X_{max}''$, as is shown by the lower total expenditure of $Y_{max}Y_4$ on OX_3 , compared to a total expenditure of $Y_{max}Y_3$ on OX_2 .

(As figure 3 indicates, the demand for X was price inelastic from price $Y_{max} X_{max}$ to price $Y_{max} X_{max}'$. That is, more was spent on a smaller quantity of X— $Y_{max}Y_3$ on OX_2 —after the price rise than before, when only $Y_{max}Y_1$ was spent on OX_1 .)

The possibility that the authorities would overshoot the mark, as they do in figure 4, is remote, however. They have been cautious, continuing to subsidize the production of goods heavily, even some of those on which prices were raised.

Figure 1.

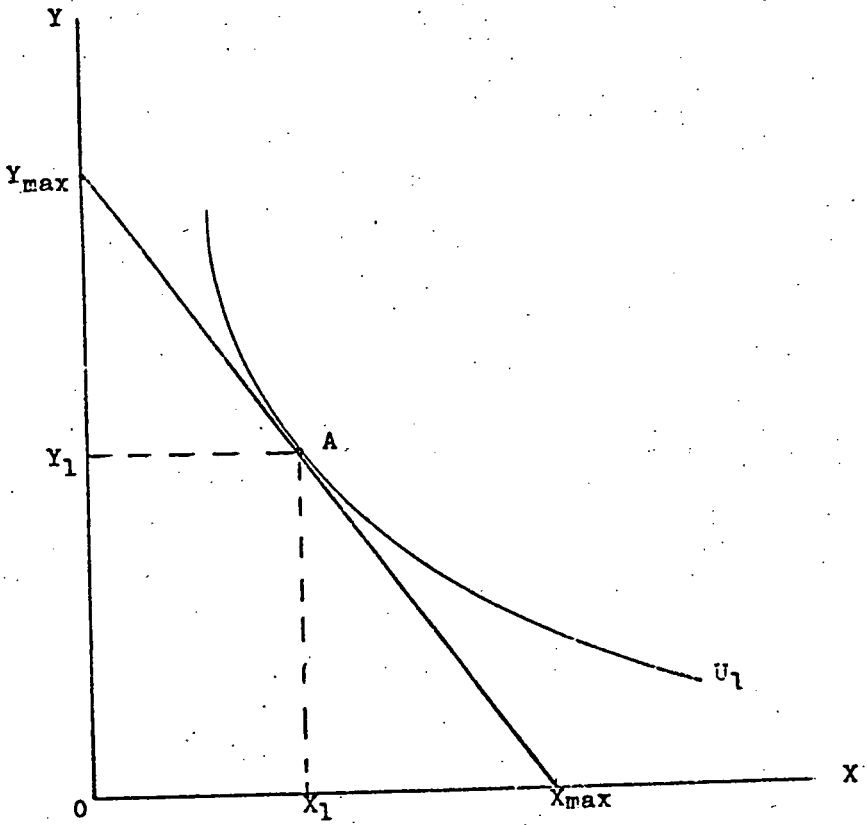


Figure 2

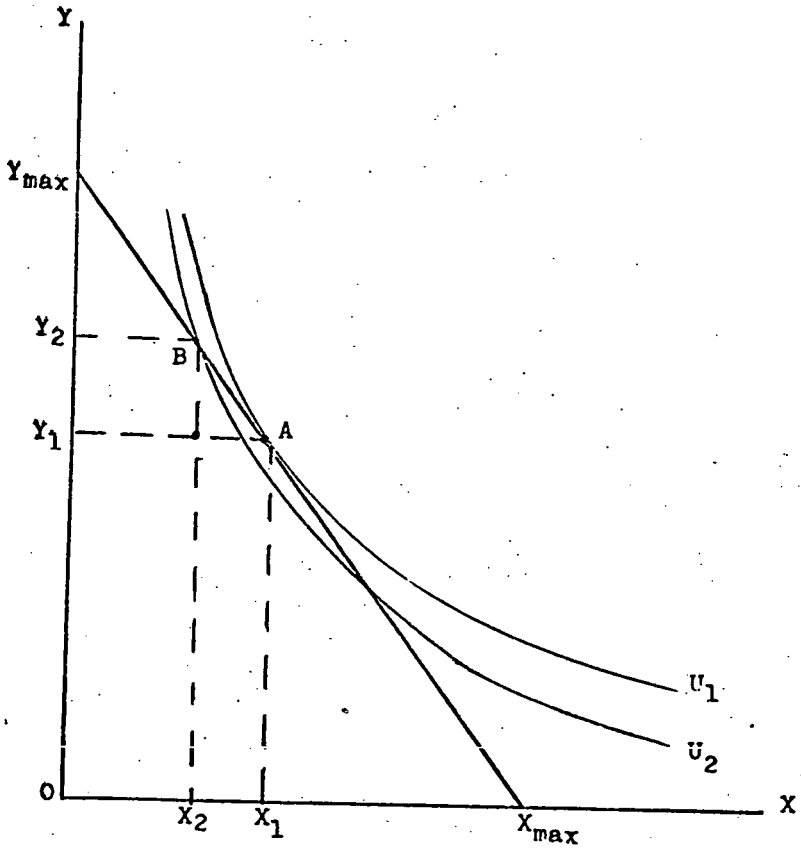


Figure 3

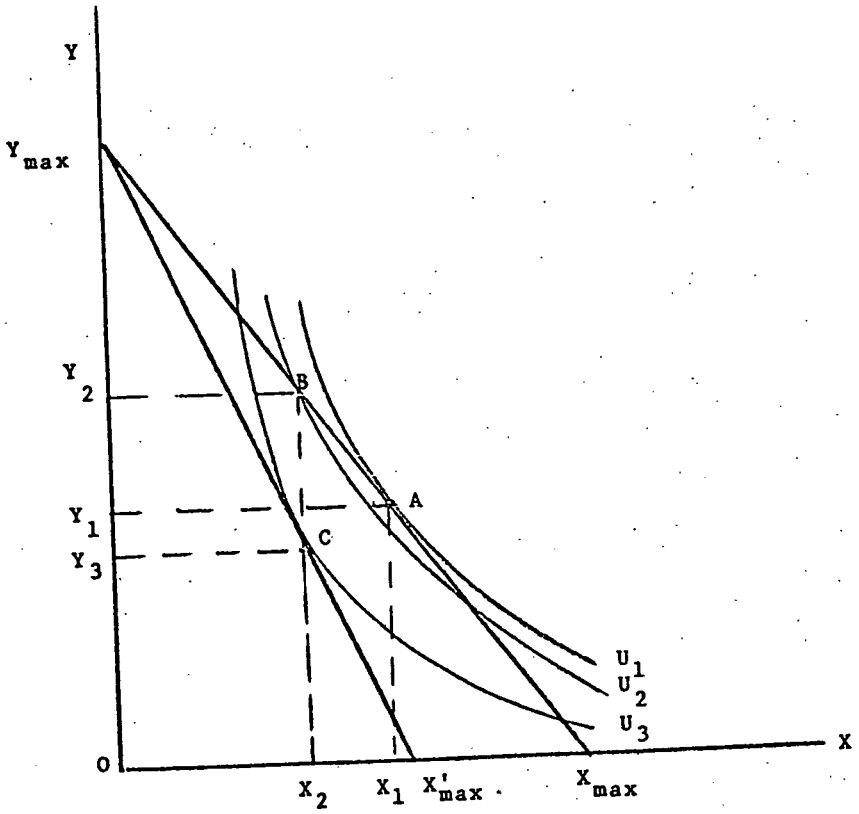
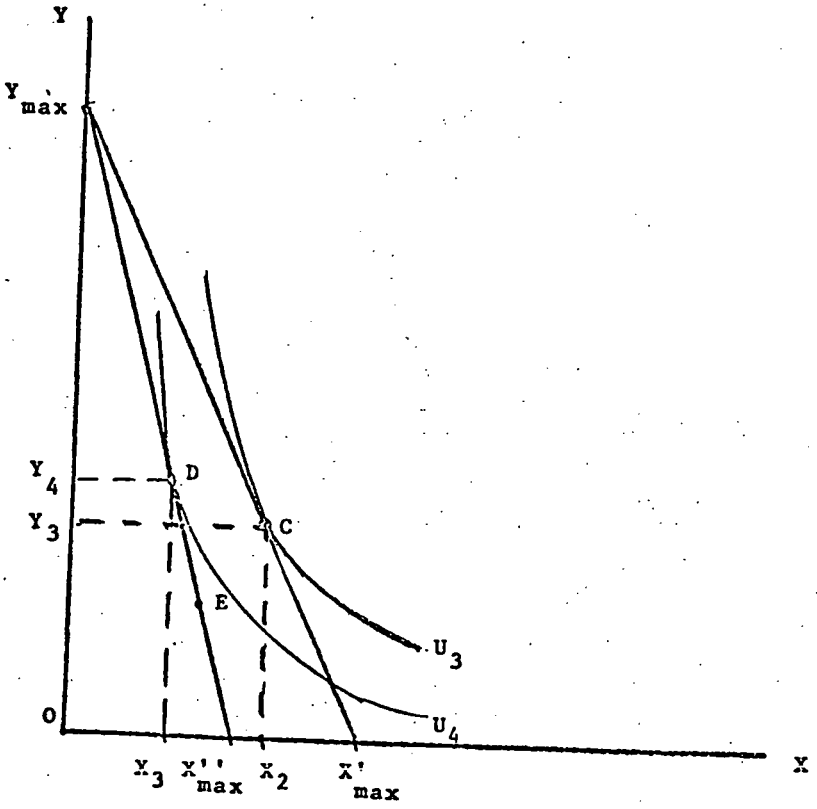


Figure 4



PRODUCTION AND RESOURCE ALLOCATION IN EAST-ERN EUROPE: PERFORMANCE, PROBLEMS, AND PROSPECTS

By Thad P. Alton*

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SUMMARY

This paper examines the comparative economic performance since 1965 of six East European countries: Bulgaria, Czechoslovakia, the German Democratic Republic (GDR), Hungary, Poland, and Romania. It is concerned with structural changes and rates of growth of production, final uses of product, factor inputs and labor productivity.

Two sets of measures are considered: (1) Our independent estimates of the structure and trends of economic activity, and (2) official national statistics on such structures and trends. Our measures adhere to the familiar GNP concept as defined in the United Nations SNA (System of National Accounts). They are more comprehensive in coverage of economic activity than the net material product (NMP) national income definition published in East European statistical sources in that GNP includes government and private sector services that the NMP concept excludes as nonmaterial, or nonproductive.

*I am greatly indebted to all my colleagues at the Research Project on National Income in East Central Europe for their substantive contributions to this paper. The basic statistical measures and their underlying research are the cumulative results of the joint efforts of many Project associates, past and present. Many of the findings outlined here were originally published by various authors in Project *Occasional Papers*, of which a list is appended in the bibliographical note to the Appendix. For the current article, special thanks are due to Gregor Lazarek, Elizabeth M. Bass, Wassyl Znayenko, George Staller, and Frank Bandor for the preparation of GNP estimates and for consultations, review, and participation in the drafting of the paper. Any shortcomings are my responsibility.

There are also fundamental differences in how the national product is priced or valued. Our GNP measures are based on approximations to factor cost (remuneration of labor, a net return to capital and agricultural land, and consumption of fixed capital in the process of production). The NMP measures are given for each country in its market prices of a specified date for particular time segments for trends (or particular years for structures) of economic activity. Underlying such East European market prices there are differentiated sales (or turnover) taxes, differentiated profit levies, and trade subsidies that impinge in highly diverse degrees on various products or various branches of production. As a result, the official indicators of structure of economic activities sometimes present anomalies, and comparisons over time for a given country and between East European countries are less reflective of "real" differences than comparisons based on factor cost.

While the NMP measures are thus inappropriate substitutes for GNP indicators, we present them in this paper because East European national economic discussions and plans refer to NMP. Inferences as to changes made within the NMP framework can be put into perspective by references to our GNP measures, which offer better symmetry for intercountry and intertemporal comparisons than the NMP indicators.

Among the many aspects of recent economic developments in Eastern Europe that emerge from the statistical findings presented in our tables here, the following general trends may be noted:

Slowing population growth, already high economic participation rates, and diminished potential transfers of labor from agriculture underscore the enduring importance of labor and labor productivity as constraints on growth.

Past emphasis on industrialization seems to continue in all countries. In some, the share of industry in GNP is actually now higher than the norm for developed western economies, reflecting comparatively low development of services. Agriculture's share in GNP continues to lessen throughout the area, but it is still the second largest.

Our estimates, necessarily rough, of dollar levels of East European GNPs put the per capita average for the area at about 37 percent of the U.S. level in 1978, with a range from about 50 percent of the U.S. level for the GDR and Czechoslovakia down to about 30 percent for Bulgaria.

Measures of growth of GNP show a slackening of rates of growth in recent years in the three countries that have been growing most rapidly (Romania, with a growth of 128 percent over 1965-1979, followed by Bulgaria, 85 percent, and Poland, 75 percent), as well as in the three more mature countries (with growths of 51-53 percent over 1965-1979).

Provisional measures of changes in the uses of final product are handicapped by lack of data or estimates sufficiently refined to distinguish military procurements from other uses in fixed capital investment and inventories. On the whole, it appears that investment and military effort combined tended to grow more than personal consumption and consumption of the civilian government services that we could attempt to measure.

Slackening rates of general growth amid rising inputs, and low rates of growth of labor productivity are occurring in the context of increasing foreign debt and rising costs of materials, especially of energy. A fresh round of economic reform measures in Hungary recalls repeated efforts by East European economic authorities to decentralize management, provide incentives, and enhance efficiency, repeatedly frustrated by bureaucratic inertia and resistance. In Eastern Europe there is perhaps a systemic impossibility of eliciting a high level of initiative and effort in the context of mandatory full employment with job security amounting to tenure, and excessive central control of economic activity. There are lessons to be learned by other countries from the East European experience.

I. INTRODUCTION

This paper is concerned with the comparative economic performance of Bulgaria, Czechoslovakia, the German Democratic Republic (GDR), Hungary, Poland and Romania over the years 1965-1979. The essence of its content lies in the statistical materials presented in its tables, and most notably in our independent measures of GNP structure and growth, which permit the examination of developments in these countries over time and of differences among countries on a comparable basis. Materials provided below describe structural changes in the economies, rates of growth of production, final uses of product, factor inputs, and labor productivity, in terms that are methodologically consistent for the entire time period, and for all six East European countries. Results for 1979 are, of course, preliminary.

We shall make here, and repeat in many contexts, a fundamental distinction between two sets of measures appearing in this paper: (1) Our independently constructed GNP measures, and (2) official net material product (NMP) "national income" indicators. Our tables referring to GNP may be considered both for international comparisons and for intertemporal comparisons within a given country. We must emphasize that GNP and NMP summary measures are not comparable because of differences in coverage, bases of valuation, and methodology. Often, NMP measures are not comparable among themselves. We shall make these differences and inconsistencies clear below in connection with particular tables. At this point, it may be useful to note briefly that GNP as used in this paper follows the conventional definition; where any significant modification of this concept is applied, this will be indicated at the appropriate point in the text. Unlike the GNP concept of gross value added in production of goods and services, the NMP aggregate is limited to material production, excluding so-called nonproductive services, e.g., government services, including defense. However, the NMP is not entirely net value added. By the methodology of its derivation, the gross sales value of production is diminished only by material costs, including depreciation of fixed assets, to arrive at NMP. Purchases from non-material production sectors (i.e., various services) enter as costs into the gross value of production, but are not subtracted from this gross value to derive NMP. Thus they are passed along into the NMP of the material production sector that buys them. Hungary alone among the East European countries has presented formally in its recent statistical yearbooks both

NMP and NNP (net national product) and GDP (gross domestic product) tables, but the underlying problem as concerns production and final use of product still is the basis of valuation.

The problem of valuation, or price systems, affects the measures of economic performance throughout Eastern Europe. A few observations here, precisely about Hungary, which has been in the forefront of economic reforms, should illustrate the nature of the problem:

Under the New Economic Mechanism (NEM) introduced on January 1, 1968, Hungary expected to place price formation on a more realistic footing in relation to costs of labor, capital, and exports to and imports from the rest of the world. This aim, however, was not expected to be achieved in the short run. Too many investments had been made in earlier years without sufficient regard for the realities of input costs and Hungary's participation in international division of labor. The domestic price regimen would have to be reordered under the NEM, and the relation of domestic to world prices would require introduction of uniform rates of exchange of the domestic forint to the major world currencies. Investments in production facilities made before the introduction of the NEM could not be summarily written off. They would be allowed to proceed toward termination aided by state subsidies and special concessions in foreign trade exchange rates.

The disruption of the world economy after 1973 caused by sharply increased costs of petroleum and other raw materials and other inflationary factors added to the very substantial internal difficulties that should have been anticipated upon transition to the NEM. Deputy Prime Minister Margai of Hungary in discussing Hungary's foreign economic policy pointed out that imports had become more expensive and export goals more difficult to achieve.¹ The balance of trade in convertible currencies turned sharply adverse, and Hungary's intra-CMEA trade was impeded by her partners' limited export possibilities, especially in raw materials and petroleum from the USSR, where costs of production and transport difficulties, and, we may add, sales opportunities on other markets had increased. Margai indicated the need for higher appreciation of quality in production, for economy in the use of time, energy materials, and productive capacity, for discipline, and for socialist entrepreneurship.

The NEM, notwithstanding its bold design, had at its inception reserve provisions that in time eroded substantially the desire to instill economic efficiency in response to cost-based and market influenced pricing. Despite the desire to shed the central command type of economy, the government was inclined to compromise major principles in order to avoid major calamities: inflation, unemployment, and stagnant or declining living standards.² Hence retail prices and wages in the 1970s were still controlled, investment funds in major part were kept under state budget or state bank control, and state subsidies were continued in order to keep enterprises solvent in spite of their inefficiency. Retail prices in very substantial measure were insulated from

¹ See Jozsef Margai, Deputy Prime Minister, "External Economic Policy Furthering Socialist Progress", in *The Hungarian Economy* (a special quarterly, published by Figyelo), 1979, vol. 8, No. 4.

² See William F. Robinson, "Hungary's NEM: A New Lease on Life?" in RFE. *RAD Background Report/275*, Dec. 13, 1979, for a survey of problems under NEM and new measures to cope with them.

producers' prices and the domestic economy from prices on world markets. Domestic consumption and investment exceeded the output of the national economy, and import surpluses led to balance of payments problems and a heavy burden of foreign debt service. A facade of relative consumer price stability belied the facts of state subsidies.

Essays in other parts of the present Compendium will survey in detail the terrain of the individual East European national economies. The point to be made here is that the price systems of these economies have masked fundamental economic realities relating to structure and rates of growth of production and final uses of product. The NEM in Hungary gave way to recentralization. Discontinuous sharp upward increases of consumer prices were put into effect recently, and a refurbished set of economic regulators and amendments to the Labor Code were made effective on January 1, 1980. How these new measures will succeed remains to be seen, but past performance warrants skepticism.

The horizon of economic rationality and efficiency in Eastern Europe has been retreating. No doubt the national economic authorities know well enough that the realities of costs and efficiency are poorly portrayed by their accounts in current, unadjusted prices, and that in planning they should seek more rational trade-offs than their deformed price systems suggest.

Economists in Hungary and Poland, for example, have sought to show the conformation of national economic activity in various systems of adjusted prices to reflect more adequately the contributions of labor and capital to value than their current price systems. These systems are characterized by patchworks of domestic subsidies, disproportionate incidence of turnover (sales) taxes, and profits poorly related to factor contributions. There are enterprise-differentiated foreign trade subsidies that belie the notion of unified exchange rates within CMEA and separately for the Western economies. We shall return to this problem in discussion of particular tables of structure and growth of economic activity. Differences in rates of growth and structure of economic activity as shown in our GNP measures versus the official NMP indicators in large measure reflect the problems of valuation of factor inputs and value added in production.

II. ECONOMIC PERFORMANCE AS REFLECTED IN STRUCTURE OF PRODUCTION, FINAL USES OF PRODUCT, AND LABOR AND CAPITAL INPUTS

In this section, we examine the performance of the East European economies as shown in the changing composition of value added in production, in final uses of product, and in inputs of factors of production: labor and capital. Our findings on the structure of economic activity will be presented in tables 2-10.

Population: Numbers, Indexes, and Rates of Growth

Population statistics provide extremely rough indications of economic potential, particularly where comparisons are made between countries at sharply differing levels of industrial development. Where such levels do not vastly differ, an initial impression of the economic

significance of a country, or a group of countries, may be gained by reference to demographic statistics. The population data in table 1 show a total population of 108.8 million for the six countries for mid-year 1979. For comparison, the mid-year 1978 populations in millions were as follows: six countries of Eastern Europe—108.2, United States—218.5, U.S.S.R.—261.2, France—53.3, Federal Republic of Germany (including West Berlin)—61.3, and Italy 56.7.³ Thus the six countries represent about 50 percent of the level of the United States and 41 percent of that of the U.S.S.R. Although individually the countries are relatively small, taken together they represent important economic potential.

TABLE 1.—EAST EUROPEAN POPULATION 1965-79

	Bulgaria	Czechoslovakia	German Democratic Republic	Hungary	Poland	Romania	Total
I. Midyear or annual average (thousands):							
1965	8,201	14,159	17,020	10,148	31,496	19,027	100,051
1966	8,258	14,240	17,058	10,179	31,698	19,141	100,574
1967	8,310	14,305	17,082	10,216	31,944	19,285	101,142
1968	8,370	14,361	17,084	10,256	32,305	19,721	102,097
1969	8,434	14,415	17,076	10,299	32,555	20,010	102,789
1970	8,490	14,334	17,058	10,338	32,526	20,253	102,999
1971	8,536	14,399	17,061	10,368	32,805	20,470	103,639
1972	8,576	14,465	17,043	10,398	33,068	20,663	104,213
1973	8,621	14,560	16,980	10,432	33,363	20,828	104,784
1974	8,679	14,686	16,925	10,749	33,691	21,029	105,489
1975	8,721	14,802	16,850	10,541	34,022	21,245	106,181
1976	8,759	14,918	16,786	10,599	34,362	21,446	106,870
1977	8,804	15,031	16,765	10,648	34,698	21,658	107,604
1978	8,814	15,138	16,756	10,685	34,950	21,855	108,198
1979	8,823	15,223	16,747	10,690	35,216	22,044	108,753
11. Indexes 1965 equals 100:							
1965	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1966	100.7	100.6	100.2	100.3	100.6	100.6	100.5
1967	101.3	101.0	100.4	100.7	101.4	101.4	101.1
1968	102.1	101.4	100.4	101.1	102.6	103.6	102.0
1969	102.8	101.8	100.3	101.5	103.4	105.2	102.7
1970	103.5	101.2	100.2	101.9	103.3	106.4	102.9
1971	104.1	101.7	100.2	102.2	104.2	107.6	103.6
1972	104.6	102.2	100.1	102.5	105.0	108.6	104.2
1973	105.1	102.8	99.8	102.8	105.9	109.5	104.7
1974	105.8	103.7	99.4	103.3	107.0	110.5	105.4
1975	106.3	104.5	99.0	103.5	108.0	111.7	106.1
1976	106.8	105.4	98.6	104.4	109.1	112.7	106.8
1977	107.4	106.2	98.5	104.9	110.2	113.8	107.5
1978	107.5	106.9	98.4	105.3	111.0	114.9	108.1
1979	107.6	107.6	98.4	105.3	111.8	115.9	108.7

Sources: Official statistical publications and plan fulfillment reports.

Population growth in the six East European countries as shown by comparisons of increases over the 1950-1964 period versus the increases over 1965-1979 has slackened in five countries and declined at a lesser rate in the German Democratic Republic (GDR). For each country, the percentage increments in the corresponding periods, 1950-1964 versus 1965-1979, calculated from national statistical yearbooks were as follows: Bulgaria, 12.3 to 7.6; Czechoslovakia, 13.5 to 7.6; the GDR, minus 7.6 to minus 1.6; Hungary, 8.4 to 5.3; Poland, 25.5 to 11.8; Romania, 16.0 to 15.9; and the six-country total, 12.3 to 8.7.⁴ Thus Romania alone has maintained its substantial momentum.

³ Non-East European data: US, CIA, *Handbook of Economic Statistics 1979*, p. 50.

⁴ 1965-1979: See table 1; 1950-1964: see U.S. Congress, Joint Economic Committee, *Economic Development in Countries of Eastern Europe* (1970). Paper by Paul F. Myers, pp. 123-135.

The new entrants into labor force of the 1980s will reflect births of some fifteen years earlier, and the more recent births will affect the consumption side of the national product. If recent trends continue, Eastern Europe will be facing increasing labor scarcities. Labor shortages already are strongly manifested in the GDR, which has the continued distinction of a declining population, Czechoslovakia, and Hungary. Even Bulgaria and Poland are concerned over labor shortages, though less acutely than are the other countries.

The agricultural population in Eastern Europe still constitutes a substantial reserve for transfers to other sectors despite its steeply declining share in the total of economically active population (see table 7). It is against this background of relative labor scarcity compared to the earlier post-World War II years that such great emphasis is being placed currently upon more rapid technological progress, capital investment, and labor discipline to make possible increased labor productivity.

Expectations of rapid increases in raising output to Western quality standards by leap-frogging to the technological forefront by purchases of up-to-date capital equipment and by technical education to match have not been achieved, despite significant progress in some high priority sectors. Rapidly mounting indebtedness of Eastern European countries to Western countries to finance imports of capital goods and agricultural products, notably animal feedstuffs, and disappointing export performance have placed great strains upon Eastern Europe's ability to carry the debt burden. In turn, this implies for Eastern Europe reduced rates of investment with concomitant reduction of the rate of growth of national product, a hoped-for decline in the population's expectations of rapidly increasing living standards in view of shortages of energy and raw materials and of the required expansion of exports and curtailment of imports, and insistence upon a higher intensity of effort on the part of employees.

Given the economic systems of Eastern Europe where unemployment with few exceptions is regarded as nonexistent, and where there is evidently inadequate differentiation of income in relation to effort, employees in the overwhelmingly dominant socialized sectors of production have developed a feeling of guaranteed tenure, regardless of effort. This feeling is not shaken by continuous exhortations by party and government for higher labor discipline. Effective incentives for higher productivity will require in substance, though most unlikely in form, substantial "reprivatization," less intervention by the party and the government in the workings of the economy, and more real incentives for above-average effort. Experience of the last three decades, however, suggests that a sustained reform of this kind is unlikely. Bureaucratic intervention from above and lower level economic interests seeking government subventions have undermined repeated "reform" efforts. A reform program is soon vitiated by numerous exceptions, and a new reform is decreed to accomplish what the previous reform had failed to achieve.

We shall turn now to measures of economic performance as shown in structural changes in production, final uses of product, employment, and fixed capital.

Composition of National Product by Sectors of Origin

Tables 2, 3, and 4 indicate the changing composition of national product by industrial sector over the 1965-1978 period. Tables 2 and 3 are in the GNP or GDP concept, and table 4 in NMP national income concept. Before discussing the structural changes in these tables some observations on concepts and methodology are warranted.

TABLE 2.—COMPOSITION OF GROSS NATIONAL PRODUCT BY INDUSTRIAL ORIGIN, SELECTED YEARS, 1965-78
[In constant prices]

	1965	1970	1975	1978
Bulgaria:				
Industry (including handicrafts).....	29.0	34.1	35.9	37.5
Agriculture and forestry.....	35.6	28.4	25.1	21.7
Construction.....	6.4	6.8	6.2	6.4
Transport and communications.....	6.1	8.3	9.6	10.6
Trade.....	5.3	6.2	7.2	7.8
Housing.....	7.0	6.1	5.9	6.0
Government and other.....	10.6	10.1	10.1	10.0
Total, GNP.....	100.0	100.0	100.0	100.0
Czechoslovakia:				
Industry (including handicrafts).....	40.1	41.5	42.5	43.3
Agriculture and forestry.....	18.7	18.3	17.4	16.7
Construction.....	5.3	5.3	5.4	5.3
Transport and communications.....	10.5	10.0	10.2	10.6
Trade.....	6.8	7.8	8.7	8.7
Housing.....	9.6	8.5	7.8	7.6
Government and other.....	9.0	8.6	8.0	7.8
Total, GNP.....	100.0	100.0	100.0	100.0
German Democratic Republic:				
Industry (including handicrafts).....	41.0	42.5	42.3	42.6
Agriculture and forestry.....	15.8	13.8	13.4	12.5
Construction.....	4.7	5.8	6.2	6.5
Transport and communications.....	7.0	7.5	8.3	8.5
Trade.....	9.4	10.0	10.8	11.1
Housing.....	8.9	7.9	7.0	6.8
Government and other.....	13.2	12.5	12.0	12.0
Total, GNP.....	100.0	100.0	100.0	100.0
Hungary:				
Industry (including handicrafts).....	33.5	34.4	33.2	33.9
Agriculture and forestry.....	25.9	22.4	23.1	22.1
Construction.....	4.5	5.7	5.7	5.5
Transport and communications.....	9.7	9.9	9.8	10.0
Trade.....	5.6	7.2	8.4	8.6
Housing.....	10.0	9.0	8.5	8.3
Government and other.....	10.8	11.4	11.3	11.6
Total, GNP.....	100.0	100.0	100.0	100.0
Poland:				
Industry (including handicrafts).....	32.0	35.7	37.5	38.2
Agriculture and forestry.....	30.0	24.4	18.9	18.8
Construction.....	7.0	8.4	10.4	9.5
Transport and communications.....	7.8	8.7	11.6	12.3
Trade.....	6.0	6.5	7.4	7.6
Housing.....	7.5	7.3	6.1	5.9
Government and other.....	9.7	9.0	8.1	7.7
Total, GNP.....	100.0	100.0	100.0	100.0
Romania:				
Industry (including handicrafts).....	26.4	35.5	39.8	40.8
Agriculture and forestry.....	42.1	31.3	29.3	30.2
Construction.....	6.7	7.5	6.2	5.8
Transport and communications.....	5.5	7.0	7.9	7.3
Trade.....	5.5	6.5	6.9	7.3
Housing.....	5.4	4.7	3.9	3.3
Government and other.....	8.4	7.5	6.0	5.3
Total, GNP.....	100.0	100.0	100.0	100.0

Source: Derived from GNP measures shown in table 14; see also appendix, pt. A.

TABLE 3.—NON-CMEA COUNTRIES: COMPOSITION OF GDP BY INDUSTRIAL ORIGIN AND EXPENDITURES, SELECTED YEARS, 1975-77

[Percentages of total]

A: Composition of GDP by industrial origin, producers' prices								
Year	GDP	Industry	Agriculture and forestry	Construction	Transport and communication	Trade	Other	
Austria ¹	1977	100	33	5	9	5	16	22
France ¹	1977	100	30	5	7	5	13	31
Federal Republic of Germany ¹	1977	100	41	3	7	9	6	32
Greece	1977	100	20	15	8	7	12	26
Italy ¹	1976	100	35	8	8	6	14	26
Japan ¹	1976	100	32	5	8	7	16	30
Spain ¹	1975	100	30	9	8	6	16	27
United Kingdom ^{1,2}	1976	100	30	3	6	8	9	33
United States ¹	1977	100	29	3	5	6	18	37

B: Expenditures on GDP, purchasers' prices								
Year	GDP	Government final expenditure	Private final consumption	Increase in stocks	Gross fixed capital	Exports	Less imports	
Austria ³	1977	100	17	57	2	27	35	39
France ³	1977	100	15	62	1	23	21	21
Federal Republic of Germany ³	1977	100	20	56	1	21	26	23
Greece ⁴	1977	100	16	67	4	23	16	25
Italy ³	1976	100	14	64	3	20	27	28
Japan ³	1976	100	10	58	1	31	14	13
Spain ³	1977	100	10	69		23	15	17
United Kingdom ³	1977	100	21	59	1	18	31	30
United States ³	1977	100	18	65	1	17	8	10

¹ In the present SNA, GDP equals value added by resident producers in producers' values, plus import duties.

² Includes a statistical discrepancy.

³ Present SNA.

⁴ Calculated from total of available items.

Note: In some cases the percentages do not add up to 100 because import duties are not included in the reported industrial group but do enter the total GDP. "Agriculture and forestry" include hunting and fishing; "Industry" includes mining, quarrying, manufacturing, electricity, gas and water. "Other" includes public administration, defense, and other services.

Sources: A—United Nations, "Statistical Yearbook, 1978," p. 724 ff, and U.S. Department of Commerce, "Statistical Abstract, 1979," pp. 896-897; B—United Nations, "Statistical Yearbook, 1978," p. 709 ff.

TABLE 4.—COMPOSITION OF NATIONAL INCOME (NET MATERIAL PRODUCT) BY INDUSTRIAL ORIGIN, SELECTED YEARS, 1965-78

[Percent of total]

	Total	Industry	Agriculture and forestry	Construction	Transport and communications	Trade	Other
Bulgaria:							
1965 ¹	100	48.7	28.5	7.7	4.6	8.4	2.1
1965 ²	100	45.0	33.4	7.3	4.5	7.7	2.1
1970 ¹	100	55.3	17.2	9.2	7.1	8.7	2.5
1970 ²	100	49.1	22.6	8.7	6.9	9.9	2.8
1975 ¹	100	53.5	19.0	8.9	8.3	8.0	2.3
1975 ²	100	55.7	14.7	8.9	8.3	9.9	2.5
1977 ¹	100	51.5	18.3	8.9	8.7	10.1	2.5
1977 ²	100	53.3	18.0	8.9	9.1	8.2	2.5
1978 ²	100						
Czechoslovakia:							
1965 ³	100	68.9	9.9	10.3	4.1	6.0	.8
1965 ⁴	100	66.4	12.0	9.3	2.4	8.5	1.4
1965 ⁵	100	64.9	13.3	9.3	3.2	8.4	.9
1966 ⁶	100	67.4	10.6	11.2	3.7	6.1	1.0
1966 ⁷	100	62.4	12.2	11.6	4.1	8.9	.8
1970 ⁴	100	61.6	10.9	10.9	3.6	11.8	1.2
1970 ⁵	100	61.0	11.3	11.2	4.2	11.3	1.0
1970 ⁶	100	62.7	8.9	11.9	3.7	11.7	1.1
1975 ⁴	100	62.7	9.3	12.5	4.3	8.9	.9
1975 ⁵	100	64.1	9.3	11.2	4.5	14.9	.5
1978 ⁶	100	59.8	9.1	11.2	4.6	15.4	.5
1978 ⁷	100	59.3	8.8	11.4			

See footnotes at end of table.

TABLE 4.—COMPOSITION OF NATIONAL INCOME (NET MATERIAL PRODUCT) BY INDUSTRIAL ORIGIN,
SELECTED YEARS, 1965-78—Continued
[Percent of total]

	Total	Industry	Agriculture and forestry	Construc- tion	Transport and commu- nications	Trade	Other
German Democratic Republic: ⁹							
1965.....	100	59.2	13.8	7.4	5.4	12.5	1.7
1970.....	100	60.7	11.6	8.3	5.2	12.6	1.6
1975.....	100	59.1	11.1	7.4	5.0	14.6	2.8
1978.....	100	60.4	9.6	7.4	5.0	14.6	3.0
Hungary:							
Original version:							
1965 ⁹	100	66.9	16.4	10.7	4.5		9
1965 ⁸	100	68.1	20.5	10.3	4.8	6	1.0
Revised versions:							
1965 version A ¹⁰	100	41.6	24.0	10.6	6.0	13.5	4.3
1970 version A ¹⁰	100	42.6	17.5	16.9	6.4	14.8	6.8
1970 version A ⁸	100	56.4	16.0	10.9	5.1	8.6	3.0
1975 version A ¹⁰	100	44.7	15.0	11.7	6.3	8.6	3.0
1975 version A ⁸	100	59.7	15.0	11.0	4.8	7.9	1.6
1975 version B ⁹	100	45.7	18.8	12.5		23.0	
1978 version B ⁹	100	46.9	17.3	12.8		23.0	
1978 version B ⁸	100	47.2	15.7	13.3	8.2	15.0	7
Poland:							
1965 ¹¹	100	53.4	21.1	9.0	6.2	8.5	1.8
1965 ¹²	100	51.5	23.5	8.9	5.9	8.7	1.5
1965 ¹³	100	51.6	22.8	8.9	5.9	9.3	1.5
1965 ¹⁴	100	45.0	25.5	10.2	6.3	11.5	1.5
1970 ¹¹	100	58.4	14.8	10.0	6.4	8.6	1.8
1970 ¹²	100	56.5	17.3	9.8	6.0	8.8	1.6
1970 ¹³	100	54.6	17.3	9.8	6.7	9.9	1.7
1970 ¹⁴	100	49.8	18.9	11.4	6.5	11.8	1.6
1970 ⁸	100	46.8	23.9	11.4	6.7	9.6	1.6
1975 ¹⁴	100	52.1	12.6	13.3	7.4	12.6	2.0
1975A ¹³	100	59.1	15.1	11.2	6.8	5.5	2.3
1975B ¹³	100	59.5	14.8	11.2	6.8	5.5	2.2
1975 ⁸	100	50.2	16.4	13.0	7.7	10.6	2.1
1978 ⁸	100	52.4	15.4	11.6	7.8	10.4	2.4
1978 ⁹	100	52.2	16.0	12.2	6.9	10.3	2.4
Romania: ¹⁵							
1965.....	100	48.9	28.9	8.0	4.0	10.2 ¹⁵	
1970.....	100	60.3	19.5	9.8	4.0	6.4 ¹⁵	
1970.....	100	58.0	18.5	10.4	6.0	7.1 ¹⁵	
1975.....	100	56.2	16.0	7.6	5.8	15.0 ¹⁵	
1975.....	100	59.8	16.2	7.6	5.8	10.6 ¹⁵	
1978.....	100	57.9	15.3	10.2	5.9	10.7 ¹⁵	

¹ In Jan. 1, 1962, prices through 1971. In Jan. 1, 1971 prices since 1971. 1970 and later years reflect changes in coverage to include passenger transportation and the communications services formerly excluded from material product, and also some services formerly excluded from industry and agriculture.

² In current prices.
³ In Apr. 24, 1960, prices.
⁴ In Jan. 1, 1967, prices.
⁵ In current prices.
⁶ Apr. 24, 1960, prices.
⁷ Jan. 1, 1967, prices.
⁸ In constant prices of Jan. 1, 1977.
⁹ Hungary: in "comparable prices," 1975 and 1978 version B in "1967 comparable prices"; GDR: 1965 and 1970 in 1967 prices, 1975 and 1978 in 1975 prices.
¹⁰ In 1968 comparable prices. "Other" includes water economy.
¹¹ In constant 1961 prices.
¹² In constant 1965 prices.
¹³ In current prices; for Poland, 1975 version A in classification effective to Dec. 31, 1975, version B in that effective Jan. 1, 1976.
¹⁴ In constant 1971 prices. Total NMP.
¹⁵ In current prices; the 2 sets of 1970 figures reflect changes in coverage to include passenger transportation and the communications services formerly excluded from national product, and also some services formerly excluded from industry and agriculture; the 2 sets of 1975 figures reflect changes in methodology from that effective in 1971-75 to the present methodology.

¹⁶ Official breakdown is not available. According to tabulation provided by the CMEA statistical office for NMP in current prices, the share of trade was 7.5 percent in 1965, 3.5 percent in 1970, and 10.6 percent in 1975 and 3.2 percent in 1978. The share of "Other" sector was 1.5 percent in 1965, 1.9 percent in 1970, 1.7 percent in 1975, and 1.4 percent in 1978. See "Statisticheskii ezhegodnik stran-chlenov Soveta ekonomicheskoi vzaimopomoshchi, 1979," pp. 47, 525.) There are other differences between the CMEA Romanian structure and the corresponding structure as shown in the official Romanian statistical yearbook, both sets indicated as in current prices. Notably, for 1978, the CMEA yearbook shows the share for industry at 62.4 percent, whereas the Romanian yearbook gives 57.9 percent.

Note: See appendix, pt. C.

As we have noted above, we use GNP or GDP in its conventional sense, referring to gross value added in production. NMP (net material product) national income is a narrower and somewhat less value added concept on two counts: (1) It excludes as nonproductive various service sectors that GNP includes; and (2) in its calculation NMP subtracts from gross production only intermediate material costs and depreciation, even though inputs from the nonmaterial (service) sectors enter the gross value of production of the material sectors that buy these inputs. These purchases from nonmaterial sectors accordingly appear as an element in the NMP of the purchasing sector. Although such purchases are not very significant percentage-wise in total production, they contribute to ambiguity. This fact, and other, more important considerations, have provoked discussions in Eastern Europe as to the desirability of broadening the concept of production to include nonmaterial services. Some concession has already been made in this direction by including as material production the formerly excluded passenger transportation and communications services to household and nonmaterial sectors. Since 1970, only Czechoslovakia still follows the Soviet lead in excluding these particular services. The other five East European countries had expanded their NMP sphere by 1970, but their indexes of NMP production and the related structures of NMP national income have not in all sources been retrospectively adjusted to provide uniform coverage over extended time periods.

The methodology and detailed documentation of our GNP measures have been published in the Occasional Papers of the Research Project on National Income in East Central Europe. A list of these papers is given in the bibliography of the present report and our appendix provides a summary description of these GNP measures in section A. In brief, we have derived GNP sector of production weights within the material production sphere taking as an overall constraint the NMP produced in a selected base year (a late 1960's year) reduced by the content of purchases by material sectors from the nonmaterial or so-called nonproductive sphere. The resulting control value was attributed to labor and non-labor factors of production. This value was allocated: (1) To labor returns, comprising wage and wage-like payments plus social security contributions, sector by sector; and (2) to nonlabor factors of production by reducing the control total by the sum of labor returns and distributing the residual to production sectors on the basis of their percentage shares in the total of their present (depreciated) values of fixed capital and working capital. The results for the material production sectors were augmented to reach the GNP concept by adding depreciation on fixed assets, and, further, by estimating the gross value added in the service sectors excluded from the NMP concept. Labor returns in these services were determined in the same sense as for the material sphere, non-labor net returns to capital were estimated at the same rate as for the material sphere, and depreciation similarly was estimated. Non-labor returns were included only in those service sectors where such returns are conventionally provided according to the SNA concept.

The base-year structure of GNP by sectors of origin of product was moved to other years by our GNP real indexes of production sectors, and the results are shown in table 2 in percentage shares of total GNP.

Derivation of our GNP indexes is outlined in our appendix and will be discussed briefly in part IV, below.

It is worth repeating here our earlier observations that because of differences in concepts, in methodology, and especially in bases of valuation, the structures of economic activity as shown in GNP and NMP tables below are far from comparable. It would require a substantial effort to transform the NMP concepts into factor cost approximations such as are represented in our GNP tables. Some efforts have been made in Eastern Europe to see what consequences for structure of production would follow from application of different bases of valuation to the NMP concepts. The consequences were in fact very significant. We shall return to this point in discussing the NMP tables below. We believe our adjusted valuations shown in GNP concept provide a superior guide to the structure of production and use of product than the truncated production concept structures represented by the NMP tables and the distortions from factor cost entailed in the bases of valuation underlying these tables. For purposes of international comparison both with the CMEA grouping and with other countries, the GNP concept on an adjusted factor cost basis is preferred. NMP tables applying to non-CMEA countries are not generally available, though no doubt some approximations have been made by some authors for special purposes.

Table 2 shows the continued primacy of industry in the percentage composition of GNP, 1965-1978. This sector has shown a slightly increasing share in this period in Czechoslovakia and the GDR (rising from around 40 percent to 43 percent), relatively insignificant change in Hungary (about one-third of GNP), and steep increases in the remaining countries from 1965 to 1975, but leveling off in 1975-1978 toward 38 to 41 percent of GNP. The share of agriculture and forestry has declined in all countries, 1965-1978, but the sector ranks second, ranging in 1978 from a low of about 13 percent in the GDR to a high of 30 percent in Romania. Transport and communication ranks third and shows a generally rising trend over the 1965-1978 period. Housing shows a generally declining trend. We leave it to the reader to trace the other services in table 2.

Table 3, part A shows in current prices for recent years the industrial composition of GDP for non-CMEA countries of Europe, United States, and Japan. The Federal Republic of Germany in 1977 ranked first in the share of industry (41 percent), a share slightly below that of the GDR and Czechoslovakia (see table 2). At this juncture one should note that comparisons of this kind are extremely rough, and the shares in the various countries are strongly affected by the bases of valuation, sectoral boundaries, and methodology of calculation, which may differ among countries. Despite such differences, table 3 suggests that Eastern Europe may be expected to decrease further the share of agriculture and to increase the share for services as the economies continue to develop. The very low shares for agriculture, and forestry (3 to 5 percent) for the more developed countries shown in table 3 (United States, U.K., West Germany, France, and Japan) are unlikely to be reached in Eastern Europe in a short period.

The table 4 shares of material product sectors in the NMP (net material product) national income are not directly comparable to data

shown in tables 2 and 3, not only because of the narrower product concept but also because of very significantly different bases of valuation. This lack of comparability applies within table 4 itself, both for a single country over time and among countries primarily because of differences in relative valuation among sectors. Moreover, as we have already noted above, changes in coverage of the NMP concept also affect the comparisons. At various points in time all of the countries except Czechoslovakia have transferred passenger transportation and communications serving households and nonmaterial sectors of production from the nonmaterial to the material product sphere. In 1970 and 1971, Bulgaria and Romania made this transfer. There have also been other such transfers enlarging the material product sphere, and the footnotes and introductory text to the national income chapters of the national statistical yearbooks make clear the lack of comparability over time that these transfers cause.

For example, the official Polish Statistical Yearbook for 1977, cautions the reader that calculations for 1975-1976 reflect changes in the official classification of economic activity binding from January 1, 1976, and also more rigorous estimates than formerly for net production of construction and agriculture, as well as revised depreciation rates for housing that result in changes in NMP consumed attributed to personal consumption from the population's own incomes or to other consumption, depending upon whether the housing was private or socialized.⁵ These changes were not carried back to pre-1975 years. We have not attempted to adjust the published figures to achieve comparability over time, and indeed the task might well require more information than is given in the available statistical sources.

We have included breakdowns of NMP by industrial sector for given years for several countries in more than one set of prices in order to illustrate the oftentimes extreme shifts that changes in valuation bring about. The footnotes to the table indicate the price bases underlying these changes. Perhaps most striking are the instances of "deindustrialization" within a single year. In Bulgaria, for example, in 1965 industry accounted for 49 percent of NMP in 1962 prices, but only 45 percent in current prices. A comparable "decline" in Czechoslovakia in 1966, from 67 to 62 percent, resulted from valuation in 1960 and 1967 prices, respectively. Most striking was the change in the share of industry in Hungary for a single year, 1965, from 67 to 58 to 42 percent in the transition to more recent price bases.

Romania's two different shares in 1970 for various sectors reflect boundary changes for overall NMP and for component sectors; "non-productive" passenger transportation and communications were made "productive" or "material", and some other services were annexed to agriculture and industry. Obviously the growth of national product measures reflected in chain linked indexes will be affected by the changes in prices bases and production boundaries unless adjustments are made. Difficulties associated with price or other weight base changes of course relate to the familiar inescapable "index number problem," but some alleviation may be devised by resort to averaging of various types.

A close reading of table 4 should identify by means of the footnotes the years that are valued in a single set of prices and thus provide an

⁵ *Rocznik Statystyczny 1977*, p. 50.

impression of the structural changes occurring over time. Thus for Bulgaria, the proportions in 1965 and 1970 based on 1962 prices are indicated by footnote 1. In this interval industry's share grew from 49 to 55 percent of the NMP national income; agriculture's share fell from 28 to 18 percent. The "real" changes in shares from 1970 to 1975 cannot be inferred from table 4 unless one assumes no change affected by valuations in current prices of the two years.

In addition to price base changes, there are four further aspects of NMP structure measures on which comments are warranted. First, the shares exhibited in the table are in market prices and reflect the incidence of turnover taxes, profits, and subsidies. These distortions from factor cost on balance favor industry, where the turnover taxes and profits, as forms of "socialist accumulation" (saving or revenue to finance investment and other social objectives) in general are realized in industrial selling prices. Second, because NMP national income excludes "nonproductive" services (government, etc.), but GNP does not, the percentage shares of net material product originating in the total NMP for industry and other material sectors would be larger than the correspondingly named gross value added shares in GNP where allocations have to be made to the sectors excluded from NMP. The fact that GNP includes capital consumption allowances whereas NMP excludes them of course should be taken into account here, but the consequences of this consideration would have to be sorted out in terms of the distribution of fixed assets and depreciation rates. Third, the NMP concept refers to gross output less material costs; purchases from "non-material" sectors appear as net material product of the buying sector. Although the total of such purchases is not large, if some sector, say industry, accounts for a disproportionate part of the total, then some distortion would follow as compared to the conventional notion of value added. Finally, fourth, and most important, the bases of valuation underlying table 2 differ from those of table 4; table 2 represents approximations to factor cost; table 4 is in established prices. The principal outcome of this difference would be more symmetric valuations in table 2.

Economic statisticians in Eastern Europe are aware of the consequences that alternative bases of valuation may have upon the structure of national income (material product concept). Thus, in the instance of Poland,⁶ the Polish Main Statistical Office (GUS) calculated the composition of gross national income (net material product plus depreciation) in realized, or established current prices on the one hand, and three alternative bases of current valuation: variants A, B, and C. Variant A was calculated in prices adjusted by subtracting from the value of net production in current realized prices the taxes (including turnover taxes, income taxes in cooperatives and the private sector, and land tax in agriculture) and positive budget differences (a levy very much like the turnover tax) and by adding subsidies and negative budget differences (which in effect are a form of subsidy). The intent here was to make the adjusted values of net product in particular sectors and branches of the economy more proportional to the corresponding outlays of social labor (live and that embodied

⁶ See Poland. Główny urząd statystyczny (GUS), *Rocznik dochodu narodowego, 1971*, "Aneks, Dochód narodowy w cenach umownych" (Annex, National Income in Adjusted Prices), p. 214 ff.

in objects). Variant B was calculated in adjusted prices reflecting the outlays of live labor (*pracy żywej*) in the various sectors and branches. These outlays comprise wages and other payments for labor, social security contributions, and net incomes of units in the private sector. Agricultural labor cost was taken as the sum of wages and social security contributions in state farms and net incomes of production cooperatives and private farms. In the calculations under variant B a limiting constraint was made that the total value of consumption from personal incomes would be the same in both the actually effective realized prices and in the adjusted variant B prices. Variant C calculations were made along the lines of variant B but with further adjustment to reflect the contribution of fixed capital in various sectors and branches, taking this contribution as equal to one-sixth of reproduction cost (*wartosci odtworzenjowej*) of the fixed capital, a ratio corresponding to a six-year period of recoupment (*okres zwrota*), assumed to be the average for the economy as a whole. Also in variant C, the constraint that the value of consumption from personal incomes should be the same in the actually realized prices as in adjusted prices was not introduced. There were other estimative and procedural details in the alternative calculations, but the above simplified description suffices for the illustrative purpose here. The Polish state statistical office stressed most emphatically that the alternative calculations were not to be considered other than rough estimates and cannot be interpreted as pointing to a need for changes in the existing system of realized prices nor are these alternative calculations to be taken to represent economically justified sets of prices of realization.

In effect, these provisional recalculations by the Polish statistical office follow roughly along the lines of our own earlier calculations of the structure of national product at prices approximating factor cost.⁷ The tabulation below shows the results of the GUS calculations of gross domestic national income for 1967 in current prices in four alternative bases of valuation for sectors of origin of product. Gross national income here means that capital consumption allowances were not subtracted along with other material costs from gross output to arrive at the aggregate. The gross national income therefore is the net (NMP) national income plus depreciation of fixed assets in the material sphere of production.

STRUCTURE OF GROSS NATIONAL INCOME, 1967
[In current prices]

	Realized prices	Variant A	Variant B	Variant C
Total	100	100	100	100
Industry	51	45	39	41
Construction	9	11	13	8
Agriculture	19	21	28	27
Transport and communications	8	9	8	13
Trade	9	10	7	6

⁷ See autobibliography for Alton and Associates, *Polish National Income and Product in 1954, 1955 and 1965*, and our more recent *Occasional Papers* on trends and structure of Polish economic activity.

In all the variants (A, B, and C), industry's share declines very substantially while that of agriculture increases. Variant C comes closest to our notion of structure at factor cost. In this variant, as compared to the structure in realized prices, in percentages of the total, industry declines from 51 to 41 (i.e. by one-fifth); agriculture rises from 19 to 27 (by about one-half), and transport and communications rise from 8 to 13 (about five-eighths); trade declines by about one-third; and construction stays roughly unchanged.

The composition of gross national income distributed to major final uses remains practically unchanged in variants A, B, and C as compared to its structure in realized prices. Although the major final use percentage shares are relatively unchanged in the four variants, this does not mean that subcomponents will all duplicate this stability. This is implied by the branch composition of industry in the four variants (see below). We would expect some substantial changes for shares of subcomponents of personal consumption, collective consumption, and gross investment when displayed in the four variants. Under personal consumption there should appear repercussion of the declining shares of textiles and food (see below). Within collective consumption and gross investment under the current prices of realization some subcomponents may be relatively subsidized vis-a-vis others. Allocations of product to favored investment uses and to military procurement in current prices of realization may appear as relatively low shares compared to what they would be at approximations to factor cost.

The summary GUS calculations by four alternative sets of valuations for major sectors of production tabulated above cannot show the very substantial changes within the industrial sector, but such changes were tabulated by GUS for branches of industry. Perhaps the most significant changes evident in the juxtaposition of 1967 shares within industry as a whole taken as 100 in each variant, were the following, showing first the branch percentage share at actually realized prices and second the corresponding branch share in variant C. Fuels, 10.5—14.9; ferrous metallurgy, 4.9—9.5; textiles, 10.8—7.2; food, 18.0—9.9. For other branches there were smaller variations, up and down. The major changes no doubt reflect the significant influence of the returns to capital and the incidence of turnover tax and other forms of accumulation of financial means to finance investment and other state purposes. Such financial transfers would appear to impinge heavily in favor of the textiles and food shares in the actually realized prices, and the adjustment in variant C accordingly reduces the shares of these branches.

An earlier edition of the Polish Main Statistical Office national income yearbook attempted a more modest adjustment to economic structure, taking into account only the consequences of exclusion of taxes and budget differences (which in effect are like positive or negative sales, or turnover, taxes).⁸ The results were more or less like those under the variants described above, although they showed less divergence from the structure at established prices. We have not seen in more recent Polish official national income yearbooks comparable

⁸ *Rocznik dochudu narodowego 1965-1968*, pp. 158-159.

alternative calculations of the structure of economic activity although economic policy and planning require a more realistic view of the allocation of factors of production (labor, capital, and land) than is afforded by the statistics in actually realized prices. We should note that the composition of gross (material) national income under variants A, B and C still cannot be simply juxtaposed to the composition of GNP or GDP; the latter aggregates include so-called non-productive services that are excluded from gross (material sector) national income (*dochod narodowy brutto*) used in the GUS recalculations. In addition to this difference in coverage, there are differences in valuation and methodology between the GUS gross national income concept and GNP as we calculate it.

Composition of National Product by End Uses

In table 5 we show the percentage composition of gross product entering domestic final uses. The total here for each year comprises final product arising from domestic production plus imports minus exports. Indexes corresponding to the structure shown in table 5 are given in table 15 for 1965 and 1970-1978, and are discussed in section IV. We note briefly that tables 5 and 15 are derived within the framework of our estimates of GNP produced. Indexes of personal consumption excluding housing are estimated from extensive commodity samples weighted by base-year prices and base-year consumption expenditures by major categories. Housing services are weighted by their sector of origin weights augmented by estimated purchases from other sectors for this final use. The selected elements of government final civilian uses comprise administration, justice, internal security, education, culture, health and social welfare. Their indexes are the same as in our GNP by sector of origin, but their weights are augmented by purchases from other sectors, comparably to the weight for housing. A residual consisting of gross investment, defense, and other uses not already covered in the private consumption and selected government final uses noted above is derived by subtracting the specified uses from the control total of product available for domestic final uses as defined above. Our Occasional Papers, Nos. 55 and 57 and working papers provide details of our sources and methodology.

We should note here that the results in Tables 5 and 15 are provisional and are not as detailed as we would like them to be. Further research is needed to provide more definitive measures. Our principal concern is to disaggregate the residual, but we are constrained by the knowledge that official sources indicate inclusion of some defense expenditure in the official accumulation, or investment, category. How the defense component as a final use would move over time is the major issue. Official defense expenditure data are believed to understate substantially the actual defense spending.

The shares of private consumption as presented in table 5 generally show considerable stability from 1965 to 1978; some small decline is indicated for Czechoslovakia and the GDR. A somewhat more substantial decline is evident for Poland, Hungary shows a rising share, and Bulgaria a notable dip in 1975. Adverse foreign trade developments are suggested by some of the changes in the 1970's, but the picture is not very clear. The indexes in table 15 may be more informative. There

TABLE 5.—COMPOSITION OF GROSS PRODUCT DOMESTICALLY USED, SELECTED YEARS, 1965-78
[In constant prices]

	1965	1970	1975	1978
Bulgaria:				
1. Private consumption.....	58.5	56.7	52.6	59.8
a. Personal consumption excluding housing.....	50.8	49.9	46.3	52.5
b. Housing.....	7.7	6.8	6.3	7.3
2. Government: Selected civilian elements.....	8.3	8.0	8.0	9.0
3. Residual: Gross investment, defense, other.....	33.2	35.3	39.4	31.2
Total.....	100.0	100.0	100.0	100.0
Czechoslovakia:				
1. Private consumption.....	59.9	57.8	55.2	56.3
a. Personal consumption excluding housing.....	48.7	47.8	46.2	47.4
b. Housing.....	11.2	10.0	9.0	8.9
2. Government: Selected civilian elements.....	8.8	8.8	8.6	8.7
3. Residual: Gross investment, defense, other.....	31.3	33.4	36.2	35.0
Total.....	100.0	100.0	100.0	100.0
German Democratic Republic:				
1. Private consumption.....	66.6	62.8	65.8	63.8
a. Personal consumption excluding housing.....	56.4	53.9	57.6	56.0
b. Housing.....	10.2	8.9	8.2	7.8
2. Government: Selected civilian elements.....	14.4	13.0	12.6	12.2
3. Residual: Gross investment, defense, other.....	19.0	24.2	21.6	24.0
Total.....	100.0	100.0	100.0	100.0
Hungary:				
1. Private consumption.....	56.1	56.8	58.0	160.1
a. Personal consumption excluding housing.....	45.3	47.2	48.8	150.8
b. Housing.....	10.8	9.6	9.2	19.3
2. Government: Selected civilian elements.....	9.0	8.3	8.6	18.9
3. Residual: Gross investment, defense, other.....	34.9	34.9	33.4	131.0
Total.....	100.0	100.0	100.0	100.0
Poland:				
1. Private consumption.....	57.6	56.7	49.8	51.3
a. Personal consumption excluding housing.....	49.0	48.4	43.4	44.9
b. Housing.....	8.6	8.3	6.4	6.4
2. Government: Selected civilian elements.....	8.3	7.8	6.1	6.0
3. Residual: Gross investment, defense, other.....	34.1	35.5	44.1	42.7
Total.....	100.0	100.0	100.0	100.0

¹ 1977 estimates.

Source: See app., pt. A.

is room for speculation as to what the tradeoffs may be within the residual as between civilian investment and military procurement. Austerity with regard to civilian investment is noted in East European discussions, most notably in Poland. If the defense component were rising, then the decline in the civilian investment share would be greater than table 5 suggests. There is of course, in particular years the complicating factor of weather-induced variable agricultural output as it affects personal consumption and the total product available for final use.

Hungary alone among the six countries studied here publishes in its recent statistical yearbook tables of gross domestic product (GDP) by

sources and use. The absolute figures as published in the 1977 and 1978 yearbooks are in current prices, and there are no detailed breakdowns within the two given major uses—final consumption and gross capital formation. A comparison with our table 5, which is in constant prices, and with a different bases of valuation, notably for housing, would be inappropriate. We shall remark upon the valuation of housing services in another context below.

Dr. Eugenia Krzeczowska in the Polish Main Statistical Office expanded the 1974 NMP national income produced to the United Nations SNA GDP concept and proceeded to an estimate of Polish GDP in dollars. Krzeczowska took some care to impute rent and profits in housing to place this highly subsidized element on a more comparable footing to Western national accounts. We shall take further note of this estimate below in connection with dollar estimates of East European GNPs.

Table 6 shows the percentage composition of “distributed” NMP national income in Eastern Europe for selected years, 1965–1978. The total distributed NMP differs from the total NMP produced by the extent of losses of product and the surplus (or deficit) of imports over exports. NMP national income here excludes nonmaterial services as contributors to production but includes them as users of material product. The NMP concept is not comparable to GNP or GDP, and differences in methodology and especially of bases of valuation contribute further to lack of comparability.

Table 6 shows the structure of NMP in allocations to consumption and net accumulation (investment) and to components of these two major uses. Footnotes to the table indicate the price bases for particular rows, and notations on row stubs indicating “versions” refer to reclassification. For example, there are two 1965 rows for Hungary which differ significantly, and in 1975 a reclassification again affected the Hungarian structure of uses. According to some official East European economic handbooks, “accumulation” includes some military expenditures, but the prices at which military procurement would enter into accumulation are open to question. In some countries price setting for military procurements is an explicit matter of participation for the ministry of defense, and it is possible that special price concessions, or devious financial transfers result in less cost to the explicit defense budget.⁹

We shall leave it to the reader to trace the detailed evolution of shares in table 6; here we shall consider only general trends. For most countries, as a percentage share, accumulation rose from 1965 to a peak in the mid-1970's; Hungary was an exception in reaching a high point in 1978. Poland reached a peak of 35 percent in 1975 and fell to about 31 percent by 1978. Polish and Hungarian 1980 plans indicate shrinkage in prospect in dealing with acute balance of payments problems and the heavy burden of foreign debt service. Romania obfuscates the picture by showing shares only as averages over five-year periods,

⁹ Milan Spicak, *V armáde po unoru*, Prague, 1968, p. 154, mentions a special investment credit as a very substantial “camouflaged” source of Czechoslovak defense expenditures in the early postwar years. Spicak wrote his book during the period of liberalization preceding the Soviet invasion of Czechoslovakia in the summer of 1968.

TABLE 6.—COMPOSITION OF DISTRIBUTED NATIONAL INCOME (NET MATERIAL PRODUCT) BY FINAL USE, SELECTED YEARS, 1965-78

[Percent of total]

	NMP used total	Consumption			Accumulation		
		Total	Personal	Collective	Total	Fixed capital	Inventory and reserves
Bulgaria:							
1965 ¹	100	71.7	69.2	2.5	28.3	(?)	(?)
1970 ¹	100	69.2	66.3	2.9	30.8	(?)	(?)
1975 ¹	100	67.2	63.2	4.0	32.8	(?)	(?)
1978 ¹	100	67.5	(?)	(?)	32.5	(?)	(?)
1978 ²	100	76.5	72.0	4.5	23.5	(?)	(?)
Czechoslovakia:							
1965 ⁴	100	90.9	70.2	20.7	9.1	9.2	-1
1966 ⁵	100	79.4	60.3	19.1	20.6	14.6	6.0
1970 ⁶	100	76.7	57.9	18.8	23.3	18.3	5.0
1975 ⁶	100	74.0	54.5	19.5	26.0	21.6	4.4
1976A ⁶	100	74.3	54.4	19.9	25.7	21.5	4.1
1976B ⁶	100	74.3	54.6	19.6	25.7	20.3	5.5
1978 ⁶	100	76.3	55.8	20.6	23.7	21.4	2.2
1978 ⁴	100	75.3	55.5	19.8	24.7	22.2	2.5
German Democratic Republic:⁴							
1965	100	80.0	71.5	8.5	20.0	15.5	4.5
1970	100	75.6	66.4	9.2	24.4	20.6	3.7
1975	100	77.7	67.0	10.8	22.3	19.4	2.9
1978	100	78.4	67.1	11.3	21.6	19.2	2.4
Hungary:							
Original version: 1965: ⁷	100	76.1	72.3	3.8	23.9	20.0	3.9
Revised versions:							
1965 version A ⁷	100	79.8	71.2	8.6	20.2	15.0	5.2
1970 version A ⁷	100	76.0	66.6	9.4	24.0	18.8	5.2
1975 version A ⁸	100	71.1	61.9	9.2	28.9	23.4	5.5
1975 version A ⁷	100	75.2	66.1	9.1	24.8	22.4	2.4
1975 version B ⁷	100	73.6	(?)	(?)	26.4	(?)	(?)
1978 version B ⁸	100	67.5	58.1	9.4	32.5	19.8	12.7
1978 version B ⁷	100	69.3	(?)	(?)	30.7	(?)	(?)
Poland:							
1965 ⁹	100	73.2	63.7	9.5	26.8	18.6	8.2
1970 ⁹	100	72.1	61.4	10.7	27.9	21.8	6.1
1975 ¹⁰	100	73.9	62.6	11.3	26.1	19.5	6.6
1978 ¹⁰	100	64.8	54.4	10.4	35.2	28.4	6.8
1978 ¹⁰	100	69.2	57.4	11.8	30.8	26.1	4.7
1978 ¹¹	100	69.2	57.6	11.6	30.8	25.9	4.9
Romania:¹²							
1961-65	100	75.7	(?)	(?)	24.3	(?)	(?)
1966-70	100	71.2	(?)	(?)	28.8	(?)	(?)
1971-75	100	65.9	(?)	(?)	34.1	(?)	(?)

¹ In comparable prices: prices of Jan. 1, 1962, through 1970; prices of Jan. 1, 1971, for 1975.² Not available.³ In current prices.⁴ In current prices.⁵ In current prices.⁶ Prices of Jan. 1, 1967, for 1965-1976A; 1976B and 1978 in Jan. 1, 1977, prices and in a revised classification.⁷ All years in 1975 prices.⁸ In comparable prices.⁹ In current prices.¹⁰ In constant 1971 prices.¹¹ In constant prices of Jan. 1, 1977.¹² In current prices.¹³ In comparable prices: 1955 prices for the period 1961-65; 1963 prices for 1966-70 and 1971-75. More recent or more detailed data are not available.

Note: See app., pt. C.

with the 1979 statistical yearbook showing the allocation for the 1971-1975 period as the latest available. Trends in total consumption shares obviously complement the trend in accumulation.

Structure and Growth of Employment

Table 7 provides insights into the evolving structure of production from the viewpoint of the distribution of the economically active population by industrial sectors for CMEA countries of Europe, other

countries of Europe, and the USA.¹⁰ Although these data are not fully comparable as to coverage, the orders of magnitude are probably close enough for our rough purpose. Some general conclusions drawn from this table are:

TABLE 7.—ECONOMICALLY ACTIVE POPULATION BY KIND OF ACTIVITY, SELECTED COUNTRIES AND YEARS

Country and year	Total (thousands)	Percent of total population	Percentages of active population in—			
			Non- material services ¹	Industry	Agriculture and forestry	Other material activities
Bulgaria:						
1960.....	(²)	(²)	9.2	21.9	55.5	13.4
1965.....	4,628	51.9	(²)	(²)	(²)	(²)
1977.....	(²)	(²)	16.0	34.2	25.8	24.0
Czechoslovakia:						
1960.....	6,062	44.4	14.3	37.3	25.9	22.5
1977.....	7,282	48.4	20.0	38.3	14.9	26.8
German Democratic Republic:						
1960.....	7,968	46.2	15.3	42.0	17.3	25.4
1977.....	8,516	50.8	21.0	42.3	10.9	25.8
Hungary:						
1960.....	4,876	49.0	14.3	28.4	38.9	18.4
1977.....	5,083	47.4	18.0	34.7	21.9	25.4
Poland:						
1960.....	13,971	47.5	13.1	23.2	48.0	15.7
1974.....	17,507	52.0	15.5	30.2	34.6	19.7
Romania:						
1960.....	9,538	51.6	7.6	15.1	65.5	11.7
1977.....	10,264	47.4	12.0	32.8	34.7	20.5
U.S.S.R.:						
1960.....	99,130	47.5	15.4	32.3	38.7	13.6
1970.....	117,028	48.4	(²)	(²)	(²)	(²)
1977.....	(²)	(²)	22.0	38.3	21.8	17.9
Austria:						
1961.....	3,370	47.6	19.4	31.1	22.8	26.7
1977.....	3,015	40.1	24.0	31.8	11.7	32.5
France:						
1962.....	19,829	42.7	24.0	29.4	19.8	26.8
1975.....	21,775	41.3	30.0	28.4	9.6	32.0
Spain:						
1960.....	11,634	38.1	14.9	24.3	41.3	19.5
1976.....	13,281	36.9	20.0	27.1	20.8	32.1
Federal Republic of Germany:						
1961.....	25,763	47.7	23.0	40.0	13.4	23.6
1977.....	26,051	43.8	29.0	37.0	6.4	27.6
United Kingdom:³						
1961.....	24,617	46.7	27.7	39.3	3.8	29.2
1976.....	26,045	46.6	33.0	31.1	2.5	33.4
Italy:						
1961.....	20,173	39.8	16.4	27.8	28.3	27.5
1977.....	21,607	38.3	23.0	26.3	14.6	36.1
United States:						
1960.....	69,877	39.0	31.6	28.8	6.5	33.1
1977.....	99,534	45.9	38.0	24.3	3.6	34.1

¹ For non-CMEA countries (Austria and those that follow below), nonmaterial services are the residual in the total after exclusion of industry, construction, agriculture, forestry, transportation, communications, and trade.

² Not available.

³ 1959, but the remaining figures refer to 1960.

⁴ Includes construction.

⁵ Finance and insurance are excluded from "nonmaterial" and included in "other material activities."

⁶ Excluding Northern Ireland.

Source: Poland, Main Statistical Office, *Rocznik Statystyczny*, 1976, p. 554, and *ibid.*, 1979, p. 483.

(1) The economically active population in 1977 in the East European countries and the U.S.S.R. comprises roughly one-half of the total population. In Western Europe and the United States the range for 1975–1977 is between 37 and 47 percent. For the United States it is 46 percent; the Federal Republic of Germany shows 44 percent; Spain

¹⁰ The data in table 7 are not fully comparable. The CMEA classification is followed for Eastern Europe and the International Standard Industrial Classification for the remaining countries.

(1976) is lowest, at 37 percent; and United Kingdom (1976), highest at 46 percent. (2) As a percentage of the total economically active population, nonmaterial services in Eastern Europe and the U.S.S.R. have risen from a range of 8 to 15 percent in 1960 to a range of 12 to 22 percent in 1977. For the non-CMEA countries, the corresponding range for 1975-1977 was 20 to 38 percent. (3) The percentage shares for the East European countries for industry have risen markedly from 1960 to 1977 for Bulgaria, Romania, Poland, and Hungary; very slight increases appeared in Czechoslovakia and the GDR. For the region as a whole the 1977 range for the share of industry in the total economically active population was between 30 and 42 percent, with the GDR (42 percent) and Czechoslovakia (38 percent) at the top and Romania (33 percent) and Poland (1974-30 percent) at the bottom. The 1975-1977 corresponding range for industry in Western Europe was from 26 percent (Italy) to 37 percent (the Federal Republic of Germany); for the United States the share was 24 percent. Thus in terms of the range of industry's share in total employment, Eastern Europe is higher than Western Europe. (4) The share of agriculture and forestry in Eastern Europe fell sharply in all countries between 1960 and 1977. In 1960 the range was from a high of 66 percent in Romania to a low of 17 percent in the GDR. By 1977 this range had diminished to a high of 35 percent in Romania and Poland and a low of 10.9 percent in the GDR. In Western Europe agriculture's share also declined sharply. In 1975-1977 the range was from 21 percent (Spain, 1976) to 2.5 percent (United Kingdom, 1976); for the United States (1977) the percentage was 3.6. The comparison suggests that agriculture still affords a labor reserve for transfer to non-agricultural sectors in Eastern Europe. Such transfer will depend on improved productivity in agriculture and the provision of employment opportunities and housing in the non-agricultural sectors. Industry's share may be expected to decline as the services' share rises.

Table 8 provides for countries of Eastern Europe the percentage composition of employment and indexes of growth of employment by sectors of production, 1965, 1970, 1975 and 1978. The share for industry in the total employment showed only slight changes over the 1965-1975 period for Czechoslovakia, the GDR, Hungary, and Poland; very substantial increases occurred in Bulgaria, and particularly in Romania (from 19 to 33 percent). In 1978 the range for the industrial shares for the six countries was from 31 percent (Poland) to 42 percent (the GDR), a remarkable reduction from the range in 1965, from 19 percent (in Romania) to 41 percent in the GDR. For agriculture and forestry the evolution of ranges was, from 1965, 58 percent in Romania to 16 percent in the GDR, to 1978, 34 percent in Romania to 11 percent in the GDR.

The indexes in table 8 show the growth of employment totals and by sector, 1965, 1970, and 1975, and 1978. Total employment increased most in Poland (30 percent) and least in Romania and the GDR (7 percent). Employment in all sectors grew faster than total employment, except for agriculture and forestry, where it dropped, in percent, by about 39 in Bulgaria, 38 in Romania, 30 in the GDR, 22 in Hungary and 21 in Czechoslovakia, but increased 1 percent in Poland, and except for trade, which fell only in the GDR (by 4 percent). The

faster growing sectors varied among countries, but trade, construction, transport and communications, and industry, more or less in that order, were the leaders. A significant exception here was industry in Romania (an increase of 88 percent, the highest sectoral growth).

Because industry is the largest sector in all countries, except Poland and Romania, where its employment share is nearly the same as for agriculture, the changing composition of employment by branches of

TABLE 8.—STRUCTURE AND GROWTH OF EMPLOYMENT BY MAJOR SECTOR, 1965, 1970, 1975, AND 1978

[Percent of total; indexes 1965 = 100]

	Structure (percent)				Indexes (1965=100)			
	1965	1970	1975	1978	1965	1970	1975	1978
Bulgaria:								
Industry (including handicrafts).....	26.3	30.4	33.5	34.5	100	121.6	138.9	144.2
Agriculture and forestry.....	45.3	35.7	28.1	25.0	100	83.2	67.7	60.7
Construction.....	7.0	8.4	8.0	8.3	100	127.2	125.6	131.3
Transport and communications.....	5.1	6.0	6.4	6.9	100	116.0	131.2	140.7
Trade.....	5.2	6.1	7.8	8.3	100	124.8	165.4	177.4
Other.....	11.1	13.4	16.2	17.0	100	129.1	160.9	171.2
Total.....	100.0	100.0	100.0	100.0	100	105.3	109.2	110.0
Czechoslovakia:								
Industry (including handicrafts).....	38.3	38.0	38.5	38.5	100	107.7	115.3	117.9
Agriculture and forestry.....	21.1	18.3	15.2	14.2	100	94.2	82.6	79.3
Construction.....	8.0	8.6	9.3	9.6	100	116.1	132.2	140.5
Transport and communications.....	6.5	6.8	6.5	6.6	100	114.4	116.3	119.4
Trade.....	8.4	9.0	10.3	11.1	100	116.4	140.0	153.7
Other.....	17.7	19.3	20.2	20.0	100	118.4	131.5	133.1
Total.....	100.0	100.0	100.0	100.0	100	108.6	114.8	117.4
German Democratic Republic:								
Industry (including handicrafts).....	41.4	42.1	42.0	41.9	100	103.6	105.6	108.2
Agriculture and forestry.....	16.1	12.4	11.0	10.6	100	78.6	70.9	69.9
Construction.....	6.1	8.0	7.5	7.6	100	134.0	128.1	133.4
Transport and communications.....	7.1	7.2	7.6	7.6	100	103.4	111.2	114.4
Trade.....	11.5	10.9	10.6	10.4	100	96.7	96.2	96.2
Other.....	17.8	19.4	21.3	22.0	100	110.5	124.6	131.7
Total.....	100.0	100.0	100.0	100.0	100	101.8	104.1	106.8
Hungary:								
Industry (including handicrafts).....	34.3	35.7	35.4	34.3	100	111.4	112.5	109.0
Agriculture and forestry.....	28.3	24.8	21.0	20.3	100	94.2	81.3	78.2
Construction.....	6.4	7.5	8.2	8.2	100	125.2	140.2	138.8
Transport and communications.....	6.9	7.3	7.8	8.0	100	113.7	123.5	127.2
Trade.....	7.3	8.2	9.1	9.5	100	120.5	135.2	141.7
Other.....	16.8	16.5	18.5	19.7	100	105.4	120.3	127.7
Total.....	100.0	100.0	100.0	100.0	100	107.2	109.3	109.0
Poland:								
Industry (including handicrafts).....	28.6	30.3	31.1	30.7	100	119.0	137.6	139.1
Agriculture and forestry.....	39.4	34.6	30.8	30.7	100	98.8	98.6	101.0
Construction.....	6.8	7.3	8.7	8.4	100	121.2	161.3	159.4
Transport and communications.....	5.9	6.2	6.3	6.4	100	119.0	136.1	142.3
Trade.....	6.1	6.9	7.4	7.6	100	126.5	154.1	160.5
Other.....	13.2	14.7	15.7	16.2	100	124.4	149.3	157.8
Total.....	100.0	100.0	100.0	100.0	100	112.4	126.3	129.5
Romania:								
Industry (including handicrafts).....	18.8	22.5	30.1	33.1	100	122.5	168.0	187.8
Agriculture and forestry.....	57.6	50.3	39.1	33.7	100	89.3	71.1	62.4
Construction.....	6.4	7.6	8.1	8.8	100	121.3	132.4	146.9
Transport and communications.....	3.5	4.1	4.7	5.1	100	117.6	140.4	153.6
Trade.....	3.9	4.3	5.5	6.0	100	112.4	145.5	161.5
Other.....	9.8	11.2	12.5	13.3	100	118.9	135.4	145.8
Total.....	100.0	100.0	100.0	100.0	100	102.4	104.9	106.6

Note: See app., pt. D.

TABLE 9.—STRUCTURE OF EMPLOYMENT BY BRANCHES OF SOCIALIZED INDUSTRY, SELECTED YEARS, 1960-78

[Annual averages and percentage composition]

	Bulgaria					Czechoslovakia ¹					German Democratic Republic ²				
	1960	1965	1970	1975	1978 ¹	1960	1965	1970	1975	1978	1960	1965	1970	1975	1978
Employment:															
Thousands.....	762.5	936.4	1,147.7	1,285.0	1,286.8	2,262.0	2,478.0	2,616.0	2,689.0	2,740.0	2,782.4	2,729.9	2,817.8	3,063.7	3,125.2
Percent of total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1. Electric power.....	1.6	1.6	1.5	1.5	1.7	1.7	1.7	1.7	1.9	2.0	9.2	9.5	6.2	6.4	6.4
2. Mining and fuels.....	5.7	5.6	5.0	4.0	4.2	8.1	8.3	6.5	6.3	6.3	3.7	4.1	4.3	4.1	4.1
3. Metallurgy.....	5.2	6.8	5.9	2.4	2.8	8.7	9.1	8.9	8.9	7.6	3.7	4.1	4.3	4.1	4.1
4. Machinery.....	16.7	19.8	22.5	25.7	28.0	34.6	35.8	37.3	37.7	39.6	36.4	38.0	41.6	42.5	42.9
5. Chemicals and rubber.....	3.4	4.1	5.3	6.1	6.3	4.1	4.5	5.0	5.2	5.2	9.7	10.3	11.5	10.9	10.7
6. Building materials.....	4.3	5.0	4.2	4.6	5.2	4.5	3.9	4.0	3.9	3.8	3.3	3.2	3.2	3.1	3.1
7. Lumber and wood products.....	10.4	8.8	7.3	6.4	5.7	5.0	4.8	4.8	4.9	4.7	5.5	5.3	-----	-----	-----
8. Paper and paper products.....	9	1.0	1.0	1.2	1.3	1.7	1.7	1.6	1.7	1.7	2.2	2.1	-----	-----	-----
9. Textiles.....	12.7	10.0	10.0	10.1	10.4	9.8	9.0	8.7	8.4	8.1	11.9	10.3	8.8	8.0	7.5
10. Other industry.....	22.3	21.3	22.1	24.5	21.6	13.4	13.6	13.9	13.6	13.4	10.5	9.9	16.7	17.1	16.7
11. Food processing and tobacco.....	16.8	16.0	15.2	13.5	12.8	8.4	7.6	7.6	7.5	7.6	7.6	7.3	7.7	7.9	8.6
	Hungary					Poland					Romania				
	1960	1965	1970	1975	1978	1960	1965	1970	1975 ⁴	1978	1960	1965	1970	1975	1978
Employment:															
Thousands.....	1,302.7	1,498.1	1,729.0	1,744.0	1,687.0	2,297.0	3,431.5	4,043.6	4,704.1	4,763.5	1,255.2	1,675.6	2,066.0	2,802.1	3,107.5
Percent of total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1. Electric power.....	2.8	2.7	2.0	2.2	2.2	2.2	2.1	2.2	1.8	1.7	1.3	2.1	1.9	1.5	1.4
2. Mining and fuels.....	11.1	10.4	8.4	7.3	6.9	12.1	11.1	9.9	8.9	9.2	6.9	5.8	4.7	3.6	3.5
3. Metallurgy.....	6.5	6.1	5.8	5.9	5.9	5.7	5.8	5.6	5.4	5.4	7.2	7.3	6.8	6.1	6.1
4. Machinery.....	27.9	29.4	31.0	31.6	32.2	24.9	28.2	31.0	32.8	34.0	23.3	24.2	26.4	32.6	34.4
5. Chemicals and rubber.....	5.0	5.7	6.4	6.8	6.8	6.3	6.6	6.8	7.1	6.9	4.2	5.4	6.5	6.8	7.0
6. Building materials.....	5.3	5.0	4.7	4.7	4.8	5.9	5.2	4.9	4.3	4.0	5.6	5.5	5.3	4.3	4.3
7. Lumber and wood products.....	3.3	3.8	3.1	3.2	3.1	5.2	5.0	4.8	4.7	4.8	16.4	16.1	14.2	11.2	10.1
8. Paper and paper products.....	7	8	1.0	9	9	1.5	1.4	1.3	1.3	1.2	1.1	1.5	1.4	1.3	1.2
9. Textiles.....	9.5	9.4	8.4	7.8	7.4	12.6	11.4	10.7	10.2	9.6	11.4	10.4	10.8	11.3	11.6
10. Other industry.....	18.0	17.0	18.8	18.3	17.7	11.5	11.1	11.3	12.1	12.0	13.2	12.6	13.5	13.6	13.1
11. Food processing and tobacco.....	9.9	9.7	13.4	11.3	11.9	12.1	12.1	11.5	11.4	11.2	9.4	9.1	8.5	7.7	7.3

¹ Total industry.² Structure shares refer to production workers and employees in state industry only.³ 1960, 1965, and 1970: Ferrous and nonferrous industries; 1975 and 1978: Ferrous industry only.

One might note the sharp increase in 1975 in "Other industry"; this suggests a transfer from "Metallurgy" to the "Other" category, which includes an unspecified residual we placed there.

⁴ The structure shown here is based on Polish revised industrial classification effective Jan. 1, 1976.

Total employment for 1975 was revised upward by 1.3 percent, but relatively unimportant differences in percentage structure were entailed as compared with that based on the superseded classification. See RS 1977, p. 132 for details.

Sources: App., pt. D.

TABLE 10.—OFFICIAL DATA ON THE STRUCTURE AND GROWTH OF FIXED CAPITAL, BY MAJOR SECTOR, 1965, 1970, 1975, AND 1978

[Annual average unless otherwise specified; varying valuations as indicated]

	Structure (percent)				Indexes (1965=100)			
	1965	1970	1975	1978	1965	1970	1975	1978
Bulgaria (1965-75: at full initial cost; cumulative value of assets added at current prices of the time of acquisition; 1978 at replacement value):								
Total.....	100.0	100.0	100.0	100.0	100.0	152.7	223.2	314.1
Industry (including forestry).....	26.6	33.1	36.1	34.8	100.0	189.6	297.3	402.5
Agriculture.....	14.1	13.3	12.4	11.8	100.0	142.9	196.5	262.3
Construction.....	1.3	1.9	2.5	2.6	100.0	222.8	437.0	628.6
Transport and communications.....	14.3	13.5	13.7	NA	100.0	144.3	215.5	NA
Trade.....	1.9	2.2	2.6	NA	100.0	189.9	331.4	NA
Other material production.....	.1	.1	.1	NA	100.0	142.7	757.3	NA
Subtotal: material production.....	58.3	64.1	67.6	67.8	100.0	168.1	257.8	364.0
Nonproductive sectors.....	41.7	35.9	32.4	32.2	100.0	130.9	174.4	243.6
Of which, housing.....	30.6	24.1	19.9	18.6	100.0	120.0	148.1	195.1
Czechoslovakia (at undepreciated purchase value, in comparable 1967 prices, 1965-75, and in Jan. 1, 1977 prices for 1978; indexes linked at 1975):								
Total.....	100.0	100.0	100.0	100.0	100.0	120.7	157.0	185.2
Industry.....	33.9	34.7	35.0	34.6	100.0	123.7	162.3	195.3
Agriculture and forestry.....	8.7	8.8	9.0	9.3	100.0	123.2	163.9	198.9
Construction.....	1.6	2.0	2.4	2.6	100.0	144.1	229.7	289.3
Transport and communications.....	18.2	17.6	16.3	15.5	100.0	117.0	140.5	157.8
Trade.....	2.8	3.3	3.8	4.0	100.0	142.7	213.6	266.6
Other material production.....	.1	.1	.2	.1	100.0	134.9	190.3	382.8
Subtotal: material production.....	65.3	66.5	66.7	66.2	100.0	123.0	160.4	190.9
Nonproductive sectors.....	34.7	33.5	33.3	33.8	100.0	116.2	150.7	174.9
Of which, housing.....	23.9	22.5	21.9	22.1	100.0	113.6	143.8	165.3
German Democratic Republic (at undepreciated book value, in comparable 1966 prices):								
Total.....	100.0	100.0	100.0	100.0	100.0	118.9	146.9	166.8
Industry and crafts.....	33.7	36.4	40.1	42.1	100.0	128.5	174.5	208.1
Agriculture and forestry.....	7.2	8.0	8.3	8.4	100.0	132.0	168.1	193.9
Construction.....	1.2	1.6	1.8	2.0	100.0	163.4	230.5	293.3
Transport and communications.....	10.2	9.8	9.7	9.8	100.0	113.5	140.2	159.2
Trade.....	2.9	3.0	3.2	3.3	100.0	125.6	165.2	194.0
Other material production.....	.2	.3	.4	.4	100.0	174.1	336.0	385.4
Subtotal: material production.....	55.4	59.1	63.5	66.0	100.0	126.9	168.6	198.9
Nonproductive sectors.....	44.6	40.9	36.5	34.0	100.0	109.0	120.0	127.0
Of which, housing.....	NA	NA	NA	NA	NA	NA	NA	NA
Hungary (at undepreciated value, in comparable prices of 1968 and 1976): *								
Total.....	100.0	100.0/100.0	100.0	100.0	100.0	125.0	165.0	199.4
Industry.....	22.5	25.0/24.8	26.7	27.8	100.0	140.0	203.7	256.5
Agriculture and forestry.....	8.4	9.7/12.1	13.4	13.3	100.0	144.0	216.9	259.8
Construction.....	.7	1.0/1.0	1.4	1.7	100.0	174.0	349.7	489.3
Transport and communications.....	18.0	16.8/12.5	11.9	11.6	100.0	117.0	150.8	176.7
Trade.....	1.5	1.9/1.9	2.4	2.8	100.0	161.0	272.6	375.6
Other material production.....	5.3	4.8/2.9	3.3	3.4	100.0	112.0	165.1	211.9
Subtotal: Material production.....	56.4	59.2/55.2	59.1	60.6	100.0	131.0	189.9	235.2
Nonproductive sectors.....	43.6	40.8/44.8	40.9	39.4	100.0	117.0	144.6	168.5
Of which: Housing.....	32.4	29.2/33.1	29.9	28.7	100.0	113.6	138.8	160.7

See footnotes at end of table.

TABLE 10.—OFFICIAL DATA ON THE STRUCTURE AND GROWTH OF FIXED CAPITAL, BY MAJOR SECTOR, 1965, 1970, 1975, AND 1978—Continued

(Annual average unless otherwise specified; varying valuations as indicated)

	Structure (percent)				Indexes (1965=100)			
	1965	1970	1975	1978	1965	1970	1975	1978
Poland (at undepreciated value in prices of 1971 through 1975; Jan. 1, 1977 prices for 1978; indexes linked):								
Total.....	100.0	100.0	100.0	100.0	100.0	125.2	166.3	205.3
Industry.....	20.5	24.0	29.0	29.7	100.0	146.4	234.4	319.0
Agriculture and forestry.....	17.1	16.5	15.8	16.4	100.0	121.1	154.2	189.0
Construction.....	1.1	1.6	2.3	2.8	100.0	173.0	332.5	488.7
Transport and communication.....	10.1	10.0	10.6	9.7	100.0	124.7	159.1	220.8
Trade.....	1.8	2.1	1.9	1.8	100.0	150.9	182.6	212.3
Other material production.....	1.9	2.1	2.6	3.7	100.0	132.2	178.7	323.3
Subtotal: material production.....	52.5	56.3	62.2	64.1	100.0	134.2	196.9	257.5
Nonproductive sectors.....	47.5	43.7	37.8	35.9	100.0	115.3	132.5	148.9
Of which: housing.....	32.2	29.2	25.5	(24.2)	100.0	113.7	(131.9)	(148.3)
Romania (year-end data at full inventory value; 1965 data reflect list prices at the time of acquisition; 1970 and 1975 data reflect prices of 1963; 1978 data are in current prices):								
Total.....	100.0	100.0/100.0	100.0	100.0	100.0	151.0	239.0	315.0
Industry.....	31.8	37.4/35.9	41.6	43.2	100.0	186.0	345.0	469.0
Agriculture.....	13.5	12.6/11.5	11.4	11.1	100.0	134.0	211.0	269.0
Construction.....	2.4	2.7/2.7	3.5	4.4	100.0	174.0	350.0	578.0
Transport and communication.....	6 10.9	6 11.7/11.7	12.1	12.1	100.0	149.0	234.0	309.0
Trade.....	2.3	3.1/NA	NA	NA	100.0	171.0	NA	NA
Other material production.....	.3	.4/NA	NA	NA	NA	NA	NA	NA
Subtotal: material production.....	61.2	67.9/71.5	76.8	78.8	100.0	167.0	NA	NA
Nonmaterial sectors.....	38.8	32.1/28.5	23.2	21.2	100.0	128.0	129.0	154.0
Of which housing ⁸	25.2	21.6/24.8	19.7	17.9	100.0	127.0	161.0	191.0

¹ 1978 data for Bulgaria are at replacement cost and also reflect results of capital census and revaluation as of Dec. 12 1974. They are not directly comparable to earlier data.

² Data for 1965 and the lefthand set of structure figures for 1970 reflect prices of 1968 and definitions in use earlier; the righthand set of structure figures for 1970 and those for 1975 and 1978 reflect 1976 prices and revised definitions.

³ Includes personal services.

⁴ Rough estimate based on 1975 share in nonproductive sectors' total. Indexes for 1975 and 1978 are rough estimates based on 1970 and 1975 housing values in 1971 prices and upon the assumption that housing capital grew at the same rate as the nonproductive total for 1975-78.

⁵ Romanian data for 1970 reflect an expansion of the coverage of fixed capital data concurrent with the expansion of the official concept of material product. Figures to the left are comparable to 1965 data in the old coverage; figures to the right are comparable to the 1975 data in the new coverage. Value figures to reconcile the two concepts are not available, and linked indexes for all sectors and groupings have not been published.

⁶ Figures shown here are those given in yearbooks published since 1972; they reflect the redefinition, as of 1970, of all such services as "productive." Earlier data, however, yield larger shares for productive and nonproductive transportation and communications taken together: 16.6 percent in 1965, and 15.9 percent in 1970.

⁷ Includes forestry (0.1 in 1965 and 0.2 in 1970) as implied by comparison with figures on agriculture including forestry published earlier.

⁸ Includes communal and miscellaneous nongovernmental services.

Sources: See app., pt. E.

industry, 1960-1978, shown in table 9 may be of interest. In all the countries, except Bulgaria, the machinery branch, comprising metals, general machinery, precision machinery, transport means, and electric-electronic equipment, was from the outset the largest branch and continued to grow over the period. In Bulgaria, the machinery branch

assumed first place by 1970. In percentages of total industrial employment, 1960 and 1978 respectively, this branch accounted for 36.4 and 42.9 in the GDR, 34.6 and 39.6 in Czechoslovakia, 27.9 and 32.2 in Hungary, 24.9 and 34.0 in Poland, 23.3 and 34.4 in Romania, and 16.7 and 28.0 in Bulgaria. Thus, by this indicator, the spread among countries has diminished. In all of the countries, textiles' share was important at the beginning of the period, but this share declined up to 1978, except in Romania where it remained almost unchanged. The chemicals branch shows fairly consistent growth over this period throughout the area.

Structure and Growth of Fixed Capital

Priorities in fixed capital formation are reflected in table 10 in terms of shares in total fixed capital and indexes showing growth of fixed capital for selected years, 1965-1978. Housing is a special case; its capital represents accumulation over a longer period than the material production sector. In 1965 housing capital was a large share in all countries, but it also shows the lowest rate of growth over the period. In all six countries the share of industry is the largest in the national totals in 1978, and this share had increased over the 1965-1978 period. Transport and communications ranks second in 1978 in all countries except Hungary and Poland, where agriculture and forestry come second. Agriculture, with the exceptions noted above, ranked third. The range for the share of industry in 1978 in percentages of the total was from a high of 43 percent in Romania to a low of 28 in Hungary. (These shares of course do not indicate the comparative levels of capital per worker; some of the lower ranking countries, e.g., the GDR and Czechoslovakia, should stand above Romania on this count.)

The indexes show fixed capital growing most rapidly in the 1965-1978 period in construction in all countries; transport and communications ranks second except in Romania and the GDR (where industry took precedence), and Czechoslovakia and Bulgaria (where trade came second). Industry ranks third in growth except in Czechoslovakia where it yields precedence to agriculture. The miscellaneous "other material production" is not considered in this ranking. Fixed capital in the economy as a whole for 1965-1978 would appear to have grown fastest in Romania (3.2-fold) and Bulgaria (3.1-fold), but fixed capital statistics considered as "real" measures are of dubious quality in these countries. Agriculture showed below average growth in fixed capital in all countries except Czechoslovakia, the GDR, and Hungary.

III. DOLLAR ESTIMATES OF GNP

The total and per capita 1978 dollar values of GNP shown in table 11 provide rough, order-of-magnitude orientation of the relative standings of the indicated countries. The figures for the six countries of Eastern Europe were calculated as described in Part B of the Appendix to this paper. The data for non-CMEA countries were converted from national currency values into dollars by various rates as indicated in the table. Because the methodologies underlying the estimates are not uniform and the conversion rates vary widely depending

upon choice of average exchange rates or purchasing power equivalents, one should expect a range of overall and per capita dollar GNP estimates. Purchasing power equivalents are preferred. We shall discuss below some alternative estimates for Hungary and Poland, and World Bank estimates for the six countries.

TABLE 11.—TOTAL AND PER CAPITA DOLLAR VALUES OF GNP, 1978
[In 1978 U.S. dollars]

CMEA countries	Total GNP (billions)	GNP per capita
Bulgaria.....	24.0	2,720
Czechoslovakia.....	69.8	4,610
German Democratic Republic.....	80.0	4,770
Hungary.....	32.5	3,040
Poland.....	109.6	3,130
Romania.....	69.4	3,180
Total.....	385.3	3,560

Source: See appendix, pt. B.

Non-CMEA countries	Total GNP (billions)			GNP per capita		
	Average 1978 par rate/market rate	Purchasing power equivalents		Average 1978 par rate/market rate	Purchasing power equivalents	
		A	B		A	B
France.....	470.2	393.7	390.8	8,824	7,430	7,330
Federal Republic of Germany.....	640.2	445.0	395.7	10,443	7,230	6,460
Italy.....	235.2	243.1	219.4	4,146	4,240	3,860
United Kingdom.....	309.6	340.5	320.1	5,550	6,080	5,690
Austria.....	57.3			7,630		
Greece.....	31.0			3,308		
Spain.....	141.6			3,815		
Japan.....	968.8	750.4	630.0	8,432	6,560	5,500
United States.....	2,108.0	2,108.0	2,108.0	9,644	9,644	9,644

Source: Non-CMEA countries: "Statistical Abstract of the United States," 1979, p. 898. National currency values converted into dollars by the average 1978 par rate/market rate as published by IMF. The purchasing power equivalents are taken from CIA "Handbook of Economic Statistics 1979," p. 24. The per capita purchasing power equivalents A and B were obtained from the basic source by applying indexes based on United States equal 100 given in this source to the U.S. figure (\$9,644), with the result rounded. The A and B versions of purchasing power equivalents are based upon 1970 ratios (A) and 1950 ratios (B), moved to 1978 by price indexes.

According to table 11, the GDR and Czechoslovakia ranked at the top; Hungary, Poland and Romania followed at roughly the same level in the middle; and Bulgaria came last. The range was from about \$4,800 down to \$2,700. The GDR and Czechoslovakia 1978 GNP per capita in dollars was about half that of the U.S.; the corresponding relationship for Hungary, Poland, and Romania was about one-third the U.S. level, and Bulgaria was somewhat below 30 percent of the U.S. level. For the six East European countries as a group, the average per capita level was about three-eighths of the U.S. level. In terms of the total GNP in 1978, in current U.S. dollars, the six countries of Eastern Europe had a total roughly equivalent to that of France, and they would account for about one-fifth of the U.S. total.

The ranking of Romania in table 11 ahead of Hungary and Poland is not what one might expect from, say a tourist's impression of the relative living standards in these countries. Romanian statistical data are the least abundant among the six East European countries, and

their official rates of growth of national product place Romania far ahead of other countries in the area. If these official rates of NMP national income growth were taken as more or less adequate proxies for real GNP growth, and if they were applied to some subjectively acceptable relative dollar level of Romanian GNP at some intermediate year of the postwar period to move that level backward, or forward, the result might well be an unacceptable anomaly. Romanian per capita GNP could rival that of the more advanced countries or be so low as to cause one to wonder how the populace could survive. One should also note that per capita GNP refers to current annual production allocated to personal consumption, government expenditures, and gross investment. The accumulated cultural infrastructure (opera houses, museums, etc.) that creates the impressive ambiance of Budapest is not so relevant here. The few available Romanian statistics on allocation of national product indicate the highest level of net investment in Eastern Europe in the more recent years (see table 6). When related to the very high national product growth rates, either the official NMP or our very substantially lower GNP rates, a relative dollar GNP of an earlier year carried to 1978 would show very substantial catch-up. We may conclude that our table 11 relative standings indicate rough rankings that on the whole seem reasonable, given the data we have to work with.

Some published dollar estimates of the GNP's of Poland and Hungary may be compared with our figures in table 11. The figures for Poland were prepared by Dr. Eugenia Krzeczowska of the Institute for Statistical Economic Research in the Polish Main Statistical Office by expanding the official figure of gross NMP produced (NMP plus depreciation) to the UN SNA definition of GDP. She added the net value by non-material services plus their depreciation of fixed assets, made adjustments for imputations for rent and profit in the housing sector, and subtracted the value of non-material services bought by the material sectors and appearing in their NMP. The result was the estimated value for 1974 GDP in zlotys.¹¹ This value was converted to U.S. dollars by reference to bilateral France-Poland comparisons of personal consumption from personal incomes in purchasing power indexes of their currencies in 1972 and 1973,¹² and then linking the result to the U.S. dollar. The consumption category was broken down into foods, beverages, clothing, shoes, household equipment, fuel, electricity, water, gas, personal hygienic articles and cultural services. The findings were advanced to 1974 by indexes. The remaining end uses (consumption financed by social funds, investment construction, and machinery and equipment for investment) were converted to dollars using the bilateral United States-Hungary comparison of the United Nations International Comparisons Project (ICP),¹³ and bilateral Hungary-Poland comparisons prepared by research and analysis units

¹¹ Eugenia Krzeczowska, "Dochód narodowy Polski w dolarach" (Polish National Income in Dollars), *Wiadomości statystyczne*, No. 10, 1976, pp. 1-3.

¹² France, Institut de la Statistique et des Etudes Economiques, *Comparison de Prix et du Volume de la Consommation entre la France et la Pologne*, published jointly with the Polish Statistical Office in a single volume in French and Polish, Paris and Warsaw, 1975.

¹³ See Irving B. Kravis, Zoltan Kenezsey, Alan Heston and Robert Summers, *A System of International Comparisons of Gross Product and Purchasing Power*, The Johns Hopkins University Press, Baltimore, 1975.

of the respective national statistical offices. Krzeczowska found that the average relation of the zloty to the dollar in 1974 was $\$1.00 = 20.6$ zlotys. She translated the result into Polish GDP per capita in 1974 equal to 2,167 current dollars, and she further roughly extrapolated this to obtain the estimated 1975 per capita Polish GDP at 2,325 U.S. 1975 dollars. This estimate advanced to 1978 dollars by means of real GNP per capita (table 13) and the U.S. GNP deflator yields a value of \$3,007, which is about 4 percent below our table 11 estimate.

The United Nations ICP provides binary United States-Hungary comparisons for 1967, 1970, and 1973. The approach is based on purchasing power ratios for detailed categories of final uses of GDP yielding ratios of Hungarian per capita GDP to that of the US=100 in U.S. weights, Hungarian weights, and their geometric mean. For purposes of very rough comparisons, the ICP results were extrapolated from 1970 and 1973 to 1978 in the three weight regimens using our real per capita Hungarian GNP indexes in table 13 and the U.S. GNP deflator in the *Statistical Abstract of The U.S.* Extrapolating by this means from the ICP figures for 1973 yielded somewhat higher values for Hungary than when extrapolating from the 1970 ICP figures. Both approaches resulted in substantially higher Hungarian per capita GNP in 1978 in 1978 dollars than shown in table 11. At Hungarian weights these ICP-related Hungarian per capita figures were from about 6 to 16 percent higher, at the geometric average of the Hungarian and U.S. weights, the differences were greater, from 28 to 39 percent higher, and at U.S. weights the differences obviously were even greater.¹⁴

The ICP studies represent very important methodological and empirical contributions to international comparisons and deserve detailed study by interested scholars. They have aroused interest in the CMEA area as well as more broadly elsewhere.¹⁵

We cannot undertake here a comparison of the extensive ICP work with that underlying our table 11, which is essentially a simplified, approximative effort. However, at least two questions may be raised here with regard to the United States-Hungary ICP binary comparisons.

(1) It is not clear to what extent the purchasing power ratios were based on binational, or multinational, commodity or product expertise in actual comparison shopping that would take into account both product specifications and general availability of the product on the markets, and to what extent reliance was placed upon official price lists with suitable product specification but without actual verification of general availability at the indicated prices at a sufficient number of sales outlets. Description of the ICP approach provides a note of warning and guidance stressing a number of caveats.¹⁶ In the instance of Hungary it is pointed out that the work represents collaboration of the Hungarian Central Statistical Office and the U.N. ICP staff; and that comparisons between countries differing as widely in

¹⁴ *Ibid.*, p. 173, and Irving B. Kravis, Alan Heston, and Robert Summers, *International Comparisons of Real Product and Purchasing Power*, The Johns Hopkins University Press, Baltimore, 1978, p. 203.

¹⁵ See Ivan Ryzhov and Yuri Ivanov, "About Methods of International Comparison of National Income and Other Important Value Indexes." (in Russian), *Ekonomicheskoe sotrudnichestvo stran-chlenov SEV*, No. 1, 1980, pp. 97-100.

¹⁶ Kravis, Kenessey, et al., *op. cit.* (1975), pp. 10-12.

levels of economic development and social systems as the United States and Hungary are less reliable than comparisons between countries where such wide differences do not occur, e.g., United States-France or United States-Federal Republic of Germany. Our observations of East European statistical reporting suggests that the ICP cautions should be seriously taken into account. National statistical offices can be expected to protect their indexes and other statistical data. Although we think Hungary would be a great deal more cooperative than some other CMEA countries, perhaps even here the convention in international organizations that the given member country's official statistical data are not to be challenged may limit the scope of inquiry adversely. The ICP study indicates that Hungarian consumer goods prices were all supplied by the Hungarian Central Statistical Office.¹⁷ Hungarian consumer goods prices in many instances have been, and up to 1980 continued to be heavily subsidized. It is also open to question as to what extent the "new product" phenomenon was in effect in Hungary. By such an approach, a modest product differentiation is used to justify a much higher market price than that given in official price lists for essentially the same product.

(2) Our second observation pertains to U.S.-Hungary rent comparisons. The ICP study notes that the Hungarian Central Statistical Office increased the 1967 nominal average monthly rents charged on various categories of state-owned dwellings by the extent of state subsidies to communal management enterprises, and that 1967 rents were still in effect in 1970.¹⁸ It is not clear to what extent, if any, such subsidies would contribute to a net return on housing capital. Most probably these subsidies were intended only to meet current deficits, allowing no net return to fixed capital in housing. Mihalyi Peter writing in an official Hungarian Central Statistical Office (CSO) publication calculated that as compared to other properties the value of the housing stock in Hungary is "some 80 percent" higher than shown in official CSO publications.¹⁹ He applied the methodology of the CSO in his calculation. His conclusion was that using his adjusted values "the gross performance value of housing services within the consumption of the population" corresponds to similar data of developed capitalist countries.

The ICP tabulation shows per capita forint gross rents accounting for 8.8 percent of the "SNA Private Final Consumption Expenditure."²⁰ Mihalyi Peter shows the 1970 value of housing services at 25.4 percent of "total consumption by the population" as opposed to 3.5 percent indicated by the Hungarian CSO.²¹ We have not at all attempted to sort this out as to possible consequences for forint: dollar purchasing power ratios, but it may be worth looking into.

The World Bank in its 1979 *World Bank Atlas*, pp. 2, 6, and 22-23, published U.S. dollar estimates for East European countries. The per capita figures based on mid-year or average annual populations applied to the World Bank estimated totals for GNP in 1978 dollars are as follows: Bulgaria—3,230, Czechoslovakia—4,710, GDR—5,700,

¹⁷ *Ibid.*, p. 82.

¹⁸ Kravis, Kenessey *et al.*, *op. cit.* (1975), p. 128.

¹⁹ See *Statisztikai szemle*, November 1979, pp. 1082-1089.

²⁰ Kravis, Kenessey *et al.*, *op. cit.* (1975), p. 170.

²¹ *Statisztikai szemle*, November 1979, p. 1087.

Hungary—3,450, Poland—3,670, and Romania—1,750. Compared to our estimates in table 11, the differences are not great, except for Romania. The World Bank characterizes its Romanian estimate as not comparable to those of the other five countries because its conversions of Romanian lei figures to dollars were made at the effective exchange rate for foreign trade transactions, whereas the other conversions were made at the respective noncommercial exchange rates. One may wonder why the World Bank would publish such an egregious GNP figure for Romania. Perhaps it has something to do with protocol observed by international organizations with respect to their members: It would appear that a member country's official figures are accepted as given, and subject to change only with approval of that member. In any event, the Romanian \$1,750 per capita 1978 GNP figure, if carried back by official Romanian growth rates, also accepted by the World Bank, would show for around 1950 a per capita GNP suggesting below starvation personal consumption levels, since a substantial part of the GNP would represent investment and other nonpersonal consumption items.

The World Bank *Atlas*, pp. 22-23, provides a brief statement of its methodology, which we quote here in part:

The estimates of GNP per capita and its growth rates are based on the official data on Net Material Product (NMP). Using the national accounts data of 12 Western European countries, two relationships were estimated: The first between NMP per capita and GNP per capita for the benchmark year 1970, and the second between the average annual growth rates of NMP per capita and of GNP per capita for the period of 1970-76. For each CPE (centrally planned economy), the GNP per capita for 1970 was obtained by entering its NMP per capita for 1970 (converted to U.S. dollars by the noncommercial exchange rate) in the first equation, and the annual growth rates of GNP per capita for 1970-78 were estimated by using the official NMP per capita growth rates in the second equation. The 1970 benchmark GNP per capita obtained from the first equation was extrapolated to 1977 and 1978 by the use of the growth rates estimated from the second equation. Finally, these 1977 and 1978 estimates of GNP per capita in 1970 U.S. dollars were converted to current dollars by multiplication by the U.S. implicit GNP deflator with 1970 as the base.

The *Atlas* states that its estimates should be considered as tentative since further methodological research is continuing and differences of national account concepts between East European countries and other countries must be noted. The basic assumptions underlying the World Bank estimates are reliance upon West European experience and acceptance of official, unadjusted East European data as inputs into the estimative equations. Differences in price systems between East and West European countries and concern over the reliability of East European growth rates no doubt should be matters of further study.

IV. INDEXES AND RATES OF GROWTH OF NATIONAL PRODUCT

In tables 12-18 we show our estimated real GNP indexes and the official NMP national indexes covering the 1965-79 period or selected years within it. Corresponding average annual growth rates are presented in tables 19-22. The indexes provide more detail than the least squares determined exponential growth rates; the latter can be readily calculated from the indexes for any subperiod the reader may desire.

Some comparable data on rates of growth are also presented for non-CMEA countries. Methodological comments and source references for the tables are provided in the appendix to this paper.

Indexes of National Product

Our GNP indexes are calculated as aggregations of indexes of sectors of origin of product in constant prices. Weights for the aggregation of sectors into the overall GNP index are factor cost approximations of the sectoral shares in a selected base year, generally in the late 1960's. These weights comprise returns to labor, a net return to the current value of fixed and working capital, a return to agricultural land, and depreciation of fixed capital.

The NMP national income measures represent sectoral gross output less material cost, including depreciation. Nonmaterial services are excluded from the NMP measure, although the sales of such services to the material sectors appear as part of the net material product of the purchasing sector. The NMP indexes were calculated for successive subperiods in sets of new constant, or comparable, prices for each such subperiod, and the subperiod indexes were chain linked into the index for the entire period. Because the GNP and the NMP national income indexes differ in concept, methodology and weight regimens, they are not directly comparable.

The official NMP measures were taken directly from the national statistical publications. No changes were made to compensate for reclassification of economic activities; such changes in sectoral boundaries are often indicated in footnotes and introductory texts to the national income chapters of the national statistical yearbooks. However, retrospective changes in the published indexes are rarely made; thus there would follow inconsistent coverage in the published series. In the 1965-1975 period Bulgaria and Romania added passenger transportation and communications serving nonmaterial sectors to the material product sphere; Czechoslovakia so far remains the only country among the six that has not made this change.

The setting of "constant" prices for new products is a source of upward bias in the official indexes. New industrial products have been given initially high "constant" prices with the intention to replace them later by new, low "constant" prices when the scale of production increases. East European discussions have indicated that such reductions were not adequately realized because of adverse effects on bonuses to management related to plan fulfillment in constant prices. Moreover, some spurious innovations masking an essentially unchanged product are used by enterprises to set higher "constant" prices.

We have tried to maintain a consistent approach in constructing our independent GNP indexes for various countries, but some compromises have been made because of lack of adequate product samples and other data problems. Our industrial production indexes reflect civilian production with the exception primarily of Czechoslovakia, where we have made a substantial adjustment to account for production of military hardware. If the output of military hardware does not match the trend in civilian production, our measures would be deficient. We may also be conservative as regards inclusion of new products, but we are limited in our calculations by the sample of products published by the statis-

tical offices of the East European countries. Whether the published series are selective in the sense of showing disproportionately the faster growing series is a matter for speculation. In any event, an independent approach to the estimation of trends in production would seem justified.

TABLE 12.—INDEXES OF REAL GNP, 1965-79

[1965=100]

	Bulgaria	Czecho- slovakia	German Democratic Republic	Hungary	Poland	Romania
1965.....	100.0	100.0	100.0	100.0	100.0	100.0
1966.....	107.9	104.3	103.0	105.8	106.3	111.5
1967.....	113.7	108.9	106.3	111.8	110.2	116.5
1968.....	115.8	113.8	111.1	113.1	116.7	119.0
1969.....	121.4	115.9	113.8	116.6	115.7	124.4
1970.....	128.2	118.4	116.7	116.2	121.7	127.4
1971.....	132.5	122.4	119.3	121.3	130.4	145.3
1972.....	138.8	126.8	123.4	123.9	139.9	154.6
1973.....	144.3	131.0	127.2	130.4	150.2	159.6
1974.....	148.7	135.7	133.3	133.8	159.1	168.6
1975.....	161.0	139.7	138.3	136.7	166.6	176.1
1976.....	167.5	141.8	141.4	136.5	173.5	198.8
1977.....	165.5	148.4	146.2	144.8	178.3	205.7
1978.....	170.1	150.5	149.8	148.9	185.3	217.8
1979 ¹	174.6	151.5	153.3	150.8	185.2	227.6

¹ 1979 indexes are provisional estimates based on incomplete plan fulfillment and other partial data.

Source: Table 14.

TABLE 13.—INDEXES OF REAL GNP PER CAPITA, 1965-79.

[1965=100]

	Bulgaria	Czecho- slovakia	German Democratic Republic	Hungary	Poland	Romania
1965.....	100.0	100.0	100.0	100.0	100.0	100.0
1966.....	107.1	103.7	102.8	105.5	105.7	110.8
1967.....	112.2	107.8	105.9	111.0	108.7	114.9
1968.....	113.4	112.2	110.7	111.9	112.7	114.9
1969.....	118.1	113.9	113.5	114.9	111.9	118.3
1970.....	123.9	117.0	116.5	114.0	117.8	119.7
1971.....	127.3	120.4	119.1	118.7	125.1	135.0
1972.....	132.7	124.1	123.3	120.9	133.2	142.4
1973.....	137.3	127.4	127.5	126.8	141.8	145.8
1974.....	140.5	130.9	134.1	129.5	148.7	152.6
1975.....	151.5	133.7	139.7	131.6	154.3	157.7
1976.....	156.8	134.5	143.4	130.7	159.0	173.4
1977.....	154.1	139.7	148.4	138.0	161.8	180.8
1978.....	158.2	140.8	152.2	141.4	166.9	189.6
1979 ¹	162.3	140.8	155.8	143.2	165.7	196.4

¹ 1979 indexes are provisional estimates based on incomplete plan fulfillment and other partial data.

Source: Tables 1 and 14.

Tables 12 and 13 present our indexes of overall and per capita real GNP. Both tables show similar trends, but table 13 shows slower growth where the population is increasing. The rank by extent of growth is the same in both tables. In the 1965-1979 period Romania was highest in growth of total GNP (128 percent), followed by Poland (85 percent), and Bulgaria (75 percent). The remaining three countries were clustered (51 to 53 percent). The range of growth in table 13 is narrower, from 96 percent (Romania) to 41 percent (Czechoslovakia) because the faster growth in total GNP shown in table 12 was slowed down more when shown per capita in table 13 in those

countries whose population grew relatively faster. The GDR, with an absolute decline in population, showed higher per capita GNP growth than total GNP growth. The population indexes are shown in table 1.

Table 14 shows the detailed array of our sectoral real GNP indexes and the weights used to combine them into overall GNP. The sectors of construction, trade, transport and communications, and industry are generally the faster growing ones, but their rank varies from country to country. Agriculture in all countries grows less rapidly than overall GNP. Because industry and agriculture are the more heavily weighted sectors, their influence upon the growth of overall GNP is decisive.

Table 15 presents provisional indexes of real final domestic uses of gross product, 1965 and 1970-1978. Our sources and methodology are outlined in the appendix, part A. Romania is omitted for lack of adequate data. The total product here is that which is produced as adjusted for imports less exports. Indexes of private personal consumption were calculated very provisionally using official weights for consumption categories as substitutes for factor cost weights. Product series were available in national statistical yearbooks, and unit prices were taken from the same base year as our sector of origin GNP indexes. In some few instances where physical product series and price weights were unavailable we used official value series in their constant prices. Details of our procedure and sources are given in our *Occasional Paper*, No. 57. The housing index carries a weight comprising its weight in our sector of origin GNP indexes plus estimated purchases by housing services from other sectors. An analogous weighting procedure was used for the selected government civilian service component indexes: (1) Administration, justice, and internal security; (2) education and culture; and (3) health and social welfare. The total product less the independently estimated private and government consumption yield the residual series, comprising gross investment, defense expenditures, and other items of government consumption not already accounted. Our *Occasional Papers*, Nos. 55 and 57 provide details of our estimates.

Major interest here concerns the content of the "Residual": what part of it is gross investment and what part is military procurement? At this stage we have not provided a breakdown. To the extent that the military component has more or less the same growth rate as civilian gross investment, the index of the residual could serve as a proxy for an investment index (subject of course to reservations noted above). However, particularly in the most recent years, under the pressure to meet the burden of external debt service, civilian investment goals have been sharply reduced in some countries. East European official definitions of "accumulation" (net investment) indicate that some defense procurements are within the accumulation category.

We leave it to the reader to trace the detailed trends of component uses in table 15. Private consumption shows fairly steady growth over the 1965-1978 period. As long as the new additions to the housing stock exceed the retirements, and there were no exceptions here, the housing services index will show continuous growth. The indicated government service indexes reflect the continued growth of employment in the component government sectors. The residual index is more variable over time and among countries. It has slackened its growth or declined in the most recent years in Bulgaria, Czechoslovakia, Hungary, and Poland, but because of its residual nature, inferences based

TABLE 14.—INDEXES OF REAL GNP BY SECTOR OF ORIGIN, EAST EUROPEAN COUNTRIES, 1965-79

[Indexes 1965=100; weights in percent of GNP]

	Weights †	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ‡
BULGARIA:																
GNP.....	100.00	100	107.9	113.7	115.8	121.4	128.2	132.5	138.8	144.3	148.7	161.0	167.5	165.5	170.1	174.6
Industry.....	33.35	100	110.7	121.6	133.1	143.0	150.8	160.7	165.8	174.3	186.5	199.2	207.6	213.2	220.0	229.0
Agriculture.....	29.23	100	106.8	106.4	96.4	97.4	101.9	100.7	107.7	108.2	101.6	113.4	115.4	101.8	103.6	106.8
Forestry.....	.49	100	105.6	111.0	107.1	113.5	111.9	107.3	107.6	106.8	104.4	102.4	93.6	94.5	96.9	97.6
Construction.....	6.99	100	111.5	122.2	127.4	129.2	138.2	140.0	141.8	145.8	155.8	158.6	160.5	164.1	172.8	176.8
Transportation.....	6.71	100	111.6	127.9	143.9	161.2	180.7	194.6	208.2	226.0	244.8	268.5	301.0	307.2	315.9	297.2
Communications.....	.66	100	105.5	110.3	115.2	121.6	128.4	134.8	139.7	145.9	145.7	147.8	146.0	145.0	139.8	138.9
Trade.....	5.90	100	108.6	121.1	130.2	140.3	151.3	161.2	171.8	187.0	204.1	220.0	236.0	243.4	251.7	268.8
Housing.....	6.45	100	101.8	103.9	106.0	108.5	111.2	113.9	116.3	119.2	121.5	134.8	138.4	142.2	145.6	149.4
Government and other sectors.....	10.22	100	103.9	107.0	111.3	116.7	121.7	124.2	130.7	136.2	141.3	152.7	156.6	156.8	159.5	162.6
Czechoslovakia:																
GNP.....	100.00	100	104.3	108.9	113.8	115.9	118.4	122.4	126.8	131.0	135.7	139.7	141.8	148.4	150.5	151.5
Industry.....	39.73	100	102.6	108.0	112.1	115.3	122.7	125.9	131.5	136.6	141.6	148.3	152.3	158.8	162.7	166.1
Agriculture.....	19.31	100	112.6	119.5	129.3	127.6	117.2	121.3	124.8	129.9	132.1	131.7	125.2	141.8	135.2	127.1
Forestry.....	7.97	100	90.2	100.3	94.8	97.6	105.9	108.0	107.1	108.3	113.2	115.8	120.9	120.8	127.1	130.7
Construction.....	5.40	100	105.4	110.7	112.6	109.7	117.5	125.7	129.4	132.0	137.3	142.5	146.8	146.2	149.2	151.0
Transport.....	8.64	100	102.8	102.5	105.9	106.7	113.3	118.9	124.8	126.6	133.4	136.8	143.3	147.9	153.2	154.4
Communications.....	1.30	100	103.0	103.7	104.2	104.7	106.6	109.3	111.0	115.2	121.2	124.0	128.4	131.4	136.9	139.6
Trade.....	6.95	100	105.0	110.8	124.5	133.8	135.4	143.1	151.5	160.5	172.3	177.5	182.1	185.3	192.1	198.6
Housing.....	8.97	100	100.9	101.5	101.5	103.5	104.5	105.9	107.5	109.1	110.8	112.7	114.9	116.7	118.5	120.2
Government and other sectors.....	8.73	100	101.6	105.5	108.7	112.7	112.7	115.9	116.9	118.2	122.1	124.1	125.2	128.1	131.3	133.5
German Democratic Republic:																
GNP.....	100.00	100	103.0	106.3	111.1	113.8	116.7	119.3	123.4	127.2	133.3	138.3	141.4	146.2	149.8	153.3
Industry.....	41.24	100	102.6	105.7	111.8	116.6	121.0	124.2	126.5	130.0	136.3	142.8	148.8	151.5	155.7	159.8
Agriculture and forestry.....	15.84	100	104.5	109.5	111.5	105.9	102.0	99.1	109.3	110.9	118.7	117.3	107.0	118.3	118.0	118.0
Construction.....	5.39	100	107.3	113.5	126.5	136.2	142.9	149.8	155.3	162.2	169.7	179.7	189.5	197.8	204.3	213.3
Transport and communications.....	7.07	100	102.3	107.0	111.5	114.5	125.1	134.1	136.8	143.0	150.3	162.0	169.5	174.6	181.4	185.0
Trade.....	9.55	100	104.2	108.2	113.4	119.5	124.4	129.0	136.9	144.7	153.7	159.2	165.7	172.5	178.2	183.6
Housing.....	8.20	100	101.0	101.7	102.9	103.8	104.1	104.5	105.6	107.0	108.5	110.1	111.6	113.1	114.7	116.2
Government and other sectors.....	12.71	100	101.7	103.3	107.0	108.6	110.1	112.7	114.2	118.4	121.8	126.0	129.9	133.1	136.2	140.3
Hungary:																
GNP.....	100.00	100	105.8	111.8	113.1	116.6	116.2	121.3	123.9	130.4	133.8	136.7	136.5	144.8	148.9	150.8
Industry.....	32.82	100	104.2	108.3	112.8	114.0	118.9	120.7	122.2	127.2	130.4	135.2	140.0	143.8	150.2	153.1
Agriculture.....	26.50	100	111.8	122.3	115.3	122.4	100.3	110.9	113.4	122.7	121.6	121.7	111.5	127.8	127.1	125.9
Forestry.....	.61	100	103.9	110.0	114.7	112.6	118.6	126.0	129.4	129.6	129.0	130.1	136.9	139.1	140.9	144.7
Construction.....	5.19	100	107.7	115.5	133.1	134.3	145.6	156.1	156.4	160.6	168.7	172.1	169.2	175.0	182.0	182.7
Transportation.....	8.18	100	103.8	108.3	109.4	112.1	118.3	121.0	123.4	130.9	138.7	138.6	140.2	147.2	151.8	154.9
Communications.....	1.16	100	104.1	107.3	111.4	112.9	119.1	121.2	125.0	129.1	134.8	140.5	145.5	157.4	160.6	169.6
Trade.....	6.56	100	106.9	116.9	124.8	135.9	149.4	162.3	168.0	178.8	194.0	203.7	205.7	219.6	227.8	231.1
Housing.....	8.98	100	102.7	104.3	104.6	105.0	105.3	107.1	108.8	111.5	113.7	116.1	118.7	121.2	123.7	126.3
Government and other sectors.....	10.00	100	100.4	103.8	105.6	108.2	123.2	125.0	131.5	137.8	141.6	144.2	147.3	154.5	160.8	164.7

See footnotes at end of table.

TABLE 14.—INDEXES OF REAL GNP BY SECTOR OF ORIGIN, EAST EUROPEAN COUNTRIES, 1965-79—Continued

[Indexes 1965=100; weights in percent of GNP]

	Weights ¹	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ²
Poland:																
GNP.....	100.00	100	106.3	110.2	116.7	115.7	121.7	130.4	139.9	159.2	159.1	166.6	173.5	178.3	185.3	185.2
Industry.....	35.28	100	105.4	111.8	119.6	127.4	135.4	144.2	155.8	168.0	179.6	195.0	203.6	213.1	220.7	222.2
Agriculture.....	23.89	100	108.9	107.9	114.0	95.2	99.3	107.3	112.8	116.7	114.2	104.7	105.4	106.9	116.0	114.8
Forestry.....	.80	100	104.0	102.4	103.9	100.2	99.3	99.1	97.4	104.4	112.9	120.9	130.7	118.0	115.5	115.5
Construction.....	8.17	100	106.0	115.1	124.5	134.1	114.8	156.4	170.0	204.5	232.0	247.1	258.4	250.7	250.6	238.6
Transport and communications.....	8.72	100	108.5	113.8	123.1	128.8	135.9	152.2	171.2	186.6	216.6	246.5	263.8	274.9	291.1	291.1
Trade.....	6.54	100	106.7	114.7	121.5	126.9	131.8	141.3	158.4	174.6	188.7	207.1	220.1	231.6	236.9	240.5
Housing.....	7.24	100	103.0	105.6	108.3	111.7	117.8	123.7	126.1	128.8	131.5	134.9	139.3	144.0	146.5	148.7
Government and other sectors.....	9.36	100	102.6	106.6	109.4	112.1	113.9	118.7	124.3	129.0	133.6	139.2	142.4	145.7	147.8	150.3
Romania:																
GNP.....	100.00	100	111.5	116.5	119.0	124.4	127.4	145.3	154.6	159.6	168.6	176.1	198.8	205.7	217.8	227.6
Industry.....	30.58	100	112.6	125.5	138.1	153.2	171.6	187.1	232.3	223.0	248.3	255.9	283.9	314.1	336.6	356.1
Agriculture and forestry.....	37.29	100	114.4	113.2	105.5	104.0	94.7	123.5	123.1	124.4	121.8	122.7	154.5	150.6	156.5	161.2
Construction.....	6.92	100	105.6	111.9	123.0	134.1	142.7	160.7	162.7	163.6	176.7	162.7	171.8	177.5	188.8	196.5
Transport and communications.....	6.36	100	111.7	124.5	138.7	153.3	164.3	176.3	185.2	193.6	216.9	255.3	265.9	276.5	290.8	304.4
Trade.....	6.09	100	110.0	120.0	131.0	137.0	149.0	163.0	173.0	186.0	205.0	221.0	240.0	257.0	286.8	303.4
Housing.....	4.86	100	102.2	104.3	106.2	108.4	111.0	113.7	116.2	118.7	121.5	124.5	127.4	130.1	133.1	136.2
Government and other sectors.....	7.90	100	105.6	109.3	111.4	114.3	112.6	115.4	118.1	117.6	121.7	125.5	131.9	133.2	137.2	141.7

¹ Weights are percentages of total GNP at adjusted factor cost in indicated base years: Bulgaria, 1968; Czechoslovakia, 1967; German Democrat Republic, 1968; Hungary, 1969; Poland, 1969, and Romania, 1968.

² 1979 Indexes are provisional estimates based on incomplete plan fulfillment and other partial data.
Note: See app., pt. A.

TABLE 15.—INDEXES OF REAL FINAL DOMESTIC USES OF GROSS PRODUCT, SELECTED YEARS, 1965–78

[In constant prices; 1965=100]

	1965	1970	1971	1972	1973	1974	1975	1976	1977	1978
Bulgaria:										
Private consumption.....	100	122.4	126.4	130.1	136.2	140.2	147.6	153.8	153.6	157.9
Personal consumption excluding housing.....	100	124.1	128.3	132.2	138.8	143.1	149.5	156.1	155.3	159.8
Housing.....	100	111.2	113.9	116.3	119.2	121.5	134.8	138.4	142.2	145.6
Government: Selected civilian elements.....	100	122.2	124.7	132.2	139.1	148.1	158.1	165.7	167.0	167.2
Residual: Gross investment, defense, other.....	100	134.5	123.2	138.9	145.0	163.7	194.9	173.8	162.3	145.7
Total.....	100	126.4	125.2	133.2	139.4	148.7	164.2	161.4	157.6	154.7
Czechoslovakia:										
Private consumption.....	100	112.9	116.5	118.6	122.0	126.6	128.8	131.6	134.8	139.3
Personal consumption excluding housing.....	100	114.8	118.9	121.1	125.0	130.2	132.5	135.4	139.0	144.0
Housing.....	100	104.5	105.9	107.5	109.1	110.8	112.7	114.9	116.7	118.5
Government: Selected civilian elements.....	100	116.5	121.2	126.9	129.0	132.2	135.5	138.6	142.8	146.2
Residual: Gross investment, defense, other.....	100	124.8	126.9	133.7	147.3	160.3	161.4	158.8	170.6	165.3
Total.....	100	116.9	120.2	124.0	130.6	137.6	139.6	140.7	146.7	148.0
German Democratic Republic:										
Private consumption.....	100	112.4	115.8	121.3	129.3	131.7	136.0	140.4	141.4	144.5
Personal consumption excluding housing.....	100	113.9	117.9	124.1	133.3	135.9	140.6	145.6	146.5	149.9
Housing.....	100	104.1	104.5	105.6	107.0	108.5	110.1	111.6	113.1	114.7
Government: Selected civilian elements.....	100	107.4	110.1	112.0	114.7	117.6	120.5	123.8	125.9	128.1
Residual: Gross investment, defense, other.....	100	152.0	145.2	144.4	140.4	159.0	156.6	167.9	185.1	190.7
Total.....	100	119.2	120.6	124.3	129.3	134.8	137.7	143.2	147.5	150.9
Hungary:										
Private consumption.....	100	120.2	122.8	125.7	129.7	136.1	141.3	143.5	150.1	154.3
Personal consumption excluding housing.....	100	123.8	126.5	129.7	134.0	141.4	147.3	149.4	157.0	161.6
Housing.....	100	105.3	107.1	108.8	111.5	113.7	116.1	118.7	121.2	123.7
Government: Selected civilian elements.....	100	110.7	113.3	117.9	122.0	126.6	131.1	135.7	138.8	143.1
Residual: Gross investment, defense, other.....	100	118.7	141.9	117.9	116.5	130.7	131.1	118.9	124.5	n.a.
Total.....	100	118.9	128.6	122.3	124.4	133.4	136.8	134.7	140.1	n.a.
Poland:										
Private consumption.....	100	120.2	126.3	132.4	139.7	145.7	157.4	167.3	173.2	174.6
Personal consumption excluding housing.....	100	120.6	126.7	133.5	141.6	148.2	161.3	172.2	178.3	179.5
Housing.....	100	117.8	123.7	126.1	128.8	131.5	134.9	139.3	144.0	146.5
Government: Selected civilian elements.....	100	114.5	119.4	123.6	126.8	130.1	132.6	135.5	138.5	139.5
Residual: Gross investment, defense, other.....	100	127.0	146.0	170.7	203.6	229.5	235.6	243.0	236.2	245.3
Total.....	100	122.0	132.4	144.7	160.4	173.0	181.9	190.4	191.7	195.9

Source: See app., pt. A.

on this index should be made with caution. Trends in net imports and agricultural good or bad years as they affect personal consumption would affect the residual series.

Table 16 presents the official NMP sectoral and national income produced indexes. The indexes shown for particular sectors over the 1965–1978 period in particular countries are various, but the faster growing sectors are, as in table 14, construction, trade, industry and transport and communications, in varying order depending on the country. Agriculture shows below average growth in all countries. The impact of weather on agricultural performance appears in the fluctuations of its sectoral index.

TABLE 16.—INDEXES OF NET MATERIAL PRODUCT BY ORIGIN, EAST EUROPEAN COUNTRIES, 1965-1979

[In constant prices, 1965=100]

	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979
Bulgaria:															
NMP.....	100	111.1	125.1	129.0	141.9	152.0	162.6	174.8	189.2	203.6	221.5	235.9	250.8	264.6	281.8
Industry.....	100	111.3	126.1	145.4	164.7	180.2	196.4	212.6	232.5	261.3	280.7	302.9	336.4	363.5	NA
Agriculture.....	100	114.1	109.5	90.9	96.5	95.5	93.6	100.3	100.3	92.6	103.3	104.2	92.5	90.4	NA
Forestry.....	100	104.2	110.0	106.6	112.6	111.1	NA	NA	NA	NA	126.9	NA	119.1	116.7	NA
Construction.....	100	116.1	135.6	155.1	163.4	178.4	185.5	142.7	214.1	225.4	244.0	245.8	254.7	288.7	NA
Transport and communica- tions.....	100	112.7	127.6	141.5	147.2	161.7	177.9	194.0	216.7	249.0	274.9	300.8	315.3	336.3	NA
Trade.....	100	99.3	122.4	130.0	147.1	165.4	188.6	206.8	253.1	287.8	337.2	381.4	436.0	390.4	NA
Other.....	100	95.7	107.4	134.1	114.3	100.8	NA	NA	NA	NA	111.9	NA	132.9	148.5	NA
Czechoslovakia:															
NMP.....	100	109.2	114.9	123.2	132.2	139.7	147.4	155.8	163.9	173.6	184.4	191.1	199.1	207.3	212.9
Industry.....	100	106.8	111.1	117.3	125.0	134.9	142.5	148.7	156.3	167.2	181.4	192.2	195.0	204.7	NA
Agriculture and forestry.....	100	121.0	129.9	141.0	148.7	138.5	143.8	145.1	149.4	150.3	148.9	140.7	160.1	150.8	NA
Construction.....	100	119.0	127.7	133.8	134.9	142.6	156.5	177.5	185.2	197.1	206.4	211.0	205.1	211.4	NA
Transport and communica- tions.....	100	98.0	109.6	110.5	112.9	111.1	122.0	131.5	133.7	142.0	152.1	157.5	170.1	185.4	NA
Trade.....	100	111.2	117.8	142.3	173.3	189.9	193.7	213.0	232.7	243.2	246.1	255.6	295.2	314.1	NA
Other.....	100	124.8	138.1	164.5	205.1	219.7	212.7	215.2	234.5	247.6	265.0	250.7	235.1	251.3	NA
German Democratic Republic:															
NMP.....	100	105.0	110.8	116.8	122.2	129.2	134.6	142.4	149.9	159.5	167.2	173.2	182.1	189.1	196.7
Industry.....	100	105.0	110.8	117.5	124.9	132.5	139.5	146.7	155.6	165.5	175.6	185.9	194.5	203.2	NA
Agriculture and forestry.....	100	104.8	111.3	110.6	102.8	108.6	103.5	116.5	116.1	124.9	120.9	107.5	120.0	118.7	NA
Construction.....	100	106.5	114.3	126.9	137.1	145.0	151.9	157.2	164.6	172.4	181.2	191.1	199.4	206.0	NA
Transport and communica- tions.....	100	103.6	106.0	111.7	114.5	123.9	132.0	134.3	138.8	144.5	152.4	159.5	164.2	170.6	NA
Trade.....	100	105.2	110.0	115.1	124.9	129.9	138.0	147.0	157.6	169.2	177.6	183.6	192.9	200.5	NA
Other.....	100	102.7	112.0	126.8	127.7	123.9	127.0	128.7	143.8	156.4	163.3	175.4	185.3	195.0	NA

Hungary:															
NMP.....	100	108.2	117.0	122.8	132.6	139.1	148.1	155.6	167.2	178.8	188.5	194.2	209.7	217.9	220.6
Industry.....	100	109.4	119.0	126.1	131.7	142.4	150.5	161.3	175.0	190.9	202.8	213.8	228.3	238.6	NA
Agriculture and forestry.....	100	110.0	111.0	110.2	123.1	101.5	110.2	113.9	122.6	120.6	118.0	109.6	126.8	124.2	NA
Construction.....	100	106.2	120.5	129.8	142.0	156.1	166.4	168.9	177.3	191.8	208.2	218.8	233.0	244.2	NA
Transport and communications.....	100	105.0	115.7	126.1	136.7	148.8	157.4	165.3	179.6	191.4	198.5	198.5	211.9	229.8	NA
Trade.....	100	104.9	116.7	125.9	135.2	152.8	169.3	180.4	195.5	215.5	237.9	254.5	274.0	296.6	NA
Other.....	100	105.4	124.4	130.0	156.4	218.2	212.4	208.9	208.9	221.0	224.3	NA	NA	NA	NA
Poland:															
NMP.....	100	107.1	113.2	123.4	127.0	133.6	144.5	159.7	177.0	195.5	213.0	227.6	239.0	246.2	241.3
Industry.....	100	107.1	114.8	125.6	136.1	145.4	157.7	174.1	194.2	217.6	242.4	264.9	285.2	292.3	NA
Agriculture and forestry.....	100	104.8	104.4	113.7	93.8	97.3	104.5	109.5	113.6	111.3	103.9	105.5	104.7	112.9	NA
Construction.....	100	108.9	121.7	133.2	141.7	146.4	153.6	186.4	216.8	246.4	273.6	280.6	283.5	282.6	NA
Transport and communications.....	100	108.5	113.8	123.2	128.9	135.9	152.3	171.3	186.7	216.6	246.5	263.8	274.1	291.1	NA
Trade.....	100	104.8	110.1	122.8	130.9	134.8	147.5	160.6	180.7	204.8	228.7	246.7	259.2	259.7	NA
Other.....	100	125.4	142.3	136.9	180.0	179.2	186.2	211.5	248.5	270.0	289.2	319.7	348.5	368.2	NA
Romania:															
NMP.....	100	110.0	118.0	126.0	136.0	145.0	164.0	181.0	200.0	225.0	247.0	275.0	299.0	321.0	340.9
Industry.....	100	110.0	125.0	140.0	158.0	182.0	203.0	229.0	268.0	304.0	339.0	366.0	406.0	444.0	NA
Agriculture ¹	100	116.0	115.0	107.0	109.0	97.0	127.0	136.0	129.0	126.0	126.0	161.0	155.0	161.0	NA
Construction.....	100	108.0	124.0	140.0	151.0	176.0	193.0	209.0	220.0	232.0	253.0	281.0	334.0	339.0	NA
Transport and communications.....	100	110.0	122.0	134.0	143.0	155.0	168.0	185.0	205.0	223.0	262.0	275.0	290.0	305.0	NA
Trade ²	100	88.0	76.0	77.0	60.0	24.0	NA	NA	NA	NA	NA	NA	NA	NA	NA
Other ¹	100	110.0	119.0	125.0	127.0	127.0	NA	NA	NA	NA	NA	NA	NA	NA	NA

¹ Excludes forestry. Forestry is not included either in agriculture or in the residual "other" sectors in the indexes as shown here, but is included in the total NMP.

² Romanian statistical sources no longer carry an index of NMP originating in trade. The CMEA yearbook, however, has recently been showing such an index for Romania, indicating growth as follows: 1965=100, 1970=143, 1975=216, 1976=247, 1977=260, 1978=287.

Note: Price bases and NMP coverages vary; see app. pl. C.

Our GNP indexes over the 1965–1979 period (table 14) show markedly slower growth than the official NMP national income produced indexes (table 16). Of course, as outlined at various points in this paper, the measures are not comparable because of different production boundaries, pricing and other weightings, and methodology. We believe that for international comparisons both within the CMEA area and with non-CMEA countries, the GNP series provide a more consistent base than the NMP indexes sometimes used as proxies for GNP growth. Juxtaposition of the overall growth rates by GNP and NMP indexes over the 1965–1979 period shows, respectively, 1965=100, for Bulgaria—175 vs 282, Czechoslovakia—152 vs 213, the GDR—153 vs 197, Hungary—151 vs 221, Poland—185 vs 241, and Romania—228 vs 341. Comparable juxtaposition can be made for GNP and NMP indexes for industry and other sectors. Thus, for industry, the major sector in Eastern Europe, a juxtaposition (not really a comparison) of this sectoral index, respectively, for GNP (table 14) and NMP (table 16), taking 1965=100, shows for 1978: Bulgaria—220 vs 364, Czechoslovakia—163 vs 205, the GDR—156 vs. 203, Hungary—150 vs 239, Poland—221 vs 292, and Romania—337 vs 444. Tables 19–22 below will show average annual growth rates for subperiods of the 1965–1978 interval for the overall aggregate indexes and their component sectors.

The official real NMP national income produced indexes per capita are given in table 17. They are lower than the corresponding total indexes because table 17 reflects population growth directly. Only the GDR experienced an absolute decline of population, and accordingly its indexes of per capita growth in table 17 reach higher levels than the corresponding indexes in table 16.

TABLE 17.—INDEXES OF NET MATERIAL PRODUCT PRODUCED PER CAPITA, 1965–79
[Indexes 1965=100]

	Bulgaria	Czecho- slovakia	German Democratic Republic	Hungary	Poland	Romania
1965.....	100.0	100.0	100.0	100.0	100.0	100.0
1966.....	110.3	108.5	101.8	107.9	106.5	109.3
1967.....	123.5	113.8	110.4	116.2	111.6	116.4
1968.....	126.3	121.5	116.3	121.5	120.3	121.6
1969.....	138.0	129.9	121.8	130.6	122.8	129.3
1970.....	146.9	138.0	128.9	136.5	129.3	136.3
1971.....	156.2	144.9	134.3	144.9	138.7	152.4
1972.....	167.1	152.4	142.3	151.8	152.1	166.7
1973.....	180.0	159.4	150.2	162.6	167.1	182.6
1974.....	192.4	167.4	160.5	173.1	182.7	203.6
1975.....	208.4	176.5	168.9	181.4	197.2	221.1
1976.....	220.9	181.3	175.7	186.0	208.6	244.0
1977.....	233.5	187.5	184.9	199.9	216.9	262.7
1978.....	246.1	193.9	192.2	206.9	221.8	279.4
1979.....	261.9	197.9	199.9	209.5	215.8	294.1

Note: Calculated from official NMP indexes in table 16 and population indexes in table 1.

Taking 1965=100, the ranks in descending order of total NMP national income produced were by 1979 as follows (see table 16): Romania—341, Bulgaria—282, Poland—241, Hungary—221, Czechoslovakia—213, and the GDR—197. Per capita, again 1965=100, by 1979 the NMP total rankings were in the same order, except the indexes were somewhat lower in view of population growth, except for

the GDR, where population declined, and the GDR moved to fifth place, and Czechoslovakia to sixth. Returning to overall, not per capita sectoral indexes, industry and construction were the faster growing sectors, while agriculture and forestry were the slowest in all six countries. The interested reader may follow the detail in table 16 as regards these and other material product sectors. Average growth rates by subperiods of the 1965-1979 interval may be more instructive; they are shown below in table 22. Sectoral growths reflect investment, price, and incentive policies, among other factors. Industry, especially in the machinery and chemical branches, rated high priorities in East European economic planning (compare tables 8-10 above).

We have discussed above in connection with table 15, 1965 and 1970-1978 indexes of real final domestic uses of gross product, defined as GNP plus imports minus exports. Table 18 presents for all countries except Romania (which does not publish this information) the official indexes of total net material product (NMP) domestically distributed and also indexes for consumption and accumulation (net capital formation), in 1965, 1970, 1975, and 1978. NMP produced is here adjusted by "losses" and the foreign trade balance to arrive at the

TABLE 18.—INDEXES OF NET MATERIAL PRODUCT DOMESTICALLY DISTRIBUTED, TOTAL AND COMPONENTS AND PER CAPITA, 1965, 1970, 1975, AND 1978

[At constant prices; indexes 1965=100]

	Total NMP				NMP per capita			
	1965	1970	1975	1978	1965	1970	1975	1978
Bulgaria:								
Consumption.....	100	141.3	198.5	228.9	100	136.5	186.7	212.9
Personal.....	100	140.2	192.6	NA	100	135.5	181.2	NA
Other.....	100	175.5	371.6	NA	100	169.6	349.6	NA
Net capital formation.....	100	167.4	306.5	265.3	100	161.7	288.3	246.8
NMP distributed, total.....	100	148.8	224.6	NA	100	143.8	211.3	NA
Czechoslovakia:								
Consumption.....	100	130.5	169.0	187.5	100	128.9	161.7	175.4
Personal.....	100	130.1	164.6	180.2	100	128.5	157.4	168.6
Other.....	100	131.7	182.8	210.3	100	130.1	174.9	196.7
Net capital formation.....	100	191.1	287.1	281.9	100	188.8	274.7	263.7
NMP distributed, total.....	100	139.7	187.7	202.0	100	138.0	179.6	189.0
German Democratic Republic:								
Consumption.....	100	125.7	162.8	184.8	100	125.4	164.5	187.8
Personal.....	100	123.2	157.1	175.9	100	122.9	158.7	178.8
Other.....	100	143.3	208.3	250.4	100	143.0	210.4	254.5
Net capital formation.....	100	160.3	184.1	203.2	100	160.0	186.0	206.5
NMP distributed, total.....	100	133.0	167.0	187.8	100	132.7	168.7	190.9
Hungary:								
Consumption.....	100	135.0	170.2	189.0	100	132.4	163.8	179.5
Personal.....	NA	NA	NA	NA	NA	NA	NA	NA
Other.....	NA	NA	NA	NA	NA	NA	NA	NA
Net capital formation.....	100	173.0	254.8	348.2	100	169.8	245.2	330.7
NMP distributed, total.....	100	143.0	187.5	220.8	100	140.3	180.5	209.7
Poland:								
Consumption.....	100	130.6	197.7	233.7	100	126.4	183.2	210.3
Personal.....	100	127.9	192.1	224.9	100	123.9	177.8	202.0
Other.....	100	150.2	239.2	298.3	100	145.4	221.4	268.6
Net capital formation.....	100	137.3	327.2	316.9	100	133.0	303.0	285.2
NMP distributed, total.....	100	132.3	232.6	257.4	100	128.2	215.4	231.6

Note: These data are not entirely comparable among countries. See the app., pt. C.

total distributed. Once more we emphasize that because of differences in concepts of GNP versus NMP, prices and other weights, and methodology, tables 15 and 18 are not comparable. Services entering the GNP as origins of product, enter the NMP produced as value added of the material sector that buys them, and these services appear as final users of the NMP, to the extent of their purchases of material product, under the heading of consumption. In GNP concept these nonmaterial services enter in full under gross value added in production and in their gross value as regards their part of sales to final uses.

We shall note here also that NMP personal consumption is not uniformly defined among the East European countries. In some instances it refers to purchases of material goods and material services by the population from their personal incomes; in others it includes some state-financed consumption attributed to "consumption by the population" as distinct from "other consumption." The basic statistical sources make this distinction clear in their notes to tables. Military expenditures enter personal consumption (e.g., food for soldiers), "other" or collective consumption (current operational expenses), and accumulation (net capital formation), according to official commentaries on the NMP accounts.

According to the official constant price indexes in table 18, net capital formation grew faster than total NMP domestically distributed. Concomitantly, the total consumption had to grow slower than the total NMP. Within total consumption, personal consumption grew at a lesser rate than "other" consumption (government uses).

Rates of Growth of National Product

The detailed indexes of growth of national product given above in tables 12-18 and in supporting materials provide a ready basis for calculating rates of growth for various subperiods of the 1965-1979 interval. We shall present in tables 19-22 average annual rates based on the exponential equation, $I_n = I_0 (1+R)^n$, least squares fitted to index observations, where the I refers to index values and R is the compound annual rate of growth. These rates obviously show only what is implicit in the basic indexes and the assumed growth equation, but they facilitate comparison of performance by subperiods. Year-to-year changes for the most recent three or four years will also be shown.

Table 19 shows per capita GNP growth rates of the six East European countries, and seven other European countries, Japan, and the United States. Facile comparisons drawn from such a table of course can be misleading; ideally one should compare performance among countries at about the same level of development and under conditions where the course of development is not disrupted by extraordinary exogenous factors. However, if we disregard these and other cautions and simply consider the performance of the countries in the same time spans, a general impression of comparative rates of growth may be gained. We have noted earlier in our discussions that the countries of Eastern Europe are becoming more like the Western countries, al-

TABLE 19.—AVERAGE AND ANNUAL RATES OF GROWTH OF GROSS NATIONAL PRODUCT PER CAPITA, 1965-79

[At constant prices; percent]

	1965-70	1970-75	1973-78	1976	1977	1978	1979 ¹
East European countries:							
Bulgaria.....	4.0	3.9	3.0	3.5	-1.7	2.7	2.6
Czechoslovakia.....	3.2	2.7	2.0	.6	3.9	.8	0
German Democratic Republic.....	3.2	3.8	3.5	2.6	3.5	2.6	2.4
Hungary.....	2.7	3.0	2.1	- .7	5.6	2.5	1.3
Poland.....	3.0	5.7	3.2	3.0	1.8	3.2	- .7
Romania.....	3.2	5.2	5.7	11.9	2.5	4.9	3.6
Other countries:							
France.....	5.0	2.8	2.3	4.9	2.7	2.6	-----
Federal Republic of Germany.....	4.0	1.3	2.1	6.3	2.6	3.6	-----
Italy.....	5.4	3.2	1.3	5.0	1.5	1.5	-----
United Kingdom.....	1.8	1.7	1.0	2.1	.4	3.1	-----
Austria.....	4.4	3.6	2.5	5.3	3.4	1.6	-----
Greece.....	6.6	4.9	2.5	4.6	3.0	4.4	-----
Spain.....	5.2	4.4	1.4	1.0	1.2	1.8	-----
Japan.....	10.6	3.9	2.6	5.2	5.0	4.9	-----
United States.....	2.5	1.2	1.7	5.2	4.1	3.2	-----

¹ Rough provisional estimates based on incomplete plan fulfillment and other data.Sources: East European countries: Calculated by least squares fit of $I_n = I_0(1+R)^n$ to indexes in table 14. Other countries: United Nations, "Yearbook of National Accounts Statistics," 1975, table 4A, and United States, Department of Commerce, "Statistical Abstract", 1976, p. 877, *ibid*, 1979, p. 898.

though considerable disparities still exist among the countries in each group and between the two groups.

In the 1965-1970 period the overall impression is that the non-CMEA countries, with the notable exception of the United Kingdom and the United States, grew much more rapidly than the countries of Eastern Europe. The unweighted average rate for Eastern Europe was 3.2 percent; for the group of other countries the corresponding rate was 5.1 percent. Because of the downturn in the world economy in 1975, the 1970-1975 unweighted average annual GNP growth for the group of countries outside Eastern Europe was 3.0 percent (for 1970-1974 it was 4.1 percent); the corresponding average for 1970-1975 for Eastern Europe was 4.1 percent. In the 1973-1978 span the East European average annual rate, 3.2 percent, was above the corresponding figure for the "Other Countries" group; 1.9 percent. By 1976, the latter group on the whole performed slightly better than Eastern Europe. For both 1977 and 1978 there was little difference between the two groups by the unweighted averages—a range of 2.6 to 3.0 percent.

Weighted averages would perhaps show somewhat different comparisons, but individual country performances over the 1965-1978 period are in any event more interesting. Within Eastern Europe, the GDR shows consistently good GNP growth as judged by the table 19 figures; Romania grew much faster but with more fluctuation; Bulgaria slackened considerably in 1977 and 1978, although growing at respectable rates earlier. The remaining East European countries had irregular growth as indicated by five-year average rates and the 1976-1978 annual rates. Poland enjoyed singular prosperity in the 1970-1975 period but subsequently faced the need to slacken growth to cope with the mounting convertible currency debt burden.

A cursory glance at the table suggests that in the more recent period both sets of countries are finding growth more difficult to achieve. This

is not the place to explain the harder times, but evident major factors in Eastern Europe are growing labor scarcity, higher costs of energy and raw materials, increasing consumer expectations for a higher level of living that suggest tradeoffs favoring consumption over investment, a growing burden of foreign indebtedness, and systemic factors that dampen initiative, innovation, and a will on the part of the population to strive for higher quality and greater productivity.

At this point we may consider, but not actually compare, the NMP per capita annual average rates of growth (see table 21) in juxtaposition to the per capita GNP rates noted above (table 19). We may remind the reader, as we repeatedly have done in previous discussions, that differences between our GNP and the official NMP measures as to concepts, weights, methodology, and other considerations render direct comparisons inappropriate. Despite this, however, some users of international statistics consider the NMP indexes as adequate proxies for GNP indexes. Reference to tables 19 and 21 shows NMP per capita rates of growth, e.g., in the 1970-1975 period, from 50 to 100 percent higher than those by GNP concept (in percentages: Bulgaria, 85; Czechoslovakia, 85; the GDR, 50; Hungary, 100; Poland, 58; and Romania, 94). The GNP measures, we believe, on methodological, conceptual, and bases of valuation grounds, provide a better basis for intercountry comparisons both in the CMEA area and in a broader context.

Table 20 shows overall and sector of production GNP growth rates by subperiods, 1965-1979. The 1979 figures are very provisional and will be revised when adequate statistical data are published. The table 19 overall GNP per capita rates will of course be lower than the overall GNP rates in table 20 because of population growth, except for the GDR, where population declined. Table 20 is based on the indexes shown in table 14, and average annual rates for subperiods other than those shown in table 20 can be readily calculated.

We leave it to the reader to trace such sectoral changes as may be of interest; here we shall note only some general changes. Industry, with rare exceptions in particular time spans, grows faster than GNP as a whole. Agriculture for reasons associated with weather and national priorities regarding provision of production inputs and income incentives to farmers shows erratic growth rates, on the whole considerably below the overall GNP rates. Construction shows higher growth rates in most countries through 1975 than in later years. Housing has maintained relatively low but steady growth, 1970-1978. Trade services in general maintain growth rates above the average for total GNP; the transport and communications sector shows a similar, though more erratic pattern of growth.

Tables 21 and 22 show NMP national income and sector of origin growth rates, per capita and overall NMP; respectively, for subperiods of 1965-1979. Given the population growth in the period, per capita rates will be lower than those for total NMP, except for the GDR, where population declined.

TABLE 20.—AVERAGE ANNUAL RATES OF GROWTH OF GNP BY SECTOR OF ORIGIN, 1965-79¹

[Average annual rates at constant prices; percent]

	1965-70	1970-75	1975-78	1976	1977	1978	1979 ²
Bulgaria:							
GNP.....	4.7	4.5	1.5	4.0	-1.2	2.8	2.6
Industry (including handicrafts).....	8.7	5.5	3.3	4.2	2.7	3.2	4.1
Agriculture and forestry.....	-8	1.6	-3.8	1.7	-11.6	1.8	3.1
Construction.....	6.2	3.0	2.8	1.2	2.2	5.3	2.3
Transport and communications.....	11.9	7.8	4.8	11.2	1.9	2.5	-5.6
Trade.....	8.7	7.9	4.4	7.3	3.1	3.4	6.8
Housing.....	2.1	3.4	2.6	2.7	2.7	2.4	2.6
Government and other services.....	4.0	4.6	1.3	2.6	.1	1.7	1.9
Czechoslovakia:							
GNP.....	3.5	3.4	2.7	1.5	4.7	1.4	.7
Industry (including handicrafts).....	4.1	3.9	3.2	2.7	4.3	2.5	2.1
Agriculture and forestry.....	3.5	2.5	2.1	-4.4	12.5	-4.2	-5.5
Construction.....	2.7	3.6	1.3	3.0	-4	2.1	1.2
Transport and communications.....	2.1	3.7	3.7	4.7	3.1	3.6	.9
Trade.....	7.0	5.8	2.6	2.6	1.8	3.7	3.4
Housing.....	.9	1.5	1.7	2.0	1.6	1.5	1.4
Government and other services.....	2.7	1.9	1.9	.9	2.3	2.5	1.7
German Democratic Republic:							
GNP.....	3.2	3.5	2.8	2.2	3.4	2.5	2.3
Industry (including handicrafts).....	4.1	3.3	2.8	4.2	1.8	2.8	2.6
Agriculture and forestry.....	.4	3.7	1.2	-8.8	10.6	-.3	0.0
Construction.....	7.7	4.6	4.4	5.5	4.4	3.3	4.4
Transport and communications.....	4.4	4.9	3.8	4.6	3.0	3.9	2.0
Trade.....	4.5	5.3	3.9	4.1	4.1	3.3	3.0
Housing.....	.8	1.2	1.4	1.4	1.3	1.4	1.3
Government and other services.....	2.1	2.7	2.6	3.1	2.5	2.3	3.0
Hungary:							
GNP.....	3.1	3.4	3.2	-.1	6.1	2.8	1.3
Industry (including handicrafts).....	3.4	2.6	3.5	3.6	2.7	4.5	1.9
Agriculture and forestry.....	.7	3.8	2.7	-8.0	14.3	-.5	-.8
Construction.....	8.0	3.2	2.0	-1.7	3.4	4.0	.4
Transport and communications.....	3.2	3.6	3.5	1.5	5.4	3.0	2.5
Trade.....	8.3	6.3	4.1	1.0	6.8	3.7	1.4
Housing.....	.9	2.0	2.1	2.2	2.1	2.1	2.1
Government and other services.....	3.7	3.5	3.8	2.1	4.9	4.1	2.4
Poland:							
GNP.....	3.8	6.6	3.5	4.1	2.8	3.9	-.1
Industry (including handicrafts).....	6.3	7.6	4.3	4.4	4.7	3.6	.7
Agriculture and forestry.....	-1.1	1.5	3.0	1.8	.1	8.2	-1.0
Construction.....	7.8	12.2	.1	4.6	-3.0	.0	-4.8
Transport and communications.....	6.3	12.5	5.5	7.0	4.2	5.9	.0
Trade.....	5.8	9.7	4.6	6.3	5.2	2.3	1.5
Housing.....	3.2	2.6	2.8	3.3	3.4	1.7	1.5
Government and other services.....	2.7	4.1	2.0	2.3	2.3	1.4	1.7
Romania:							
GNP.....	4.6	6.2	6.9	12.9	3.5	5.9	4.5
Industry (including handicrafts).....	11.2	5.4	5.2	5.0	6.3	7.2	5.5
Agriculture and forestry.....	-1.8	3.8	7.3	25.9	-2.5	3.9	3.0
Construction.....	7.7	2.7	4.9	5.6	3.3	6.3	4.1
Transport and communications.....	10.5	8.6	4.4	4.2	4.0	5.2	4.7
Trade.....	8.1	8.1	8.9	8.8	6.9	11.6	5.8
Housing.....	2.1	2.3	2.2	2.3	2.1	2.3	2.3
Government and other services.....	2.5	2.0	2.8	5.1	1.0	3.0	3.3

¹ By least squares fit of $I_n = I_0(1+R)^n$. Calculated from table 14.² Provisional estimates based on incomplete plan fulfillment and other partial data.TABLE 21.—AVERAGE ANNUAL RATES OF GROWTH OF NET MATERIAL PRODUCT PRODUCED PER CAPITA, 1965-79¹

[At constant prices; percent]

	1965-70	1970-75	1975-78	1976	1977	1978	1979 ²
Bulgaria.....	7.8	7.2	5.7	6.0	5.7	5.4	6.4
Czechoslovakia.....	6.5	5.0	3.2	2.7	3.4	3.4	2.1
German Democratic Republic.....	5.2	5.7	4.5	4.0	5.2	3.9	4.0
Hungary.....	6.4	6.0	4.8	2.5	7.5	3.5	1.3
Poland.....	5.2	9.0	4.0	5.8	4.0	2.3	-2.7
Romania.....	6.2	10.1	8.1	10.4	7.7	6.4	5.3

¹ By least squares fit of $I_n = I_0(1+R)^n$, calculated from table 17.

TABLE 22.—AVERAGE ANNUAL RATES OF GROWTH OF NET MATERIAL PRODUCT PRODUCED, BY SECTOR OF ORIGIN, 1965-79¹

[At constant prices; percent]

	1965-70	1970-75	1975-78	1976	1977	1978	1979 ²
Bulgaria:							
NMP, total.....	8.5	7.8	6.1	6.5	6.3	5.5	6.5
Industry (including handicrafts).....	13.0	9.5	9.2	7.9	11.1	8.1	NA
Agriculture (excluding forestry).....	-2.6	1.0	-5.1	.9	-11.2	-2.3	NA
Construction.....	12.3	7.6	5.6	.7	3.6	13.3	NA
Transport and communications.....	9.9	11.4	6.7	9.4	4.8	6.7	NA
Trade.....	11.3	15.5	5.9	13.1	14.3	-10.5	NA
Other ³	2.3	NA	NA	NA	NA	11.7	NA
Czechoslovakia:							
NMP, total.....	6.8	5.7	4.0	3.6	4.2	4.1	2.7
Industry (including handicrafts).....	6.0	5.9	3.8	6.0	1.5	5.0	NA
Agriculture and forestry.....	6.9	1.5	1.7	-5.5	13.8	-5.8	NA
Construction.....	6.5	7.7	.4	2.2	-2.8	3.1	NA
Transport and communications.....	2.8	6.0	6.9	3.6	8.0	9.0	NA
Trade.....	14.5	6.1	9.2	3.9	15.5	6.4	NA
Other.....	17.4	4.3	-2.2	-5.4	-6.2	6.9	NA
German Democratic Republic:							
NMP, total.....	5.2	5.4	4.3	3.6	5.1	3.8	4.0
Industry.....	5.8	5.8	5.0	5.9	4.6	4.5	NA
Agriculture and forestry.....	1.0	3.2	.6	-11.1	11.6	-1.1	NA
Construction.....	8.1	4.5	4.4	5.6	4.3	3.3	NA
Transport and communications.....	4.2	3.9	3.7	4.7	2.9	3.9	NA
Trade.....	5.5	6.6	4.2	3.4	5.1	3.9	NA
Other.....	5.4	6.2	6.0	7.4	5.6	5.2	NA
Hungary:							
NMP, total.....	6.8	6.4	5.2	3.0	8.0	3.9	1.2
Industry (including handicrafts).....	7.0	7.6	5.7	5.4	6.8	4.5	NA
Agriculture and forestry.....	1.2	3.2	3.0	-7.1	15.7	-2.1	NA
Construction.....	9.5	5.6	5.6	5.1	6.5	4.8	NA
Transport and communications.....	8.5	6.2	5.2	0	6.8	8.4	NA
Trade.....	8.8	9.0	7.6	7.0	7.7	8.2	NA
Other.....	15.8	.7	NA	NA	NA	NA	NA
Poland:							
NMP, total.....	6.0	10.0	5.0	6.9	5.0	3.0	-2.0
Industry (including handicrafts).....	8.0	10.9	6.6	9.3	7.7	2.5	NA
Agriculture and forestry.....	-1.1	1.6	2.4	1.5	-.8	7.8	NA
Construction.....	8.3	14.4	1.1	2.6	1.0	-.3	NA
Transport and communications.....	6.3	12.5	5.5	7.0	3.9	6.2	NA
Trade.....	6.7	11.3	4.4	7.9	5.1	.2	NA
Other.....	12.0	11.1	8.4	10.5	9.0	5.7	NA
Romania:							
NMP, total.....	7.6	11.2	9.1	11.3	8.7	7.4	6.2
Industry (including handicrafts).....	12.7	13.7	9.6	8.0	10.9	9.4	NA
Agriculture (excluding forestry).....	-1.2	3.6	7.2	27.7	-3.7	3.9	NA
Construction.....	12.0	7.2	11.1	11.1	18.9	1.5	NA
Transport and communications.....	9.2	10.7	5.2	5.0	5.5	5.2	NA
Trade.....	-21.0	NA	NA	NA	NA	NA	NA
Other ⁴	4.9	NA	NA	NA	NA	NA	NA

¹ By least squares fit of $I_n = I_0(1+R)^n$. Calculated from table 16.² Preliminary data.³ Forestry is not included among the residual "other" sectors, but is included in total NMP.⁴ Publication of an NMP series for the trade sector was discontinued in Romanian statistical sources after 1970. An evidently revised series for the trade sector of Romania appears in CMEA yearbooks, without, however, any methodological clarifications or any concomitant revision of the measures for the growth of NMP as a whole. The CMEA series, thus, does not seem to be consistent with the main body of Romanian NMP statistics.

Romania leads in overall NMP growth, except in the 1965-1970 period, when Bulgarian growth was higher; 1979 very provisional figures indicate that Bulgaria again exceeded the Romanian growth rate. Aside from our caution as to the highly provisional nature of the 1979 GNP figures, we should note that Bulgarian and Romanian statistical reporting rank at the low end within Eastern Europe, and accordingly we regard our GNP estimates for these two countries as less reliable than for the others.

The table 22 NMP sectoral growth rates are based on official constant price indexes, and cautions concerning the NMP measures we have made elsewhere should be kept in mind here as well. These cautions related to such matters as sectoral boundary changes, changes in the constant price regimens for linked segments of the indexes, etc. We have noted that GNP and NMP levels, indexes, and rates of growth are not comparable. The NMP growth rates are higher than those of GNP, but sectoral relationships of growth rates, by both concepts show general agreement as to rank. Thus, by table 22, NMP in industry with rare exceptions grows faster than total NMP. Similarly, agriculture grows more slowly than total NMP. Construction shows high growth rates through 1975 but, with some significant exceptions, slows down in later years. Its retardation was striking in Poland, 1975-1978, the rate becoming negative in 1978. In the more recent years government policy in an attempt to cope with the mounting foreign debt burden cut back sharply on investment, especially in construction. Transport and communications shows generally high growth rates in relation to overall NMP national income produced.

The Bulgarian 1978 decline of 10.5 percent in NMP of the trade sector appears anomalous, but this figure reflects the official index 1978/1975 given in the pocket statistical yearbook for 1979, which shows an increase of 15.8 percent over the three years, the same as in our table 16.²² On the other hand the CMEA statistical yearbook, 1979, shows a decline of about 2.4 percent, 1978/1975.²³ Where our tables 16 and 22 show a decline of 10.5 percent 1978/1977, the CMEA yearbook shows for the same year a decline of 26 percent. This observation is intended to caution users of CMEA statistics to check their correspondence to the national statistics of member countries of CMEA. The Romanian official NMP trade index also behaved strangely, exhibiting an unbelievable annual average decline of 21 percent over the 1965-1970 period. Its publication was suspended in the Romanian statistical yearbooks after 1970, but there remains a question as to how it now enters into the overall NMP national income index.

²² *Statisticheski spravochnik, 1979, p. 56.*

²³ CMEA Secretariat, *Statisticheski ezhegodnik stran-chlenov sojeta ekonomicheskoi vzaimopomoshchi, 1979, p. 45.*

V. RATES OF GROWTH OF EMPLOYMENT AND LABOR PRODUCTIVITY

Tables 23 and 24 relate employment indexes to our GNP indexes, setting forth average annual rates of growth of employment and labor productivity for sub-periods of the 1965-1978 interval. Trends in labor productivity obviously reflect a number of contributing factors: trends in the amount of capital assets per employee, technological advance, organization and management of production, incentives to management and employees, changes in quality of the labor force, etc. We do not attempt here to go beyond the simple labor productivity index.

Average annual rates of growth of employment for the entire national economy in the 1965-1978 period show generally declining trends; the GDR and Romania were exceptions in this regard, maintaining around 0.5 percent growth. The average rates for the other countries fell sharply in the successive subperiods, 1965-70, 1970-75, and 1975-78. Average annual rates for industry by subperiods in most of the countries declined, but not as sharply as those for total employment. Again, Romania was an exception: industrial employment maintained average annual growth rates in a range of 3.8 to 6.6 percent, evidently by transfers from agriculture, where the average annual rates in successive subperiods were negative, from -2.1 percent in 1965-70 to -4.5 percent in 1970-75, and -4.2 percent in 1975-78. In other countries, agricultural rates were almost uniformly negative. Those in Bulgaria were on the order of -3.7 percent, 1965-78. In the remaining countries, except Poland, the negative rates were numerically smaller, while Polish agricultural employment declined at close to zero rates, 1965-75, and actually increased in the 1975-78 period by 0.8 percent. The need to curtail Polish investment in view of adverse convertible currency balance of payments problems evidently reduced urban employment prospects in the most recent period. In other sectors of production in Eastern Europe, there were declining average annual rates, but not as low as those for total employment.

Employment in Eastern Europe evidently has small scope for growth from higher participation rates of the population in economic activity. Reference to our table 7 shows these rates reaching around 50 percent in the 1970's. In Western Europe and the United States, the range was from about 40 to 47 percent, with substantial declines in most countries from around 1960. In the United States, the participation rate rose to 46 percent in 1977 from 39 percent in 1960. One may ask whether Eastern Europe's participation rates will decline and will those of Western Europe and the United States rise from current levels. There have been many references to labor shortages in almost all of the countries of Eastern Europe; Romania, again, is the exception. Efforts to maintain or to advance living standards by employees are evident in extensive moonlighting.

In the more developed economies of the West, there have been some efforts to postpone retirement to later years than have been customary. There is substantial scope for augmenting the supply of labor by such postponement also in Eastern Europe. Perhaps a more important source of "increasing" the supply of labor is through greater intensity of effort on the job. In the present difficult period of declining economic growth in Eastern Europe, increasingly there are heard admonitions to the population to maintain labor discipline, and labor codes

TABLE 23.—AVERAGE ANNUAL GROWTH RATES OF EMPLOYMENT, 1965-78¹

	1965-70	1970-75	1975-78	1976	1977	1978
Bulgaria:						
Total.....	1.0	0.8	0.2	0.6	0	0.1
Industry (including handicrafts).....	4.0	2.6	1.3	1.6	1.2	1.0
Agriculture and forestry.....	-3.7	-3.8	-3.6	-4.4	-3.4	-2.9
Construction.....	4.3	-6	1.6	1.9	2.5	.1
Transport and communications.....	2.9	2.2	2.4	2.2	3.1	1.7
Trade.....	4.7	5.6	2.1	4.6	0	2.5
Other sectors.....	5.1	4.7	2.0	4.5	.7	1.1
Czechoslovakia:						
Total.....	1.6	1.1	.7	.5	.8	.9
Industry (including handicrafts).....	1.4	1.4	.5	.1	.5	.8
Agriculture and forestry.....	-1.3	-2.7	-1.9	-1.9	-2.0	-1.7
Construction.....	2.9	2.7	1.3	1.4	1.3	1.1
Transport and communications.....	2.8	.4	1.0	1.7	.8	1.4
Trade.....	3.5	3.7	2.0	1.3	2.4	2.2
Other sectors.....	3.5	2.1	2.2	1.8	2.5	2.4
German Democratic Republic:						
Total.....	.4	.4	.9	.6	1.1	.8
Industry (including handicrafts).....	.8	.4	.8	.7	1.0	.7
Agriculture and forestry.....	-5.2	-2.2	-5	-7	-1.1	.4
Construction.....	7.1	-9	1.4	1.6	1.8	.6
Transport and communications.....	.5	1.6	1.0	.8	1.7	.4
Trade.....	-7	-1	0	.4	0	-4
Other sectors.....	2.0	2.3	2.0	.7	2.9	2.0
Hungary:						
Total.....	1.5	.4	-1	0	-2	0
Industry (including handicrafts).....	2.5	.4	-1.1	-1.3	-1.0	-9
Agriculture and forestry.....	-1.1	-3.0	-1.3	-1.9	-1.5	-5
Construction.....	4.0	2.1	-4	.1	-7	-4
Transport and communications.....	2.6	1.5	.9	1.8	.5	.6
Trade.....	4.0	2.4	1.3	1.8	1.3	.9
Other sectors.....	.9	2.7	2.0	2.7	1.7	1.6
Poland:						
Total.....	2.5	2.5	.9	.5	1.3	.8
Industry (including handicrafts).....	3.8	3.0	.4	.2	1.0	-1
Agriculture and forestry.....	-3	-1	.8	.4	1.2	.8
Construction.....	4.3	6.6	-4	-1.2	-3	.3
Transport and communications.....	3.4	2.7	1.5	1.8	1.3	1.4
Trade.....	4.3	4.6	1.5	.1	2.9	1.1
Other sectors.....	5.2	3.8	1.9	1.7	1.8	2.1
Romania:						
Total.....	.5	.5	.5	.8	.6	.3
Industry (including handicrafts).....	3.9	6.6	3.8	4.7	4.0	2.7
Agriculture and forestry.....	-2.1	-4.5	-4.2	-4.6	-4.0	-4.1
Construction.....	4.1	1.7	3.6	2.2	4.2	4.2
Transport and communications.....	3.0	3.4	2.8	4.9	1.1	3.1
Trade.....	2.2	5.4	3.6	4.6	3.9	2.1
Other sectors.....	3.6	2.5	2.4	4.2	1.5	1.8

¹ By least squares fit of $I_n = I_0(1+R)^n$.

Note: Figures here reflect GNP concept sectoral definitions. See the app., pt. D.

are being redrafted to give force to the exhortations by party and government officials.

Hungary, for example, now sanctions moonlighting by part-time jobs at the same enterprise where the employee is employed full time.²⁴ Unjustified absenteeism and other violations of labor discipline will, under the revised labor code effective January 1, 1980, entail penalties that cannot be avoided by changing employers. The revised labor code is part of Hungary's effort to put its 1968 goals of the New Economic

²⁴ *Magyar Kozlony*, No. 84, Dec. 1, 1979, for the labor decree and executive orders effective Jan. 1, 1979. See also the discussion in RFE Research, vol. 5, No. 4, Report 1/80 on Hungary.

Mechanism back on track, but one may well wonder whether bureaucratic edicts can accomplish what should be accomplished by a suitable system of decentralized economy direct incentives. In short, what would seem to be required is reprivatization in essence if not in official nomenclature. Lax labor discipline seems to be a corollary of the sentiment that what belongs to everybody (the socialized enterprises' supplies and equipment) can be treated with less regard than possessions of a particular person or private enterprise, and of the feeling that with egalitarian income distribution goals, overall personal utility (or monetary plus psychic rewards) may be more readily achieved by less than average intensity of work.

Table 24 shows average annual rates of growth of labor productivity based on our overall GNP and sectoral GNP indexes and corresponding employment indexes. With employment (see table 23) growing at relatively low rates and GNP at higher rates, the obvious arithmetic outcome is positive growth of output per unit of labor. To say that GNP grew because of the positive contribution of labor productivity, of course, subsumes the complex of the socio-political milieu, the contribution of capital and technology, and all else we do not know enough about.

TABLE 24.—AVERAGE ANNUAL RATES OF GROWTH OF LABOR PRODUCTIVITY, 1965-78¹

[At constant prices; percent]

	1965-70	1970-75	1975-78	1976	1977	1978
Bulgaria:						
GNP.....	3.7	3.7	1.3	3.4	-1.7	2.7
Industry (including handicrafts).....	4.5	2.8	2.0	2.6	1.5	2.2
Agriculture and forestry.....	3.0	5.6	-3	6.4	-8.5	4.8
Construction.....	1.8	3.7	1.2	-7	-2	5.2
Transport and communications.....	8.7	5.4	2.3	8.8	-1.2	.7
Trade.....	3.8	2.2	2.3	2.6	3.2	.9
Czechoslovakia:						
GNP.....	1.8	2.3	2.0	1.1	3.8	.5
Industry (including handicrafts).....	2.7	2.4	2.8	2.6	3.7	1.7
Agriculture and forestry.....	4.9	5.4	4.0	-2.7	14.8	-2.5
Construction.....	-2	1.0	.1	1.5	-1.6	.9
Transport and communications.....	-7	3.3	2.7	2.9	2.3	3.2
Trade.....	3.4	2.0	.6	1.3	-6	1.5
German Democratic Republic:						
GNP.....	2.9	3.1	1.9	1.7	2.2	1.7
Industry (including handicrafts).....	3.2	2.8	2.0	3.6	.8	2.0
Agriculture and forestry.....	6.0	6.0	1.7	-8.1	11.8	-7
Construction.....	.6	5.6	2.9	3.8	2.5	2.7
Transport and communications.....	3.9	3.2	2.7	3.8	1.3	3.5
Trade.....	5.2	5.4	3.9	3.6	4.1	3.7
Hungary:						
GNP.....	1.5	3.0	3.3	-1	6.3	2.9
Industry (including handicrafts).....	.9	2.3	4.6	4.9	3.8	5.4
Agriculture and forestry.....	1.9	7.0	4.1	-6.3	16.0	0
Construction.....	3.8	1.0	2.4	-1.8	4.2	4.4
Transport and communications.....	0.6	2.1	2.5	-3	4.8	2.3
Trade.....	4.1	3.9	2.5	-1.5	5.4	2.8
Poland:						
GNP.....	1.3	4.0	2.6	3.6	1.5	3.1
Industry (including handicrafts).....	2.4	4.5	3.8	4.2	3.7	3.7
Agriculture and forestry.....	-8	1.6	2.1	1.4	-1.1	7.4
Construction.....	3.4	5.3	.5	5.8	-2.7	-4
Transport and communications.....	2.8	9.6	4.0	5.1	2.9	4.5
Trade.....	1.4	4.9	3.1	6.1	2.2	1.2
Romania:						
GNP.....	4.1	5.7	6.4	12.0	2.9	5.6
Industry (including handicrafts).....	7.0	2.6	4.2	4.2	4.2	4.3
Agriculture and forestry.....	.4	8.6	12.0	32.0	1.6	8.3
Construction.....	3.4	1.0	1.3	3.3	-9	2.1
Transport and communications.....	7.2	5.1	1.5	-7	2.8	1.9
Trade.....	5.8	2.6	5.1	4.0	2.8	9.3

¹ By least square fit of $I_t = I_0(1+R)^t$. Calculated from annual average employment and the GNP indexes in table 14.

Note: Figures reflect GNP concept definitions. See the app. pts. A and D.

At the total GNP level, the annual average growth rate of labor productivity in Eastern Europe increased from the 1965-70 period to the 1970-75 period, except in Bulgaria, where it remained unchanged at a high, 3.7 percent, rate. In the 1975-78 period, the rate declined in all countries except Hungary and Romania. One may surmise that in the latter country, the evident transfer of labor from agriculture to other sectors was a contributing factor (see table 23). Romanian annual average rates of growth of labor productivity in total GNP increased from 1965-70 to 1975-78, and in all periods were the highest among the six countries. We may note for all countries some caution in reaching conclusions as to recent trends by subperiods because of the shorter, 1975-78 period as compared to earlier subperiods. Special caution should attach to Bulgaria because the basic employment magnitudes for recent years are estimates; the Bulgarian statistical publications available to us do not carry direct comprehensive employment figures.

The reader may trace in table 24 the changes in average annual labor productivity growth rates sector by sector for each country. On the whole, industry has shown substantial, though variable, rates by time periods. Agriculture's rates would seem to benefit from a reduction in its labor force while its fixed capital was increasing (see tables 8 and 10). Taking into account tables 8, 10, 14, 20, and 23 should help in making inferences regarding the rates shown in table 24.

VI. PROSPECTS AND PROBLEMS

We have shown in table 20 and other tables East European GNP growth overall and by major production sectors. The GNP average annual rates are very substantially lower than the NMP national income produced growth rates. For both intra-CMEA and broader international comparisons the GNP measures are more appropriate than the official national NMP indicators. However, in order to give some perspective on East European actual versus planned performance, we shall show below in juxtaposition NMP actual and planned growth for various subperiods, 1965-1980.

A caution regarding inferences from table 25 should be noted here. The officially reported "actual" growth reflects upward bias because of shortcomings in the "constant" pricing of new or spuriously "new" industrial products. For some new products the assigned "constant" prices have been acknowledged in East European sources to be higher than justified, and in fact to reflect higher current labor and material costs. Spuriously "new" products are essentially "old" products modified in some relatively unimportant detail in order to be considered "new" and be given a higher "constant" price. The planned growth rates appear to be on a more realistic footing in this regard.

Table 25 provides a summary of East European economic plans and performance 1965-1980, as measured by the average annual rates of growth of NMP national income produced. The actual rates by two five-year subperiods, 1970/1965 and 1975/1970, and the shorter four-year interval, 1979/1975, show on the whole a slackening rate. In percentage rates, Romanian growth was the highest, but irregular: 7.6, 11.2, and 8.3, respectively, in the indicated subperiods. Bulgaria, like

Romania a less developed country, came second in performance by the indicated subperiods: 8.5, 7.8, and 6.1. Poland's growth rates, 6.0, 10.0, and 3.3, reflect rapid expansion in 1971-1975 aided by large foreign loans (expected to substantially exceed 20 billion dollars outstanding in 1980), followed by austerity measures aimed at curtailing imports, sharply reducing the rate of investment, and seeking to expand exports. Hungary's rates in the indicated periods slackened moderately: 6.8, 6.4, and 4.4, and Hungary, like Poland, is facing a heavy foreign debt burden. Czechoslovakia, with rates of 6.8, 5.8, and 3.8, and the GDR, with 5.2, 5.4, and 4.2, in the respective subperiods, also show downward growth rate trends.

TABLE 25.—ACTUAL AND PLANNED RATES OF GROWTH OF NMP NATIONAL INCOME PRODUCED, 1965-80
[In percent; constant prices]

	1970/65 actual	1975/70		1980/75 plan	1979/75 actual	1979		1980 plan
		Plan	Actual			Plan	Actual	
Bulgaria.....	8.5	7.7-8.5	7.8	7.7	6.1	7.0	6.5	5.7
Czechoslovakia.....	6.8	5.1	5.7	4.9-5.2	3.8	4.3	2.7	3.7
German Democratic Republic.....	5.2	4.9	5.4	5.0	4.2	4.3	4.0	4.8
Hungary.....	6.8	5.5-6.0	6.4	5.4-5.7	4.4	3.0-4.0	1.2	3.0-3.5
Poland.....	6.0	7.0	10.0	7.0-7.3	3.3	2.8	-2.0	1.4-1.8
Romania.....	7.6	11-12	11.2	11.0	8.3	8.8	6.2	8.8

Sources: Actual, tables 16 and 22; planned, United Nations, "Supplement to World Economic Survey, 1975," (1976), and Office for Development Research and Policy Analysis of the U.N. Secretariat, based on published plan goals.

A comparison of planned versus realized NMP growth rates in table 25 indicates for 1975/1970 that actual growth was higher than planned. The outlook for 1980/1975 is less favorable, judging from the realized growth rates over four years of the five-year plan period. In 1979, in all six countries, actual growth was below planned growth; in percent rates, respectively, as follows: Poland—minus 2.0 versus 2.8; Hungary—1.2 versus 3-4; Czechoslovakia—2.7 versus 4.3; the GDR—4.0 versus 4.3; Romania—6.2 versus 8.8, and Bulgaria—6.5 versus 7.0. Plans for 1980 set somewhat higher goals than the realized rates in 1979, but fulfillment of the 1980 plans would still mean for the five-year plans, 1976-1980, substantially lower growth than targeted for this period.

Reasons for the slowdown in growth are to be found in labor shortages, difficulties in providing exports to pay for imports of petroleum, raw materials for industry and feedstuffs for livestock in view of inflation and reduced growth in non-CMEA countries, poor labor morale, disincentives to personal and enterprise initiative and innovation, scaled down investment goals in some countries, and other factors that should be discussed in other contributions in this Compendium. The populations of the East European countries no doubt over the years have become much less likely to be incited to work harder by Communist Party sloganeering. Full employment policies amounting to tenure have promoted lax discipline on the job, and cognizance of this fact, implying socialized underemployment, is behind official demands for more dedicated effort, some attention to greater differentiation of earnings among employees, and stiffened regulations regarding labor discipline.

Future rates of growth of the East European economies will depend on how successfully the party and government elite manage to meet or mollify rising consumer expectations, ameliorate the adverse factors affecting productivity, and cope with adverse developments on foreign markets. All of the East European countries are relatively small, all seek rapid economic development, all possess very limited natural resources (with few exceptions, e.g., Poland's coal, Romania's oil, Hungary's bauxite), all face difficult choices in seeking domestic sources to substitute for costly imports, and all, by their size and meager natural resource endowment are heavily foreign trade dependent.

Given the approaching, or already present, near exhaustion of rapid catch-up potentials in agricultural underemployment, education, easy transfers of existing technology from abroad, and relatively easy foreign loans, the remaining most immediate means for maintaining or improving economic growth will consist of reforms of economic systems. These reforms should be such as to enable the ultimate resource—workers and managers—to become more efficient in their domestic and international specializations.

Economic reforms, of course, are perennial in Eastern Europe. Some have been more comprehensive than others, but all have failed to come up to expectations. When first announced, some systemic reforms, such as the New Economic Mechanism in 1968 in Hungary, have excited observers abroad. Some would impute to such reforms object lessons for Western governments on how to control inflation while maintaining economic growth. However, in Eastern Europe, efforts to overcome the separation of world markets from domestic markets, and the domestic retail markets from the wholesale or producer goods markets have met little success. Multiple foreign exchange rates, custom tailored to meet the needs of solvency for inefficient as well as efficient firms, have persisted despite warnings that the inefficient firms should perish, or be absorbed by efficient ones. Foreign trade price equalization funds of the state have continued to subsidize foreign trade.

On the domestic markets there have been vast subsidies to maintain low prices for basic consumer goods and socialized housing. Inflation has been masked for some periods by these subsidies and by failures of official price indexes to reflect market realities. Scarcities of price controlled goods have entailed queuing or spurious product differentiation to raise prices. In Poland, the politically sensitive market for meat has caused problems for the party and the government, and some temporary respite from queuing has been provided by dual counters and dual prices in the same retail outlet. The slow line with the queues and low, controlled prices is present along with the fast line where prices may be twice as high, but supply is assured. Sharply discontinuous retail price increases such as those in Hungary for laying the foundation for the 1980 revitalization of the frustrated NEM of 1968, raise questions as to the "real" extent of inflation in the preceding years. New, sharply upward revised prices would also be of consequence for international comparisons of final uses of product.²⁵

²⁵ This paper was completed in March, 1980, and therefore does not take account of the problems that have become exacerbated since that time, especially in Poland. In that country, critical confrontations of industrial workers against the party and government have arisen over real wages, hours of work, and the role of independent labor unions. As part of the attendant public discussion, the party and government have acknowledged serious deficiencies in published official statistics, and, among more important leading personnel changes, a new chairman was appointed to the Main Statistical Office.

The aim of the East European reforms is to promote quality and efficiency in production. Instruments to accomplish this aim have been various, but in perhaps the more enlightened approaches, the means have been systems of regulators designed to promote decentralized decision making by prospects of differentiated enterprise and employee rewards for profitable operation. However, in practice, loopholes for bureaucratic intervention have remained, and centralized controls have proven resistant.

Success of the re-reforms in Eastern Europe warrants skepticism. Bureaucracies do not die easily; on the contrary they seem to regroup and expand. In Eastern Europe where the hegemony of the Communist Party is held inviolate, it will be difficult to allow extensive freedom to managers, technocrats, and workers for fear of challenge to this principle.

Non-Communist countries may profit from the experience of Eastern Europe. The essential thrust of the economic reforms there is an appeal to self interest of enterprises, managers, and employees to achieve efficiency, innovation, and increasing standards of living. Yet such achievements are far more likely to come about without the organized duress and extensive government intervention that persist alongside the announced reforms. Regulations and controls tend to metastasize and become counter-productive as regards their initial aims.

In Western economies where high rates of inflation, excessive and increasing government intervention in the private sector, and income redistribution policies are undermining the impulses to save, to invest, and to make extra efforts for efficiency and profit, there is danger of going toward the kind of economy that the East European reforms are seeking to redirect. Where personal savings and profits are not adequate to finance private investment, the gap must be filled by government funding in the hope of maintaining or advancing the standard of living. The corollary is expanding government regulation and control.

APPENDIX

A. GNP MEASURES

The methodology and detailed documentation of the GNP measures in this report have been published in various Occasional Papers of the Research Project on National Income in East Central Europe (see bibliography). Summarized briefly:

For measures of GNP produced (tables 2, 12, 14, and others derived from them), adjusted factor cost weights for each country were estimated as returns to labor (taken as payments to labor plus social security contributions in each sector), plus returns to other factors, derived by distributing the remainder of the estimated total value added (at estimated factor costs, for the economy as a whole) among sectors in proportion to the fixed and working capital in the respective sectors and the land in agriculture and by adding depreciation as officially accounted. A full description of sources and procedures will be found in OP-48, Statistics on East European Economic Structure and Growth. Weights for Hungary in this report differ slightly from those in OP-48 because of the subsequent incorporation of more precise capital data in the estimates.

Sectoral indexes for major production sectors were derived from official physical output data, weighted for aggregation as appropriately as possible with domestic prices and value added by subsectors. For services except housing, the indexes are largely derived from employment. For housing, the basis is official measures of housing stock. For some countries, minor production sectors are also

represented by employment, or by official value aggregates in constant prices. The indexes as they appear in this report reflect updating of those published earlier, with revisions in some instances in the light of later data and updated weight regimens. Changes since their most recent summary in OP-54, *Economic Growth in Eastern Europe, 1965-1978*, will be documented in a forthcoming Occasional paper covering 1965-1979.

The measures of gross product allocated to domestic final uses (tables 5 and 15) are derived within the framework of our estimates of GNP produced, with adjustments for foreign trade. Essentially, total gross product available for final domestic use was estimated as gross final product produced in the given year plus any surplus of imports over exports, or minus any export surplus. Major uses in personal consumption and certain civilian branches of government were estimated for base years matching those of the GNP origin measures for the respective countries. Indexes based on extensive commodity samples measure the changes in personal consumption over time (see OP-57 for details). Changes in housing and the measurable civilian branches of government were estimated by the same indexes as used for their GNP origin measures, weighted to include purchases in addition to value added. For lack of satisfactory alternate measures, all other uses, lumping defense and unspecified government and other uses together with gross investment, were derived as residuals. More detailed discussion and documentation will be found in OP-55 and OP-58.

B. DOLLAR ESTIMATE OF GNP

The GNP dollar estimates in table 11 are based on Maurice Ernst's study (in U.S. Congress, Joint Economic Committee, *New Directions in the Soviet Economy*, Washington, 1966, part IV, appendix A, pp. 911-912) as updated in the present paper. The estimates were obtained as follows: First, the GNP by end-use components at current domestic prices in the various East European countries was converted to West German marks in 1955 by means of estimated purchasing power ratios. Second, as a complement to, or as a check on, the end-use estimates obtained in the first step, quantity indexes were calculated relating East European personal consumption and net industrial and agricultural production to these categories in West Germany, using West German prices and value weights. The conversion in the first step used price indexes weighted by East European quantities: that in the second step used West German value weights, a procedure methodologically consistent with that of the first approach. In consideration of the tendency for relative quantities to be inversely correlated with relative prices, an alternative calculation converting West German aggregates into East European currencies should give less favorable results for Eastern Europe. Therefore the original estimates based on the price conversions and weighted quantum comparisons of production were adjusted downward by analogy with estimates for other countries and on the basis of other information. Third, the values in West German marks so obtained were converted into United States dollars by means of estimated purchasing power parity rates for 1955 prepared by Milton Gilbert and Associates (*Comparative National Products and Price Levels*, Paris, OEEC, 1958). Fourth, the 1955 United States dollar values were converted to 1978 dollars by the use of the United States implicit GNP price deflator. Finally, the East European GNP values for 1955 in United States 1978 dollars were carried forward to 1978 by our indexes of East European GNP's in constant prices, 1955-1978.

C. NET MATERIAL PRODUCT OR OFFICIAL "NATIONAL INCOME" MEASURES

Net material product (NMP) figures in this report (tables 4, 6, 16, 18, and others derived from them) reflect East European "national income" measures that exclude government and a number of other services. Calculated as the gross value of all production by officially defined material sectors (at sales prices including turnover taxes) less material costs and depreciation, net material product is not strictly a value added measure because small amounts of non-material costs, reflecting purchases of services by the material sectors, are not deducted and remain within the value of "national income produced."

The definition of what constitutes the material sectors for purposes of measuring NMP is not standard for all the countries under review, and has not remained the same throughout the period covered in this report. For example, in the measures for the GDR, Hungary, and Poland, transportation and communi-

cations services are treated as material product in their entirety, whereas in Czechoslovakia only freight transportation and a portion of communications defined as "productive" enter into the material product. For Bulgaria and Romania, the NMP measures for the early years reflect definitions similar to that of Czechoslovakia, but as of 1970 for Bulgaria and 1971 for Romania, the definitions were broadened to encompass passenger transport, all of communications, and some other previously excluded services related to other sectors. The Bulgarian and Romanian indexes are chain-linked at these years to provide continuity; retrospective data in the later coverage have not been published. Other boundary changes include Poland's reclassification, as of data for 1975, redefining some communal services as material.

Constant price bases for the NMP measures also vary from country to country and are not in all cases the same throughout the period under review. Bulgarian indexes are based on prices of January 1, 1962 for the years 1965-1971 and linked to measures in January 1, 1971 prices for 1971-1979. Czechoslovak NMP data for 1965-1966 are in prices of April 4, 1960, data for 1966-1976 are in prices of January 1, 1967, linked to data in prices of Jan. 1, 1977 for years from 1976 onward. For the GDR, data are available in 1967 prices for the period 1965-1976; more recently data are given in terms of 1975 "comparable" prices. Hungarian measures are based on 1968 prices for 1965-1975, linked to 1976 prices for later years. Polish measures for 1965-1970 are based on 1965 prices, for 1970-1975 on 1971 prices, and then on 1977 prices. Romanian measures use 1955 prices for 1965-1966, linked to data in prices of 1963 for 1966-1976, and to 1977 prices thereafter. Chain linking is the standard method for deriving continuous series.

NMP data by sector of origin, whether in constant or in current prices, include turnover taxes. It is the practice to include the turnover taxes in the NMP originating in the sector in which the taxes are collected. In all of the countries under review, the bulk of turnover taxes are collected at the point of sale of goods from industry, and the incidence of this tax in the NMP values for industry is higher than it is for other sectors.

Definitions of NMP used reflect the material product definition constraints applicable in the respective countries. NMP used may differ from NMP produced by the amount of foreign trade balances, losses, and other discrepancies; published data sometimes reflect reconciled accounts. Dividing lines between "personal" consumption and "other" consumption vary, coverages change with time, and the reader would be well advised to consult the sources with care before undertaking international comparisons on this point. Constant price bases and linkages for the published indexes of NMP by use are believed to be the same as those described above for NMP produced, although this identity is not always explicitly stated in the sources.

D. EMPLOYMENT MEASURES

Employment measures used in this report (table 8 and others derived from it) reflect annual averages except for data by major sector for the GDR, where the data refer to September 30 of the respective years.

The data cover civilian employment only. The official sources indicate that persons occupied full-time in the armed forces and in political organizations are excluded. In other respects, however, the coverage is said to be comprehensive, including private activity in all sectors as well as collective farmers in agriculture.

Descriptions of employment accounting in the sources sometimes state that persons absent from work on leave with full pay are counted as employed. These data are thus not strict measures of labor inputs in terms of man-year equivalents. It should also be noted that leave provisions and the amount of time worked per man-year vary somewhat from country to country in Eastern Europe and have varied within given countries over the time period under review.

Where employment data are considered in the context of GNP measures in this report (tables 8, 23, and 24), sectoral boundary lines are believed to match those of the GNP sectoral indexes, including, for example, all transportation and communications employees in these sectors for all countries. Where NMP measures are under consideration, the division between material production and "non-productive" services should follow the definition underlying the official measures for the country in question. Thus for Czechoslovakia, employment in the material sectors should exclude persons employed in passenger transportation and in the communications services officially deemed nonproductive. It should be noted that

productive-nonproductive boundary lines in employment data have not been stable over the time period under review. In addition to changes related to the broadening of the definition of material product in Bulgaria and Romania, there are occasional abrupt declines in the series for employment in "nonproductive" administration and scientific services. These seem to coincide with the transfer of personnel formerly affiliated with central ministries and institutes to affiliations administratively subordinate to production organizations, or from budgetary to *khozraschet* financing. Apparently, such transfers redefine the productiveness of their employment.

The employment measures used in this report are based on absolute figures given directly in official statistical sources except for two countries. For Romania, absolute year-end figures were available for 1965 and 1970-1978; official indexes for 1964-1969 were used to obtain annual averages for 1965-1970. For Bulgaria, official annual averages in the desired employment coverage were available up to 1970. Our measures for the period after 1970 are estimates derived from scattered absolute figures taken together with official percentages on the structure of total employment given in Bulgarian yearbooks.

E. FIXED CAPITAL MEASURES

Fixed capital data presented in this report reflect annual averages except as otherwise indicated in notes on table 10. A possible exception is Czechoslovakia, for which the yearbook notes offer no statement as to the time reference of the data given.

All the figures used refer to undepreciated values of fixed capital, variously termed "gross inventory value," "full purchase cost," etc. The sources suggest that it is generally the practice to include the value of surveying and other development and overhead costs, as well as direct costs of the assets.

Constant price data are not consistently available for all countries. The Bulgarian series at "full initial cost" for years prior to 1977 are described as originating from a capital revaluation as of 1949, with subsequent additions "at the cost at which the fixed asset was put into operation and entered into accounting ledgers." This implies valuation at an accumulation of current prices of various years. Romanian methodology for the period prior to 1970 is described in terms similar to the Bulgarian, although Romanian data for 1970 and later are cited as being in 1963 and subsequently 1977 prices.

The coverage of the official fixed capital data for some countries has changed over the years. Bulgaria and Romania both appear to have added to the total coverage of capital in 1970 and 1971, respectively, when they expanded their definitions of material product to include more services; the sectoral boundary lines between "productive" and "nonproductive" fixed capital also, of course, changed at the time. Shifts and changes are observable in Hungarian capital data between the 1976 and 1977 yearbooks. The series shown in this report are from the most recent yearbooks except for Romanian 1965 and 1970 old classification data included for comparability of detail.

Where the data are considered in the GNP context in this report (table 10), sectoral boundary lines have been adapted insofar as possible to match those of the GNP indexes. Thus, for Czechoslovakia, the "nonproductive" fixed capital in transportation and communications has been included in the sector as shown in table 10. As noted on that table, all sectoral coverages are not strictly comparable: data on capital in housing for Hungary and Romania include some other services; Bulgarian capital data used for industry include forestry. Where the capital data are used in the NMP context, sectoral boundary lines should conform to the official usage of the country in question. Thus the capital in Czechoslovak passenger transportation and communications defined there as "nonproductive" ought accordingly to be excluded from capital in the material sectors.

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The GNP indexes and structural measures presented reflect the cumulative work of the Research Project on National Income in East Central Europe, documented comprehensively in the Project's publications, which are as follows:

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EAST EUROPEAN DEFENSE EXPENDITURES, 1965-78*

By Thad P. Alton, Gregor Lazarcik, Elizabeth M. Bass, and Wassyl Znayenko

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SUMMARY

This paper presents tentative sets of estimates of East European military expenditures, 1965-1978. Approximations are offered in national currencies and U.S. dollars, at current prices, with indications of their estimated shares in GNP. In both domestic and dollar valuations, these estimates essentially rely on officially published defense appropriations. East European state budget outlays for national defense do not cover all military expenditures; hence results in this report are believed to be substantial underestimates. They are thus not directly comparable to military expenditures for other countries.

The domestic currency estimates break published defense budget totals into personnel costs and other outlays, with some additional estimates for research and development in three countries. Personnel costs, including estimated military pay and subsistence, rely on man-

*The present contribution is a revision and updating of Thad P. Alton, Gregor Lazarcik, Elizabeth M. Bass, and Wassyl Znayenko, "Defense Expenditures in Eastern Europe, 1965-1976" in U.S. Congress' Joint Economic Committee, *East European Economies Post-Helsinki*, Washington, U.S. Government Printing Office, 1977, pp. 267-288.

power estimates from western sources, and on local, East European pay rates and consumption values. Other outlays, presumably covering operations and maintenance, and procurements, are derived as residuals within the published budget totals. To the extent that the defense budgets omit a number of military outlays (and there is evidence that this may be to a very substantial extent), outlays for purposes other than personnel are underestimated.

The dollar estimates involve direct pricing of the same manpower at United States pay rates (including subsistence) to derive personnel cost values. Only the nonpersonnel portions of the dollar estimates depend on converting domestic East European values into dollars. The residual, nonpersonnel costs derived from official budget totals in our domestic currency estimating procedure were converted into current dollars by ratios derived, in turn, from our estimates of GNP in domestic currencies and in dollars, for each country and each year covered.

Issues and problems of conversions are discussed with a comparison of various available rates. Pricing manpower directly in dollars offers one solution, yielding a measure of what East European forces personnel would cost in current United States terms. Available conversions for other costs are far from satisfactory in that the appropriateness of general, GNP-derived rates is questionable in view of the particular nature of many military procurements, plus the fact that defense ministries in Eastern Europe are exempt from normal price formation rules, and may in actuality make their purchases at atypically low prices.

Tentative findings arising from our estimates are that defense outlays in terms of shares of GNP are higher for the East European countries when measured in dollars, assigning U.S. values to personnel, than when measured in domestic prices, with nominal pay for conscripts. In both valuations, nonpersonnel costs (operations and maintenance, and procurements, albeit probably not all of them) have risen more rapidly than personnel costs, presumably reflecting modernization of forces, with increasingly sophisticated equipment per person of manpower. East European military expenditures, while smaller than those of the U.S.S.R. both in absolute total and in shares of GNP, constitute a significant contribution to the Warsaw Pact and have tended to rise at roughly the same pace as those of the U.S.S.R. For the decade 1965-1975, this pace exceeded the rate of increase in United States defense expenditures, followed by a moderate deceleration of increase rates in 1975-78. Again, it should be stressed that these findings, perforce, rely on officially published budgets, which may be better reflectors of announced détente policies than of actual military outlays. The highly approximate and incomplete nature of these results underscores the need for continuing work on estimation problems in the military field.

I. INTRODUCTION

The present paper extends our earlier report on the magnitude, trends, and structure of military expenditures of selected countries of Eastern Europe: Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, and Romania. The findings shown

here, with minor exceptions, are directly based on the officially published defense budgets. No attempt was made to measure the defense effort more comprehensively to match the coverage used in Western countries.

There is evidence that the East European countries' official defense expenditures substantially understate the cost of their military efforts, and we urge that this caution be kept in mind in international comparisons and other considerations, particularly as regards armament procurements (see sec. V). Economic handbooks published in Eastern Europe state that defense expenditures in national accounting terms enter into both collective consumption and accumulation (investment). In the early postwar period in Czechoslovakia a very substantial part of defense outlays was described as "camouflaged" in a special investment credit.¹

Estimates are presented in current domestic prices and in current dollars, covering the time span 1965-1978. GNP is also calculated in constant 1978 dollars. In order to place military expenditures in perspective, defense outlay are shown in the context of values of GNP in absolute and relative terms, as well as in terms of average annual rates of change (secs. II and III).

For comparisons of shares of GNP devoted to defense, a factor cost structure would be preferable to valuation in effective market prices. Yet factor cost approximations conventionally calculated would still fall short of an equitable standard of comparison in those cases where description results in diverse proportions of opportunity cost being paid to conscripts in the form of nominal cash pay plus subsistence. This follows from the conventional procedure of accepting the market price (actual) returns to labor as equal to the factor cost of labor.

Where the concern is to compare internationally the shares of GNP allocated to defense, it would appear that a modified concept of GNP and military expenditures should be employed; that is, both the GNP aggregate and the military component should reflect suitable upward revaluation to account for services of military personnel at opportunity cost. We did not attempt such adjustments in the present study. It seems clear, nonetheless, that the outcome of such comparisons between countries of Eastern Europe on the one hand and the United States on the other would be to raise the shares of the former in relation to the latter.

Another approach to international comparisons of defense expenditures is to express all the outlays in a common currency. To this end we present estimated dollar valuations of East European military expenditures. In order to facilitate such conversions to dollars, we allocated the total military expenditures between personnel costs and other outlays, and used distinct conversion rates for each component (sec. IV).

The results presented here are necessarily approximations. The procedures we employed could certainly be refined, particularly in getting better breakdowns of total expenditures, devising better conversion rates to apply to components of the total, making corrections for

¹ See Milan Spicak. *V armáde po unoru* (Prague, 1968), p. 154. Note that this source was published in 1968 and evidently had been written before the Soviet invasion in the summer of that year.

price distortions, and estimating the military expenditures outside and above the officially published defense budgets in each of the six East European countries reviewed in this study (sec. V).

II. GNP, DEFENSE EXPENDITURES, AND IMPLICIT CONVERSION RATES OF NATIONAL CURRENCIES TO DOLLARS

In this section we present for Eastern Europe as a whole and for each country, for the period 1965 to 1978, annual estimates of the total gross national product in current and constant dollars and total military expenditures in current dollars, conversion rates, and shares of defense in GNP. Given the limitations of time, accessible information, and material resources, our results are approximations which we qualify at various points.

For each country the GNP values in current market prices in the respective national currencies were estimated as follows: Detailed independent estimates of GNP were made at our Research Project for Czechoslovakia for 1966 and 1967 and for Hungary for 1967 and 1968. Also rough estimates for GNP are available for the German Democratic Republic (hereafter GDR) for 1968, Romania for 1968, and Bulgaria for 1968 and 1970. For Poland, detailed independent estimates for GNP are available only for 1954-1956, with rough estimates for the later 1960's. On the basis of the ratios between GNP and official national income (material product) for benchmark years, we were able to inflate the official national income series to the GNP concept for all other years covered in this study. It is to be noted that these ratios exhibited a degree of stability, comparing the middle of the 1950's with the 1967-1968 period.

For purposes of this study, officially given defense expenditures series are assumed to include the direct cost of maintenance of military personnel, cost of military equipment and supplies, and maintenance of equipment and structures. In the GDR, expenditures for internal security are included in published defense expenditure data. On the other hand, indirect military activity, for example, expenditures on military research and development, and a variety of other related outlays are not included in the national defense figures. Some adjustments of official figures to conform somewhat more closely with the U.S. definition of military purpose are made in section III.

The relative importance of military expenditures in different East European countries may be shown in percentages of their total GNP. Comparisons based on such shares will be meaningful only if the basis of valuation of the defense and nondefense (civilian) components of GNPs of various countries is more or less uniform. However, in the East European centrally planned economies, the prices of civilian consumption goods and services, because of the heavy incidence of turnover taxes, most probably are relatively high in relation to prices of military hardware and other procurement items, on which turnover taxes generally are not imposed. Also, very probably, the production of defense items is heavily subsidized through financial transfer at the state budget or lower levels. These pricing policies imply substantial underestimation of the "real" cost of military spending when expressed as a percentage of GNP at market prices in domestic currencies (table 1, col. 6).

TABLE 1.—GNP, DEFENSE EXPENDITURES, AND IMPLICIT CONVERSION RATES OF EAST EUROPEAN COUNTRIES

	GNP		Implicit conversion rate (\$1 = domestic EE currency)	Indexes in current dollars, (1965=100)		Defense as percentage of GNP in—	
	Millions of 1978 dollars	Millions of current dollars		GNP	Defense	Domestic currencies	Dollars
	(1)	(2)					
Bulgaria:							
1965	14,080	6,881	1.27	100.0	100.0	2.6	12.0
1966	15,192	7,667	1.25	111.4	103.3	2.5	11.2
1967	16,009	8,318	1.25	120.9	106.6	2.4	10.6
1968	16,305	8,852	1.28	128.6	110.7	2.3	10.4
1969	17,093	9,746	1.27	141.6	118.8	2.4	10.1
1970	18,051	10,843	1.26	157.6	133.5	2.4	10.2
1971	18,656	11,778	1.15	171.2	148.4	2.6	10.4
1972	19,543	12,850	1.14	186.7	165.0	2.7	10.6
1973	20,317	14,133	1.12	205.4	188.9	2.7	11.1
1974	20,937	15,971	1.07	232.1	224.8	2.8	11.7
1975	22,669	18,951	.98	275.4	240.7	3.0	10.5
1976	23,584	20,742	.95	301.4	261.2	3.0	10.4
1977	23,302	21,696	.93	315.3	278.9	3.2	10.7
1978	23,950	23,950	.88	348.1	283.0	3.2	9.8
Czechoslovakia:							
1965	46,375	22,663	10.72	100.0	100.0	4.0	8.1
1966	48,369	24,412	11.15	107.7	101.1	3.9	7.6
1967	50,502	26,241	12.27	115.8	107.4	3.8	7.5
1968	52,775	28,652	12.63	126.4	112.5	3.7	7.2
1969	53,749	30,648	13.33	135.2	117.1	3.4	7.0
1970	54,908	32,983	13.06	145.5	113.6	3.4	6.3
1971	56,763	35,834	12.51	158.1	130.5	3.4	6.7
1972	58,804	38,664	12.28	170.6	140.5	3.3	6.6
1973	60,751	42,258	12.05	186.5	155.5	3.2	6.7
1974	67,931	48,004	11.58	211.8	172.2	3.0	6.5
1975	64,786	54,161	10.81	239.0	187.5	3.2	6.3
1976	65,760	57,836	10.47	255.2	191.8	3.1	6.1
1977	68,820	64,078	9.29	282.7	203.8	3.1	5.8
1978	69,794	69,794	8.95	308.0	222.0	3.1	5.8
German Democratic Republic:							
1965	53,399	26,096	4.21	100.0	100.0	3.0	5.4
1966	55,001	27,759	4.17	106.4	104.9	2.9	5.3
1967	56,763	29,494	4.19	113.0	114.3	3.1	5.5
1968	59,326	32,208	4.03	123.4	146.4	3.9	6.4
1969	60,768	34,650	3.95	132.8	159.4	4.0	6.5
1970	62,317	37,434	3.86	143.4	176.8	4.2	6.7
1971	63,705	40,217	3.75	154.1	190.1	4.2	6.7
1972	65,894	43,325	3.68	166.0	205.2	4.1	6.7
1973	67,924	47,248	3.55	181.1	231.3	4.1	6.9
1974	71,181	54,297	3.29	209.1	257.2	4.0	6.7
1975	73,851	61,739	3.06	236.6	296.6	4.0	6.8
1976	75,506	66,408	2.95	254.5	317.6	4.1	6.7
1977	78,069	72,690	2.83	278.5	339.0	4.0	6.6
1978	79,992	79,992	2.67	306.5	372.8	4.1	6.6
Hungary:							
1965	21,794	10,651	20.07	100.0	100.0	2.6	7.6
1966	23,058	11,637	20.17	109.3	97.2	2.2	6.8
1967	24,366	12,661	20.39	118.9	96.5	2.1	6.2
1968	24,649	13,382	21.93	125.6	105.1	2.3	6.4
1969	25,412	14,490	22.84	136.0	115.2	2.3	6.4
1970	25,325	15,513	22.82	145.6	137.9	2.9	7.2
1971	26,436	16,689	22.94	156.7	143.5	2.6	7.0
1972	27,003	17,754	23.39	166.7	151.4	2.3	6.9
1973	28,419	19,768	23.27	185.6	163.3	2.1	6.7
1974	29,139	22,227	21.62	208.7	185.5	2.2	6.8
1975	29,792	24,906	20.61	233.8	199.3	2.3	6.5
1976	29,749	26,164	21.10	245.6	194.8	2.1	6.0
1977	31,558	29,384	20.57	275.9	198.5	2.1	5.5
1978	32,451	32,451	20.06	304.7	221.6	2.3	5.5
Poland:							
1965	59,136	28,900	23.79	100.0	100.0	3.4	8.0
1966	62,862	31,726	23.25	109.8	102.1	3.5	7.4
1967	65,163	33,861	22.96	117.2	108.0	3.4	7.4
1968	69,071	37,499	22.78	129.8	119.4	3.6	7.4
1969	68,420	39,013	22.92	135.0	130.0	3.8	7.7
1970	71,969	43,232	22.05	149.6	139.2	3.8	7.4
1971	77,113	48,681	22.53	168.4	162.1	3.5	7.7
1972	82,732	54,396	22.78	188.2	171.4	3.3	7.3
1973	88,822	61,785	23.50	213.8	199.0	3.0	7.4
1974	94,085	71,763	23.59	248.3	220.7	2.9	7.1
1975	98,521	82,364	22.99	285.0	245.6	2.8	6.9
1976	102,601	90,238	24.46	312.2	279.2	2.6	7.1
1977	105,439	98,174	24.19	339.7	280.9	2.7	6.6
1978	109,579	109,579	23.37	379.2	297.7	2.6	6.3

TABLE 1.—GNP, DEFENSE EXPENDITURES, AND IMPLICIT CONVERSION RATES OF EAST EUROPEAN COUNTRIES—
Continued

	GNP		Implicit conversion rate (\$1= domestic EE currency)	Indexes in current dollars, (1965=100)		Defense as percentage of GNP in—		
	Millions of 1978 dollars	Millions of current dollars		GNP	Defense	Domestic currencies	Dollars	
	(1)	(2)				(3)	(4)	(5)
Romania:								
1965	31,878	15,579	14.57	100.0	100.0	2.1	8.5	
1966	35,544	17,939	13.91	115.1	100.0	2.0	7.4	
1967	37,138	19,297	13.90	123.9	94.3	1.9	6.5	
1968	37,935	20,595	13.36	132.2	102.2	2.1	6.6	
1969	39,688	22,630	12.74	145.3	118.5	2.2	6.9	
1970	40,613	24,396	12.32	156.6	131.2	2.4	7.1	
1971	46,319	29,241	11.24	187.7	134.1	2.3	6.1	
1972	49,283	32,404	10.91	208.0	157.1	2.2	6.4	
1973	50,877	35,390	10.78	227.2	165.4	2.1	6.2	
1974	53,746	40,997	10.19	263.2	188.2	2.1	6.2	
1975	56,137	46,931	9.59	301.2	210.1	2.2	5.9	
1976	63,373	55,737	8.77	357.8	230.5	2.2	5.5	
1977	65,573	61,055	8.70	391.9	241.0	2.1	5.3	
1978	69,430	69,430	8.23	445.7	260.4	2.1	5.0	
Eastern Europe:								
1965	226,662	110,770	8,510	100.0	100.0	3.0	7.7	30.4
1966	240,026	121,141	8,651	109.4	101.7	2.8	7.1	32.3
1967	249,946	129,872	8,983	117.2	105.6	2.8	6.9	33.4
1968	260,061	141,187	10,000	127.5	117.5	3.0	7.1	36.3
1969	265,130	151,177	10,877	136.5	127.8	3.0	7.2	36.5
1970	273,183	164,101	11,745	148.1	138.0	3.2	7.2	39.1
1971	288,992	182,441	12,979	164.7	152.5	3.1	7.1	38.2
1972	303,259	199,393	14,094	180.0	165.6	3.0	7.1	36.4
1973	317,110	220,582	15,778	199.1	185.4	2.9	7.2	34.5
1974	332,019	253,264	17,727	228.6	208.3	2.8	7.0	34.2
1975	345,756	289,052	19,673	260.9	231.2	2.9	6.9	35.6
1976	360,573	317,125	21,227	286.3	249.4	2.8	6.7	35.1
1977	372,761	347,077	22,104	313.3	259.7	2.9	6.4	37.2
1978	385,196	385,196	23,778	347.7	279.4	2.9	6.2	38.4

¹ Unweighted average of percentages in all 6 countries.

Sources: Calculated from data given in Thad P. Alton, Gregor Lazarcik, Elizabeth M. Bass, and Wassyl Znayenko, "Defense Expenditures in Eastern Europe," in U.S. Congress, Joint Economic Committee, "East European Economics Post—Helsinki," Washington, D.C., U.S. Government Printing Office, 1977, pp. 267–288, revised and updated for 1977–78.

The conversion of military expenditures from national currencies into current dollars is a very difficult task, given the lack of information on prices of military items and composition of military procurements in East European countries. Proper conversion, indeed, would require information on the composition of the forces, rates of military pay, the quantity, quality and technical characteristics of the various military items purchased in each year, and the value weights in the national currencies and in dollars. This study offers one approach to the problem of conversion. This approach is based on implicit conversion rates for GNP derived from comparisons of dollar estimates of GNP and domestic currency estimates of GNP, both given in current prices. Further refinements involve estimates of the structure of military expenditures, presented in section III, with components then converted separately from domestic currencies into current dollars, as described in section IV. All the conversion rates used, it should be said, rest on approximative methods and accordingly should be interpreted with caution.

In this study, the GNP dollar figures were first derived in constant 1978 prices on the basis of GNP in 1978 dollars for the year 1965 ex-

tended by our GNP indexes in constant prices.² The GNPs in constant 1978 dollars were then deflated into current dollars by the U.S. GNP implicit price deflator.

Our estimates of defense spending in current dollars (table 1, col. 5 and table 6, col. 1) value the East European (and the U.S.S.R.) military personnel services directly in dollars at United States pay rates for officers and men. The present set of estimates (table 6, col. 2) assigns full pay rates per man, as opposed to the partial rates used for earlier estimates. For converting the military nonpersonnel and research and development expenditures from domestic currencies into dollars (table 6, col. 3), we used the implicit average exchange rates (table 1, col. 3) derived from comparisons of the estimated GNPs in domestic currencies and the corresponding dollar values of the GNPs in current prices.

TABLE 2.—AVERAGE ANNUAL PERCENTAGE RATES OF CHANGE IN GNP AND DEFENSE EXPENDITURES FOR EAST EUROPEAN COUNTRIES, 1965-78¹

[Calculated from data in constant 1978 and current dollars]

Country and period	GNP		Defense expenditures, current dollars		
	Constant 1978 dollars	Current dollars	Total	Personnel costs	Nonpersonnel and R. & D. costs
Bulgaria:					
1965-70	4.7	9.1	5.6	5.3	7.5
1970-75	4.5	11.5	13.2	12.1	18.7
1975-78	1.5	7.8	5.7	3.5	13.7
Czechoslovakia:					
1965-70	3.5	7.9	3.3	1.6	5.7
1970-75	3.4	10.3	10.3	12.2	7.6
1975-78	2.7	9.0	5.8	3.6	8.9
German Democratic Republic:					
1965-70	3.2	7.6	13.2	8.4	18.6
1970-75	3.5	10.5	10.9	12.7	9.2
1975-78	2.8	9.1	7.8	5.8	9.7
Hungary:					
1965-70	3.1	7.7	6.5	4.3	13.3
1970-75	3.4	10.0	8.0	9.0	5.2
1975-78	3.2	9.5	3.4	0.3	10.8
Poland:					
1965-70	3.8	9.1	7.3	4.2	12.3
1970-75	6.6	13.8	11.8	15.8	5.7
1975-78	3.5	9.9	6.0	5.6	6.9
Romania:					
1965-70	4.6	9.0	5.7	3.6	14.8
1970-75	6.2	13.3	10.3	9.8	11.7
1975-78	6.9	13.5	7.1	5.3	11.5
Eastern Europe:					
1965-70	3.7	8.1	7.1	4.4	12.5
1970-75	4.8	11.8	10.9	12.5	8.2
1975-78	3.6	10.0	6.3	4.5	9.4
U.S.S.R.:					
1965-70	4.7	9.1	8.1	5.3	11.3
1970-75	4.0	10.9	10.2	8.4	8.4
1975-77	3.8	9.4	8.4	5.1	6.9
United States:					
1965-70	3.1	7.5	10.7	11.9	10.1
1970-75	2.7	9.5	3.5	3.7	0.6
1975-78	4.9	11.3	6.3	5.1	6.9

¹ Rates for 5- and 3-year spans are based on least squares fit to $I_n = I_0(1+r)^n$. Rates for the U.S.S.R., 1975-77, and the United States, 1975-78, are simple averages of the annual percentage changes.

Sources: For East European countries, tables 1 and 6. For the U.S.S.R. and the United States, U.S.A.C.D.A., "World Military Expenditures and Arms Transfers," 1965-74 through 1968-77 issues, and U.S. Department of Commerce, "Statistical Abstract of the United States, 1971," p. 242, and 1978, p. 359, and 1979, pp. 366 and 437.

² See OP-54, table 8, and its notes for details on method. Our GNP estimates have been somewhat revised since the publication of OP-54. The revised indexes may be found in the present Compendium in T. P. Alton, "Production and Resource Allocation in Eastern Europe: Performance, Problems, and Prospects," tables 12 and 14.

The findings in tables 1 and 2 with reference to other tables may be summarized as follows:

1. The implicit conversion rates between East European domestic currencies and the U.S. dollar decreased in the last eight years in most countries because the rate of inflation in the United States was higher than in most East European countries, especially in the 1970's.

2. Military expenditures expressed as percentages of GNP are substantially lower in domestic currencies than in current dollars (compare cols. 6 and 7, table 1). There are two reasons for these large differences: (a) The very low nominal pay rates in Eastern Europe for enlisted men (a small fraction of their opportunity costs); and (b) price distortions (the uneven incidence of turnover taxes, accounting profit taxes, and subsidies) which result in very low percentage shares for military expenditures in GNP at current market prices (as compared to shares on other bases of valuation, for example, at opportunity cost, factor cost, or dollar valuations). Thus, these percentage shares of GNP in domestic currencies of centrally planned East European countries are very misleading for comparisons with percentage shares in other countries where such extreme valuation abnormalities do not occur (for example, Western Europe, United States, and Canada).

3. Our estimates based on dollar valuations of personnel costs and conversion of other defense outlay components at implicit GNP overall rates indicate that the percentage share of GNP spent on defense in Eastern Europe as a whole is more than double the corresponding percentage of GNP calculated in the national currencies. The percentage shares shown in table 1 are rough estimates. For the purpose in view, a range in terms of whole percentage points, or at least a rounding to whole percentages characterized as rough approximations would be preferable to unwarranted appearance of precision by the use of percentages carried to one decimal place. Our percentage share estimates reflect the rough estimates required to expand net material product aggregates to approximate GNP coverages and the conversion rates we used.

4. When valued in dollars (table 6) the nonpersonnel and research and development expenditures (operations, maintenance, military procurements), expressed as a percentage of total East European defense outlays, on the whole increased, rising from 30 percent in 1965 to 38 percent in 1978. This presumably reflects progress in mechanization and modernization of Eastern Europe's military forces.

5. Based on valuations in current dollars, defense spending for most of the East European countries grew at a somewhat slower rate than GNP (table 2). In most of the countries defense spending grew at a slower rate in the 1965-1970 period than in the 1970-1975 period. For Eastern Europe as a whole, the average annual rate in the latter period was 10.9 percent, while that in the former period was 7.1 percent. Again a lower rate, 6.3 percent, characterizes the most recent time span covered, 1975-1978.

6. In all East European countries the nonpersonnel and R&D dollar costs 1965-1970 grew at higher rates than personnel costs (table 2). This trend was reversed in some countries during 1970-75, but resumed in all in the more recent years, 1975-1978. The higher annual per-

centage rates of growth of nonpersonnel costs observable in Bulgaria, the GDR, Hungary, and Romania apparently indicate rapid progress in mechanization and modernization of their armed forces.

7. Comparison of Eastern Europe with the U.S.S.R., shows that the rate of growth of GNP was about the same in 1965-1978 in both regions and likewise rates of growth of defense spending were about the same in both, although in 1965-70 and 1975-78 rates for the U.S.S.R. were somewhat higher (table 2). The other Warsaw Pact member countries have consistently contributed a lower share of their GNP's to defense than the U.S.S.R.³

8. Comparison with the United States, however, shows distinct differences. The average annual rate of growth of defense spending in current dollars for the whole span 1965 to 1978 has been significantly lower in the United States than in the U.S.S.R., or in Eastern Europe. The contrast is greatest for the 1970-1975 period, when the U.S. GNP grew at an average annual rate of 9.5 percent, while the military expenditures grew only at 3.5 percent. The respective percentages for the U.S.S.R. were 10.9 and 10.2, and for Eastern Europe, 11.8 and 10.9 (table 2).

9. U.S. military outlays on nonpersonnel and R. & D. costs in current dollars barely increased from 1970 to 1975. Since U.S. wholesale prices increased by 58 percent in the same period, the nonpersonnel spending (operations, maintenance, military procurements, and research and development) actually declined in real terms. This is in contrast to the continuous increase of these costs in the U.S.S.R. and Eastern Europe in the same period.

10. It should be noted that Eastern Europe as a whole currently spends, from defense budgets only,⁴ in terms of dollars (see tables 1 and 6), more on defense than any country other than the United States and the U.S.S.R., or over one-fifth as much as the United States. This is a significant contribution to the total defense expenditures of the Warsaw Pact.

11. It appears that the overall military effort of the Warsaw Pact countries as reflected in defense expenditures has tended to improve over recent years while that of the United States and other NATO countries has been relatively deteriorating.

Again, it should be stressed that the conclusions of this study are tentative, necessarily so in view of the need for further research and comparisons of economic potential and related military expenditures. The results shown in tables 1 and 2 can be improved by detailed studies of the structure of the GNP's in current market prices and in prices with adjustment toward factor cost. Further research on exchange rates based on purchasing power parities is necessary for improving the international comparability of defense spending of various countries. Use of up-to-date reliable purchasing power parity exchange rates could substantially alter the results shown here. A survey of currently used and alternate dollar conversion rates is provided in section IV.

³ ACDA, *World Military Expenditures and Arms Transfers, 1968-1977*, p. 61.

⁴ There are tangible indications that the official defense budgets of East European countries cover only a part of their total military spending. See ACDA, op. cit., for U.S., U.S.S.R., and other countries' defense expenditures.

III. ESTIMATES OF THE DEFENSE EXPENDITURES OF EAST EUROPEAN COUNTRIES BY MAJOR PURPOSE, IN CURRENT DOMESTIC CURRENCIES

Estimates in domestic currencies are presented in table 3. These include a breakdown of direct defense budget expenditures between outlays to support uniformed military personnel and those for operations, maintenance, and procurements as a residual category that could not be further subdivided except on an arbitrary basis. In addition, some rough estimates to reflect presumed research and development of a military nature financed outside of budget defense appropriations are offered for the three countries in which such activities may reasonably be thought to be greater than negligible.

TABLE 3.—ESTIMATES OF DEFENSE EXPENDITURES BY MAJOR PURPOSE, EAST EUROPEAN COUNTRIES, IN CURRENT DOMESTIC CURRENCIES, 1965-78¹

(Millions of domestic currencies)

Country	Defense budget expenditures						Total (1)+(6)
	Total	Personnel costs		Operations, maintenance, and procurements	Research and develop- ment	Total	
		Total	Military pay				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Bulgaria (million leva):²							
1965.....	230	93	47	46	137	-----	230
1966.....	240	101	52	49	139	-----	240
1967.....	247	115	61	54	132	-----	247
1968.....	264	126	64	62	138	-----	264
1969.....	302	127	63	64	175	-----	302
1970.....	324	126	65	61	198	-----	324
1971.....	354	129	66	63	225	-----	354
1972.....	391	131	67	64	260	-----	391
1973.....	422	147	75	72	275	-----	422
1974.....	483	161	80	80	322	-----	483
1975.....	548	160	79	81	388	-----	548
1976.....	596	171	83	88	425	-----	596
1977.....	653	178	85	93	475	-----	653
1978.....	681	170	81	89	511	-----	681
Czechoslovakia (million crowns):							
1965.....	7, 896	2, 539	1, 038	1, 501	5, 357	1, 722	9, 618
1966.....	8, 890	2, 520	1, 057	1, 463	6, 370	1, 826	10, 716
1967.....	10, 156	2, 710	1, 127	1, 583	7, 446	2, 083	12, 239
1968.....	10, 945	3, 014	1, 233	1, 781	7, 931	2, 332	13, 277
1969.....	12, 034	3, 282	1, 304	1, 978	8, 752	2, 038	14, 072
1970.....	12, 470	2, 795	1, 313	1, 482	9, 675	2, 249	14, 719
1971.....	12, 972	3, 014	1, 373	1, 641	9, 958	2, 384	15, 356
1972.....	13, 169	3, 128	1, 429	1, 699	10, 041	2, 318	15, 487
1973.....	13, 776	3, 275	1, 480	1, 795	10, 501	2, 527	16, 303
1974.....	14, 043	3, 530	1, 568	1, 962	10, 513	2, 729	16, 772
1975.....	15, 608	3, 555	1, 517	2, 038	12, 053	2, 850	18, 458
1976.....	15, 993	3, 481	1, 473	2, 008	12, 512	2, 823	18, 821
1977.....	15, 651	3, 534	1, 493	2, 041	12, 117	2, 995	18, 646
1978.....	16, 552	3, 782	1, 581	2, 201	12, 770	3, 114	19, 666
German Democratic Republic (million marks):³							
1965.....	3, 100	629	337	297	2, 271	155	3, 255
1966.....	3, 200	679	358	321	2, 521	160	3, 360
1967.....	3, 600	717	376	341	2, 883	180	3, 780
1968.....	4, 814	812	434	378	4, 002	241	5, 055
1969.....	5, 229	848	452	396	4, 381	261	5, 490
1970.....	5, 712	838	466	372	4, 874	286	5, 998
1971.....	6, 019	837	479	358	5, 182	301	6, 320
1972.....	6, 217	858	495	363	5, 359	311	6, 528
1973.....	6, 571	929	514	415	5, 642	329	6, 900
1974.....	6, 746	957	529	428	5, 789	337	7, 083
1975.....	7, 154	1, 058	569	489	6, 096	359	7, 512
1976.....	7, 613	1, 083	587	496	6, 530	381	7, 994
1977.....	7, 868	1, 128	611	517	6, 740	393	8, 261
1978.....	8, 261	1, 188	650	533	7, 073	413	8, 674

See footnotes at end of table.

TABLE 3.—ESTIMATES OF DEFENSE EXPENDITURES BY MAJOR PURPOSE, EAST EUROPEAN COUNTRIES, IN CURRENT DOMESTIC CURRENCIES, 1965-78—Continued

[Millions of domestic currencies]

Country	Defense budget expenditures						Total (1)+(6)
	Total	Personnel costs			Operations, maintenance, and procure- ments	Research and develop- ment	
		Total	Military pay	Sub- sistence			
(1)	(2)	(3)	(4)	(5)	(6)	(7)	
Hungary (million forints):							
1965	5,757	1,982	1,028	951	3,775		5,757
1966	5,219	2,032	1,069	963	3,187		5,219
1967	5,433	2,001	1,034	920	3,429		5,433
1968	6,611	2,051	1,123	928	4,560		6,611
1969	7,644	2,131	1,168	963	5,513		7,644
1970	9,848	2,195	1,235	960	7,653		9,848
1971	9,891	2,166	1,226	940	7,725		9,891
1972	9,430	2,294	1,282	1,012	7,136		9,430
1973	9,488	2,386	1,332	1,051	7,102		9,488
1974	10,564	2,477	1,414	1,063	8,037		10,564
1975	11,811	2,532	1,459	1,073	9,279		11,811
1976	11,671	2,571	1,515	1,056	9,109		11,671
1977	12,607	2,585	1,573	1,012	10,022		12,607
1978	14,984	2,772	1,714	1,053	12,212		14,984
Poland (million zlotys):							
1965	23,255	4,623	2,620	2,003	18,632	297	23,552
1966	25,213	4,412	2,513	1,899	20,801	338	25,551
1967	26,438	4,725	2,656	2,069	21,713	412	26,850
1968	30,332	4,981	2,779	2,202	25,351	442	30,774
1969	33,519	5,150	2,830	2,320	28,369	424	33,943
1970	35,724	4,740	2,607	2,133	30,984	450	36,174
1971	37,684	5,730	3,097	2,663	31,954	986	38,670
1972	39,490	6,223	3,379	2,844	33,267	1,274	40,764
1973	42,342	6,885	3,717	3,168	35,457	1,678	44,020
1974	46,441	7,638	4,177	3,461	38,803	1,876	48,317
1975	50,220	8,993	5,019	3,974	41,227	2,070	52,290
1976	54,286	11,779	6,462	5,317	42,507	2,363	56,649
1977	61,139	12,490	6,918	5,572	48,649	2,383	63,522
1978	63,314	13,203	7,277	5,926	50,111	2,398	65,712
Romania (million lei):							
1965	4,735	1,624	808	816	3,111		4,735
1966	4,927	1,686	848	838	3,241		4,927
1967	5,146	1,617	852	765	3,529		5,146
1968	5,751	1,587	799	788	4,164		5,751
1969	6,319	1,804	910	894	4,515		6,319
1970	7,067	1,892	953	939	5,175		7,067
1971	7,424	1,681	847	834	5,743		7,424
1972	7,710	1,874	944	930	5,836		7,710
1973	7,835	1,876	945	921	5,959		7,835
1974	8,744	2,096	1,011	995	6,648		8,744
1975	9,713	2,238	1,128	1,110	7,475		9,713
1976	10,575	2,469	1,244	1,225	8,106		10,575
1977	10,963	2,623	1,322	1,301	8,340		10,963
1978	12,000	2,874	1,448	1,426	9,126		12,000

¹ Data for 1978 are preliminary.² Defense budget data for Bulgaria have not been published since 1970. Expenditures for 1971-75 are estimated at 6 percent of total planned budget outlays, the approximate share they accounted for in 1966-70. For 1976-77, in view of major changes in the budget structure, the estimate is based on 12 percent of total planned outlays excluding outlays on the national economy, and for 1978 it was assumed to remain a constant share of GNP.³ Excluding internal security.

Source: "Defense Expenditures in Eastern Europe," op. cit., and notes thereto, revised and updated to 1971-78.

A rather strict concept of "military purpose" underlies these estimates. The intention is to reflect current outlays to support, equip, and administer armed forces, plus research and development directly related to military purposes. No attempt has been made to assess industrial investments related to armaments production. Nor has any attempt been made to include here various military related outlays known to be financed outside the defense budgets proper, such as bene-

fits to soldiers' families and paid leave for reservists. Investment expenditures made directly by ministries of defense, however, are implicitly included. Judging by the Polish state budget, which is the only one among the six East European countries to provide this detail explicitly, planned investments by the ministry of defense in recent years account for about 6.5 percent of the ministry's total budget, including investments. These investments evidently are not in armament production facilities or arms themselves, but rather outlays for officers' housing and social-cultural facilities.⁶

The definition of armed forces followed for these estimates includes, in addition to the regular army, navy, and air forces, the border guard troops routinely organized and equipped as army units in all these countries, and the security troops that are essentially military in their organization and equipment. It is important to distinguish between these latter, the "militarized police," and the various other internal security units, such as the secret police, the workers' militia, customs guards, prison guards, and other uniformed services that do not seem to be directly military in their organization and potential. This "civilian" portion of internal security is excluded from the estimates. Adjustments have accordingly been made in the budget expenditure totals for the GDR, whose published budget appropriation figures through 1976 reflect defense and internal security taken together.

The same basic estimation method was followed for all the six countries covered. Working from estimates of regular forces and "paramilitary" border and security troops published by the Institute of Strategic Studies, London, and by ACDA, the pay and subsistence of these forces were calculated with reference to national wage rates and consumption data. Exact procedures varied somewhat with the availability of data for the different countries. The resulting personnel costs were then deducted from the defense budget expenditure totals to obtain the estimates for operations (including costs of civilian personnel and other administrative expenses), maintenance, and procurements (other than supplies for the subsistence of uniformed personnel). The basis for the research and development estimates were budget expenditures on "science and research," of which a portion were deemed "military." Again, varying availability of data necessitated some differences in method.

Inevitably, these estimates are very rough approximations. Many choices underlie them, some involving no small element of arbitrariness. For this set of estimates, we have continued to treat all paramilitary forces (border guards, security troops) as though they were financed out of defense budget appropriations uniformly in all countries. There is, however, increasing evidence that in some cases they are supported by the budgets of other, non-defense, ministries. Our personnel cost estimates may thus include manpower that is not actually paid for out of nominal defense appropriations. To the extent that this is so, it would simply mean that our estimates of nonpersonnel costs, derived as residuals from the official defense budgets, are too low.

⁶ See *Dziennik ustaw*, various annual numbers giving the state budget.

⁷ See *Zolnierz wolnosci*, June 24, 1976, p. 3; this article states that over 50 percent of the total investment outlays of the armed forces was for housing.

The general results for all countries except Poland show total defense expenditures rising more rapidly than personnel costs, 1965-1978 (see table 3). The rise in personnel costs, it should be noted, is partly attributable to the fact that rising wage levels and rising costs of living are reflected in our estimates of pay and subsistence. The numbers of personnel have not consistently increased in recent years. Increasing costs of operations, maintenance and procurements per uniformed effective are, of course, a logical concomitant of modernization, the introduction of more sophisticated and more expensive weaponry, communications, and other equipment.

With regard to the changing structure of the observed defense budgets, it seems important to state that none of the breakdowns of expenditure by purpose in these estimates rely directly on the technique of estimating by analogy with other countries or earlier time periods. In the Benoit-Lubell estimates, analogy to Poland is the basis for all the countries in question but Czechoslovakia. Benoit's and Lubell's sources suggest that their detailed breakdown of the residual after personnel costs for both countries derived from estimates made for 1956.⁷ In the estimates presented here in table 3, the technique of analogy was almost totally confined to minor aspects, such as differentials between enlisted men's and officers' pay. No structural rule of thumb was applied to all in common beyond the assumption with regard to financing paramilitary troops, discussed above. The results are the product of numbers of troops and rates of pay and subsistence calculated separately for each country. No reasonably sound up-to-date basis was found for a breakdown of the operations-maintenance-procurement residuals, hence no new attempt was made in this regard.

IV. DOLLAR ESTIMATES OF EAST EUROPEAN MILITARY EXPENDITURES BY MAJOR PURPOSE, AND EXISTING CONVERSION RATES

For international comparisons of military expenditures, or of other components of national products, it is necessary to express the values given in national currencies in a common unit of value. The present chapter will survey various available approaches for conversions of Warsaw Pact country values into United States dollars and describe the alternative used for the estimates in this report.

Among the available means for conversion are two sets of official exchange rates and three sets of Western conversion rates. For each country, the official rates are the "basic" rate that is used as a unit of account in foreign trade statistics and the "non-commercial" or tourist rate applied to travelers' funds and sometimes to other personal transactions. Two sets of Western rates that have been used in the field of military expenditures are, first, those estimated by Benoit and Lubell and subsequently adopted as the basis for dollar estimates published by the Stockholm International Peace Research Institute (SIPRI) and the Institute for Strategic Studies, London (ISS), and second, those calculated by the authors of the present paper and used for dollar estimates published by the U.S. Arms Control and Disarmament Agency (ACDA) for 1960-1970. A complete set of our rates for 1965-1978 appears in this study in table 1, column 3.

⁷ Emile Benoit, ed. *Disarmament and World Economic Interdependence*, New York Columbia University Press, 1967, pp. 31-32 and 37.

TABLE 4.—MAJOR AVAILABLE SETS OF RATES FOR CONVERTING EAST EUROPEAN NATIONAL CURRENCIES TO U.S. DOLLARS

Country	Official rates		Ours		Benoit-Lubell	Our forint total divided by Kravis, Heston, and Summers dollar total
	Basic 1978	Noncommercial (tourist) 1978	1978	1965	1964-65	1973
	(1)	(2)	(3)	(4)	(5)	(6)
Bulgaria (leva).....	0.88	0.94	0.88	1.27	1.16	-----
Czechoslovakia (crowns).....	5.42	10.64	8.95	10.72	8.50	-----
German Democratic Republic (marks).....	2.05	1.90	2.67	4.21	3.39	-----
Hungary (forints).....	-----	17.79	20.06	20.07	17.36	15.79
Poland (zlotys).....	3.24	32.16	23.37	23.79	15.92	-----
Romania (lei).....	4.57	12.00	8.23	14.57	9.43	-----

Sources: Cols. 1 and 2: United Nations, Monthly Bulletin of Statistics, vol. 33, No. 8, 1979, table 67. The rates are averages of 12 mo. Cols. 3 and 4: Table 1, Col. 5: Emille Benoit, ed. "Disarmament and World Economic Interdependence," New York, 1967, p. 40. Col. 6: I.B. Kravis, A. Heston, and R. Summers, "International Comparisons of Real Product and Purchasing Power," p. 8. Kravis's estimate of \$29,128,000,000 of Hungarian gross domestic product in 1973 was divided into our estimate of 460,036,000,000 forints total domestic final uses. Kravis cites the Hungarian official GDP at 415,103,000,000 forints for 1973. Our figure refers to a different aggregate than GDP, and we revalued housing to reflect approximate factor cost as well as purchases by housing from other sectors.

Various rates for 1978 shown in table 4 were chosen for purposes of comparison with the original Benoit-Lubell estimates, which referred to 1964/1965. For all countries, our conversion rates are higher than the Benoit-Lubell rates. For 1978 our rates are close to the tourist rates for Bulgaria, Czechoslovakia, and Hungary. For Hungary alone, there is additionally a rate for 1973 based on Kravis' results. This is also shown in table 4.

Of the two sets of official rates, it may be said that neither offers a satisfactory basis for converting military expenditures. The arbitrary nature of the "basic" rates is well known; it is generally evident that they bear no meaningful relationship to purchasing power parity with respect to the goods moving in international trade. Hungary in recent years has made efforts to establish foreign trade conversion rates to bring domestic and foreign trade relative prices into more realistic alignment. However, because of differentiation by ruble and dollar trading areas and because of special regulations that modify overall rates and of centrally directed trade deliveries to the U.S.S.R. at state-set prices, as well as other considerations, determination of a single purchasing power parity would require a complex study.

The tourist rates, in contrast, are intended to and apparently largely do reflect purchasing power parities for a tourist's basket of consumer goods and services. Here, however, the objection is that such purchases not only represent a product mix lacking many of the elements included in military expenditures, but also that they are made at prices including a high incidence of turnover tax, from which purchases by East European ministries of defense are thought to be largely exempt. They also probably reflect higher profit rates than the average included in the prices of military procurements.

The Benoit-Lubell rates, in the words of their authors, represent "very rough purchasing power parity."⁸ The rather general account

⁸ Emille Benoit, ed. *Disarmament and World Economic Interdependence*, New York, 1967, p. 40.

provided of their derivation indicates that they are based on comparisons of general national income and product aggregates. It is not clear whether or not any consistent effort was made when deriving these estimates to allow for the skewed incidence of turnover tax and profits in East European prices of different categories of goods and for different categories of buyers. The authors were, however, quite aware of this problem, as evidenced by their use of differential rates for various components of the U.S.S.R.'s defense expenditures.⁹

Clearly, the rates implicitly given by comparisons of aggregates in national currencies and in dollars are far from ideal. They reflect the roughness of the basic estimates. However, more satisfactory information on purchasing power parities is thus far fragmentary. Some work in this field has been done among the East European countries themselves, but very few results have been published. Joint efforts by the United Nations, the World Bank, and the University of Pennsylvania in the U.N. International Comparison Project (ICP) recently produced studies on purchasing power parity conversion rates for sixteen countries, including Hungary.¹⁰ For 1970, this study gives an overall GDP conversion rate to one U.S. dollar of 13.3 forints in Hungarian weights and 19.4 forints in U.S. weights; for 1973, the respective conversion rates are 12.5 and 17.9. Our implicit GNP conversion rate is 22.8 forints for 1970 and 23.3 forints for 1973. Unfortunately, the U.N. study does not give separate conversion rates for military end items.

An ideal approach for determination of purchasing power parities of national currencies in binary comparisons would be along the lines of the ICP studies, where detailed components of final uses were assigned representative commodity specifications fitting the U.N. SNA concepts of final use categories. A highly desirable attribute in determining price ratios for each commodity specification would be to base these ratios on inspections by teams of commodity experts to insure that the commodities as per specifications were generally available in each country and that the prices actually were those on usual markets. Reliance on official price lists of East European countries is hazardous for the determination of price indexes domestically as well as for international comparisons. This judgment reflects the opinions of East European statisticians. The ICP studies noted ". . . the exchange of expert members of the staffs of the national statistical offices and the ICP. consultations with industry experts and government experts outside the statistical offices, and the use of samples, catalogs, and price sheets."¹¹

The ultimate merit of such comparisons clearly would depend in each case on the extent of binational commodity expert confrontation with actual markets to permit verification of commodity specifications and the observation of prices for generally available supplies. Too often in East European circumstances, producers' and retailers' interests in profit considerations have led to spurious product innovations (for

⁹ Specifically (in rubles per \$1 U.S.): 0.5 for procurements, R. & D., operations, maintenance, and construction; 0.2 for cash pay of military personnel and cost of transfers; 1.0 for military subsistence; see Benoit, *op. cit.*, p. 40.

¹⁰ Irving B. Kravis, Zoltan Kenessey, Alan Heston, and Robert Summers, *A System of International Comparisons of Gross Product and Purchasing Power*, Baltimore, Johns Hopkins University Press, 1975, and I. B. Kravis, A. Heston, R. Summers, *International Comparisons of Real Product and Purchasing Power*, Baltimore, Johns Hopkins University Press, 1978, pp. 181 and 203.

¹¹ Kravis et al., *op. cit.*, 1978, p. 4.

example, inconsequential style or color modifications) with steep increases over the officially listed prices for an essentially unchanged specification.

We should note in this context a study by Dr. Eugenia Krzeczowska of the Institute for Statistical Economic Research of the Polish Main Statistical Office.¹² Krzeczowska expanded the Polish official figure for gross material product national income (the net material product national income plus depreciation on fixed capital in the material product sector) to the United Nations SNA definition of gross domestic product. She did this by adding the net value added by non-material services plus their depreciation of fixed assets, by making adjustments for imputations for rent and profit in the housing sector, and by subtracting the value of non-material services bought by the material sectors and appearing in their net material product. The result was a value for 1974 Polish GDP in zlotys.

In translating the zloty value to U.S. dollars, Krzeczowska proceeded by reference to bilateral France-Poland comparisons of personal consumption in purchasing power indexes of their currencies in 1972 and 1973, and then linked the result to the U.S. dollar. In the France-Poland comparison, the personal consumption category was broken down into foods, beverages, clothing, shoes, household equipment, fuel, electricity, water, gas, personal hygienic articles, and cultural services. The price ratios were established by Polish and French experts jointly visiting actual markets in the capitals of the two countries for on-the-spot confrontation of specifications, availability, and prices.¹³ The findings were advanced to 1974 by indexes. For the remaining end-use categories, Krzeczowska proceeded by use of the United States-Hungary ICP comparison noted above and bilateral Hungary-Poland comparisons prepared by research and analysis units of the respective national statistical offices. Her result for 1974 was an average parity of \$1=20.6 zlotys. She applied this rate to her Polish GDP zloty estimate to obtain 1974 Polish per capita GDP of 2,167 current dollars, which she extrapolated roughly to obtain 1975 per capita Polish GDP equal to 2,235 U.S. current dollars. Our calculation for the same year was about 5 percent above Krzeczowska's estimates. For 1975 we show Polish and Hungarian GNP per capita at approximately the same level (see OP-51, p. 14).

The ICP calculations imply a 1975 Hungarian per capita value substantially above our figure. The question of dollar levels of per capita GNP's is obviously complicated. General acceptance of East European catalog or list prices for indicated specifications is hazardous because these list prices may not refer to actual market prices, where spurious innovation is used to justify higher than list prices for essentially un-

¹² Eugenia Krzeczowska, "Dochod narodowy Polski w dolarach" (Polish National Income in Dollars), *Wiadomosci statystyczne*, No. 10, 1976, pp. 1-3.

¹³ Institut National de Statistique et des Etudes Economiques and Główny Urząd Statystyczny, *Porównanie cen i poziomu spożycia, Polska-Francja* (Comparison of Prices and Level of Living, Poland-France), Paris and Warsaw, 1975. Field collection of data by experts was also a feature of the Gilbert-Kravits study for the OEEC: see Milton Gilbert and Irving B. Kravits, *An International Comparison of National Products and the Purchasing Power of Currencies*, OEEC, Paris, 1954, p. 18.

changed specifications. International comparisons of personal consumption and GNP levels clearly require a fresh look.

Even if detailed purchasing power parity rates were available for application to the diverse bundles of military goods and services, there would still remain problems of choosing suitable weights for combining the detailed rates into rates appropriate for major components of military expenditures. The composition of the latter varies among countries and, for given countries, over time.

The new estimates offered in this chapter represent a somewhat more direct approach to the problem of converting East European military outlays into dollars, although they still, inevitably, rest in part on rates implicitly derived from GNP estimates in dollars and in national currencies. The roughness of the "purchasing power" parities underlying the dollar figures has already been noted. Our approach is to convert the military personnel costs within military expenditures by pricing the "products," that is, the services of the officers and enlisted men, directly in American prices. This is done entirely in terms of U.S. cash pay rates including allowances (table 5). The reliance on implicit overall GNP rates is thus somewhat reduced in scope.

TABLE 5.—PAY RATES IN THE U.S. ARMED FORCES
[Basic pay including allowances in current dollars, as of June 30 of each year]

Year	Officers	Enlisted personnel
1965		
1966		
1967	9,677	3,583
1968	9,811	3,612
1969	10,684	3,622
1970	10,697	3,862
1971	11,341	4,146
1972	12,947	4,734
1973	14,000	5,300
1974	15,000	6,000
1975	16,000	6,700
1976	17,800	7,500
1977	18,800	8,000
1978	20,000	8,300
	21,000	8,700
	22,200	9,200

Sources: 1965-66: U.S. Department of Commerce, "Statistical Abstract of the United States, 1965," p. 265; 1967: *ibid.*, 1968, p. 262; 1968: *ibid.*, 1969, p. 260; 1969-70: *ibid.*, 1971, p. 255; 1971-73: *ibid.*, 1973, p. 271; 1974-76: *ibid.*, 1976, p. 341; 1977-78: *ibid.*, 1978, p. 383.

Our results in current US dollars are presented in table 6. The calculations are summarized below. We assumed that the percentage of officers in total military personnel was roughly the same as in the United States, or about 12 percent on the average for 1965-1970. We use this average for the East European countries for 1965-1978.¹⁴ It may be noted that this ostensibly differs from the procedure in section III where, for calculating the cost of military personnel in domestic currencies, we put the number of officers at about 20 percent of the total military personnel. This larger share was assumed to include lower grade officers, covering sergeants as well as commissioned officers.

¹⁴ See U.S. Department of Commerce, *Statistical Abstract of the United States, 1971*, p. 252. In the United States, the percentage of officers increased to an average of 14 percent for the 1971-1977 period; see *ibid.*, 1978, p. 379.

TABLE 6.—ESTIMATES OF DEFENSE EXPENDITURES BY MAJOR PURPOSE, EAST EUROPEAN COUNTRIES¹
 [In millions of current U.S. dollars]

Country and year	Total	Personnel costs	Nonpersonnel costs ²	Percentage shares of total	
				Personnel costs	Nonpersonnel costs
	(1)	(2)	(3)	(4)	(5)
Bulgaria:					
1965	829	721	108	87.0	13.0
1966	856	745	111	87.0	13.0
1967	884	778	106	88.0	12.0
1968	918	810	108	88.2	11.8
1969	985	847	138	86.0	14.0
1970	1,107	950	157	85.8	14.2
1971	1,230	1,034	196	84.1	15.9
1972	1,368	1,140	228	83.3	16.7
1973	1,566	1,320	246	84.3	15.7
1974	1,864	1,563	301	83.9	16.1
1975	1,995	1,599	396	80.2	19.8
1976	2,165	1,718	447	79.4	20.6
1977	2,312	1,801	511	77.9	22.1
1978	2,346	1,765	581	75.2	24.8
Czechoslovakia:					
1965	1,826	1,165	661	63.8	36.2
1966	1,846	1,111	735	60.2	39.8
1967	1,962	1,185	777	60.4	39.6
1968	2,054	1,241	813	60.4	39.6
1969	2,138	1,328	810	62.1	37.9
1970	2,075	1,162	913	56.0	44.0
1971	2,383	1,396	987	58.6	41.4
1972	2,565	1,558	1,007	60.7	39.3
1973	2,840	1,759	1,081	61.9	38.1
1974	3,144	2,000	1,144	63.6	36.4
1975	3,424	2,045	1,379	59.7	40.3
1976	3,503	2,038	1,465	58.2	41.8
1977	3,722	2,096	1,626	56.3	43.7
1978	4,053	2,281	1,772	56.3	43.7
German Democratic Republic:					
1965	1,410	786	624	55.7	44.3
1966	1,479	836	643	56.5	43.5
1967	1,612	881	731	54.7	45.3
1968	2,064	1,011	1,053	49.0	51.0
1969	2,247	1,072	1,175	47.7	52.3
1970	2,493	1,156	1,337	46.4	53.6
1971	2,680	1,218	1,462	45.4	54.6
1972	2,893	1,352	1,541	46.7	53.3
1973	3,261	1,579	1,682	48.4	51.6
1974	3,626	1,764	1,862	48.6	51.4
1975	4,182	2,073	2,109	49.6	50.4
1976	4,478	2,135	2,343	47.7	52.3
1977	4,780	2,259	2,521	47.3	52.7
1978	5,257	2,453	2,804	46.7	53.3
Hungary:					
1965	809	621	188	76.8	23.2
1966	786	628	158	79.9	20.1
1967	781	613	168	78.5	21.5
1968	850	642	208	75.5	24.5
1969	932	691	241	74.1	25.9
1970	1,116	781	335	70.0	30.0
1971	1,161	824	337	71.0	29.0
1972	1,225	920	305	75.1	24.9
1973	1,321	1,016	305	76.9	23.1
1974	1,501	1,127	374	75.1	24.9
1975	1,612	1,162	450	72.1	27.9
1976	1,576	1,145	431	72.7	27.3
1977	1,606	1,119	487	69.7	30.3
1978	1,793	1,184	609	66.0	34.0
Poland:					
1965	2,309	1,514	795	65.6	34.4
1966	2,357	1,447	910	61.4	38.6
1967	2,493	1,529	964	61.3	38.7
1968	2,758	1,626	1,132	59.0	41.0
1969	3,002	1,746	1,256	58.2	41.8
1970	3,213	1,788	1,425	55.6	44.4
1971	3,744	2,282	1,462	61.0	39.0
1972	3,958	2,442	1,516	61.7	38.3
1973	4,595	3,015	1,580	65.6	34.4
1974	5,095	3,370	1,725	66.1	33.9
1975	5,672	3,789	1,883	66.8	33.2
1976	6,446	4,611	1,835	71.5	28.5
1977	6,486	4,376	2,110	67.5	32.5
1978	6,874	4,627	2,247	67.3	32.7

See footnotes at end of table.

TABLE 6.—ESTIMATES OF DEFENSE EXPENDITURES BY MAJOR PURPOSE, EAST EUROPEAN COUNTRIES—
Continued

(In millions of current U.S. dollars)

Country and year	Total	Personnel costs	Nonpersonnel costs ²	Percentage shares of total	
				Personnel costs	Nonpersonnel costs
	(1)	(2)	(3)	(4)	(5)
Romania:					
1965	1,327	1,113	214	83.9	16.1
1966	1,327	1,094	233	82.4	17.6
1967	1,251	997	254	79.7	20.3
1968	1,356	1,044	312	77.0	23.0
1969	1,573	1,218	355	77.4	22.6
1970	1,741	1,321	420	75.9	24.1
1971	1,781	1,269	512	71.3	28.7
1972	2,085	1,550	535	74.3	25.7
1973	2,195	1,641	554	74.8	25.2
1974	2,497	1,844	653	72.0	28.0
1975	2,788	2,008	780	72.0	28.0
1976	3,059	2,135	924	69.8	30.2
1977	3,198	2,239	959	70.0	30.0
1978	3,455	2,346	1,109	67.9	32.1
Eastern Europe:					
1965	8,510	5,920	2,590	69.6	30.4
1966	8,651	5,861	2,790	67.7	32.3
1967	8,983	5,983	3,000	66.6	33.4
1968	10,000	6,374	3,626	63.7	36.3
1969	10,877	6,902	3,975	63.5	36.5
1970	11,745	7,158	4,587	60.9	39.1
1971	12,979	8,023	4,956	61.8	38.2
1972	14,094	8,962	5,132	63.6	36.4
1973	15,778	10,330	5,448	65.5	34.5
1974	17,727	11,668	6,059	65.8	34.2
1975	19,673	12,676	6,997	64.4	35.6
1976	21,227	13,782	7,445	64.9	35.1
1977	22,104	13,890	8,214	62.8	37.2
1978	23,778	14,656	9,122	61.6	38.4

¹ Figures for 1978 are preliminary.² Nonpersonnel costs include research and development costs.

Source: Calculated from "Defense Expenditures in Eastern Europe," op. cit., table 5, revised and updated up to 1978

In our calculations we estimated separately three functional categories of military expenditures: (1) personnel costs, broken into compensation for officers and for enlisted men, separately; (2) costs of operations, maintenance, and procurements; and (3) estimates of military research and development for those countries in which this category was believed to be of some significance (that is, Czechoslovakia, the GDR, and Poland).¹⁵ It is to be noted that military subsistence (cost of food and clothing) is included in compensation of officers and enlisted men in the dollar valuations in table 6.

Specifically, the estimates of different categories of outlays in current U.S. dollars were done as follows: The cost of personnel was obtained by attributing to officers in all East European countries (12 percent of total military personnel) the average yearly compensation in dollars of officers in the United States forces, and by attributing to the enlisted personnel in all East European countries (88 percent of total military personnel) the average yearly compensation (including subsistence) in dollars of enlisted men in the United States forces (table 5). The average annual pay given in table 5, columns 1 and 2, was multiplied by the number of officers and enlisted men for each country and year, respectively. The resulting values in U.S. dollars are shown in table 6, column 2, for officers and enlisted men combined.

¹⁵ Research and development is shown with nonpersonnel costs (operations, maintenance, and procurements) in table 6.

Dollar estimates of outlays on operations, maintenance, and procurements, and research and development (table 6, col. 3) were obtained by converting our estimates in domestic currencies for East European countries (table 3, cols. 5 and 6) by the GNP implicit average exchange rates between the U.S. dollar and domestic currencies given in table 1, column 3, for respective countries and years. These GNP exchange rates were derived by comparing GNP's in domestic currencies with the corresponding dollar values of the GNP's in current prices.

The value of GNP's in constant and current U.S. dollars are given in table 1, columns 1 and 2. It is to be noted that the GNP dollar estimates in table 1 are based on Maurice Ernst's study,¹⁶ updated by Thad P. Alton.¹⁷ The estimates were obtained as follows: First, the GNP at current domestic prices in the various East European countries was converted to Federal German Republic marks by means of estimated purchasing power ratios for individual components of GNP. Second, the values in marks so obtained were then converted into U.S. dollars by means of estimated purchasing power parity equivalents for 1955 prepared by Milton Gilbert and Associates.¹⁸ Third, the 1955 U.S. dollar values were converted to 1978 U.S. dollars by using the implicit GNP price deflator. Fourth, the 1978 U.S. dollar values of East European GNP's for the year were carried forward into the 1965-1978 period by East European GNP quantity indexes, and, fifth, the GNP's in constant U.S. dollars of 1978 were deflated into current dollars by the U.S. GNP price deflator.

It should be also noted that the estimates of military research and development outlays are very rough and were made only for Czechoslovakia, the GDR and Poland, on the basis of very scanty information.

V. CONCLUSIONS AND PROBLEMS

The preliminary findings of defense expenditures of East European countries in national currencies and in U.S. dollars presented in this study are very tentative and very narrowly defined. They are based solely on the officially published budgets of the respective ministries of defense in these countries. No attempt has been made here to measure the defense effort of the East European countries more comprehensively along the lines of the definitions and coverage in usage in Western countries, particularly in the United States. Only a token adjustment in the direction of more comprehensive coverage was made by a small, very roughly estimated allowance from the state budget for science and technology that we assigned to military research and development in Czechoslovakia, the GDR, and Poland. These three countries are known to be developing and producing certain up-to-date armaments for the Warsaw Pact countries. Beyond this small R. & D. allowance, no attempt has been made to include here various military and military-related expenditures known to be financed outside the defense budgets proper, and not identified as part of the defense out-

¹⁶ Maurice Ernst, in U.S. Congress, Joint Economic Committee, *New Directions in the Soviet Economy*, Washington, 1966, pt. IV, app. A, pp. 911-912.

¹⁷ Thad P. Alton, "Production and Resource Allocation in Eastern Europe: Problems and Prospects," in the present *Compendium*, table 11.

¹⁸ Milton Gilbert and Associates, *Comparative National Products and Price Levels*, Paris, OEEC, 1958.

lays in the official statistics of these countries. More specifically, the omitted items of military expenditures financed partly or fully by ministries and agencies other than the ministry of defense in East European countries include:

1. Certain military units, such as border guards, security troops, construction troops, and transport troops, that may be financed partly or fully from the budgets of the ministries of internal affairs, ministries of security, ministries of construction, ministries of transport, or some agency other than the defense ministry.
 2. Paid leaves to reservists while on military exercises, which are as a rule financed by the reservists' civilian employers from their own funds.
 3. Severance pay to conscripts for several weeks at the beginning of their military service, financed by their civilian employers.
 4. Costs of travel of conscripts and reservists to and from the place of military service, exercises or training, which may be borne by the transport ministry or local governments.
 5. Costs of preliminary training, which is heavily stressed in all the East European countries, and may be borne partly or fully by the education ministries or local governments.
 6. Costs of the transportation of troops and military equipment and the cost of communications for armed forces, which may be partly borne or subsidized by the ministries of transport and communications.
 7. All or part of the costs of civilian employees and supporting personnel in the military establishment, which may be financed from the budgets of agencies of the central administration other than the defense ministry proper.
 8. Costs of support to soldiers' families, which may be financed partly or fully from the budgets of the ministries of social welfare or local governments.
 9. Costs of pensions and disability pay for military personnel, which in many instances may be borne partly or fully by the ministries of social welfare, local governments, and former civilian employers of the soldiers, rather than by the defense ministry.
 10. Certain military investment that may be financed partly or fully by the ministry of construction or other economic ministries or industrial associations.
 11. The cost of some of the military armament procurement may be partly or fully absorbed by the appropriate production association or ministry and ultimately settled through transfers at the association level or by subsidies from the non-defense part of the state budget.
 12. Imports of military end items may be financed partly or fully through the ministry of foreign trade price equalization funds or by other channels of financing and not directly from the budget of the ministry of defense.
- There are direct references in official gazettes and collections of laws of East European countries concerning pricing and price regulations that state that purchases of the ministry of defense are not subject to the general price regulations and that the defense ministry can set its procurement prices directly or by a different set of regulations. The implication of this differential pricing procedure is that the prices which the ministry of defense pays may be far below the costs incurred

by the production enterprises. Differences between production costs and the prices paid by the military may be covered by subsidies from non-defense agencies in the state budget or by financial transfers as noted in item 11. The value of production and price subsidies channeled from the state budget to production associations and enterprises is large in East European countries. Such subsidies could cover a substantial part of the cost of military procurement and this would not be shown in the published budget expenditures of defense ministries.

The items indicated above, which are either definitely known to be excluded from the official published defense budgets or which are believed very probably to be so excluded, do not exhaust the possibilities. However, they illustrate a broad range of military-related expenditures that are or may be financed outside of the regular published defense budget. If these expenditures are added together, their sum could be very large. To illustrate the order of magnitude which may be at stake, let us assume that the prices paid by a ministry of defense for all its purchases are about one-third below the cost of production. Since the non-personnel costs and subsistence valued in national currencies account for very large shares (some above 90 percent) of the officially given defense budgets of most East European countries (see table 3), this would require perhaps a 45 percent increase in the present defense budgets to enable the ministries of defense to pay the full cost of their purchases and meet also the present level of military cash pay. It may well be that the ministries of defense purchase many items at even lower prices than our assumed one-third discount.

We are not at present in a position to calculate the order of magnitude of the items enumerated above that should be included in the defense expenditures of the East European countries in order to make their defense outlays comparable with those of Western countries, and the United States, in particular, and we refrain from speculation on the magnitude of such outlays. To provide good estimates of the more important military expenditures not included in the official East European defense budgets would require a substantial and sustained research effort. Such an undertaking would examine in detail the intricacies of fiscal and other financial flows of the economies of Eastern Europe. Eventually it should place the comprehensive military outlays of Eastern Europe in proper perspective.

In the meantime, the present study provides a general picture of the extent, allocation, and trends of defense expenditures in national currencies and in U.S. dollars based on the narrow definition and incomplete coverage of the official defense budgets of the East European countries. This limited approach provides only a sharply circumscribed impression of the military expenditures of these countries.

The military effort of the six East European countries covered in this study is indeed substantial: their number of regular active, well disciplined forces amounts to more than one-half of that of the United States. Even in terms of the narrowly defined official defense budgets, the military expenditures of the six East European countries as a group amount to about one-fifth of the total defense outlays of the United States in terms of U.S. dollars.

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EAST EUROPE AND THE WORLD ECONOMY

By William Diebold, Jr.*

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SUMMARY

Though the countries of Eastern Europe are far from homogeneous, they share a higher degree of involvement in the world economy than the U.S.S.R. They are all more exposed to movements in international trade and finance than their larger ally but partly sheltered (compared to their western counterparts) by cooperation within the Council of Mutual Economic Assistance. Taking as its starting place some views of the changing character of the world economy, the paper examines the possible ways in which the smaller eastern countries may be affected by the attack on non-tariff barriers resulting from the Tokyo Round, proposed new arrangements about food, energy and raw materials, and alternative developments as to GATT. The future of East-West industrial cooperation is considered in the light of potential developments in the treatment of international direct investment. In finance, the link between these countries and the world economy is not provided by the International Monetary Fund (as GATT does in trade) but by their credit relations with the West, the future of which is seen as continuing but as subject to some new strains. CMEA is evaluated in terms of how it bears on the freedom of action of the members in dealing with the rest of the world, the limited advantages it gives in creating a large single market, the changing position of the U.S.S.R. as a supplier of food and energy and its possible future as a unit in the world economy. The nature of the East European countries' interests in North-South economic relations is briefly portrayed. The most decisive element in shaping the future is seen in the direction taken by the leading trading countries during a period of slow growth and other difficulties in the years ahead. The possibilities range from much improved cooperation to the collapse of past arrangements and a period of sharp rivalry and nationalism leading to bilateralism. In each case the Eastern countries are likely to be significantly affected though they will not have much influence on the basic determinants of what happens.

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It is the constellation of world power, not economic similarities that causes us to treat as a group Poland, the German Democratic Republic, Czechoslovakia, Hungary, Romania and Bulgaria. Indeed, it is difficult to find very many meaningful economic propositions that apply equally to all those countries and only slightly less difficult intellectually—and more awkward stylistically—to put each economic proposition through the permutations and combinations needed to make it apply precisely to every one of them. The writing of a paper about the group as a whole is helped by the fact that other papers in this volume deal in great detail with individual countries, national differences and international comparisons. In any case, it is not altogether misleading to try to say something sensible about the group as a whole in relation to the changing world economy. There are, after all, certain rather important similarities among these countries. Some concern their relations with the Soviet Union and with one another through the Council of Mutual Economic Assistance (CMEA). Some of the things they have in common are factors that differentiate them from the Soviet Union. In an oxymoronic way one can also say that these countries have in common quite a few differences among themselves—systemic, structural and in terms of traditional views of national interests.

Size is one of the factors that differentiates these countries from the Soviet Union. They have a lower level of economic self sufficiency and a much larger volume of foreign trade in relation to domestic production and consumption than their large ally. This common characteristic of the differences between large and small countries has special importance for centrally planned economies which have difficulty in taking full advantage of foreign trade. The countries we are concerned with partially cope with these difficulties by the sort of planned trade that takes place within CMEA—a matter to which we shall have to return. Nevertheless, trade outside CMEA is of considerable importance to the small socialist countries and how it develops has a great influence on their economic well being. Even when the share of their trade outside CMEA is about the same as that of the Soviet Union the effect on them of this exposure—if one may use that term—is much greater. The same is equally true, naturally, of financial relations with the west. Consequently, the way the international economy develops—rates of growth and inflation, stability or instability, removal or imposition of national barriers to international transactions, greater cooperation or greater friction—affects most of the links between these countries and the rest of the world that are the subject of this article.

At the same time, the small countries have only a limited influence on the course of those events. That is true of most countries, even big ones, but it is, for instance, truer of the Eastern European countries than of Western European countries or Japan which have comparable degrees of dependence on international trade but are richer and have larger economies. It is truer of countries that, for the most part, have to import fuel, food and raw materials than of countries that export those products. While the Soviet Union, too, is not a major shaper of the world economy, it is not as dependent or exposed as its smaller allies to the international economy. It is also a great power and the others are not.

That is not the sort of statement that usually appears in economic analyses but it is highly relevant to the subject of this paper. To start with, east-west economic relations are more heavily politicized than almost any other segment of world trade and payments. It is also true that the relation of their large partner and ally to the rest of the world inevitably puts on the smaller countries certain constraints in their own behavior and affects how other countries treat them. They are, however, free of some of the constraints that affect the economic behavior of the Soviet Union (or for that matter any other great power). Perhaps the simplest example of what this can mean is to think in terms of membership in international economic organizations. One can hardly imagine the U.S.S.R. joining either an existing or new organization except on terms very similar to those which would apply to the United States, the European Community or Japan, whether measured in voting power, subscription or status. Equally, one can hardly imagine Poland, Hungary, Czechoslovakia or the others expecting to be treated differently from a substantial number of other small or moderate-sized countries for whom international economic activities were greatly important but who could never expect to be given special status much less veto power of one form or another. Nor would western countries have the same sort of worry about the effects on an international economic organization of including the smaller socialist countries which must arise when Soviet membership is in question. Even when the issue is not one of joining organizations but of cooperating in other forms or simply negotiating, similar differences distinguish the great power of the CMEA world from the smaller ones. Whether CMEA itself might become a unit in the international economy is the subject of a later section.

History as well as power is another factor differentiating the smaller countries from the U.S.S.R.—and from one another. The Bolshevik Revolution took place in 1917 but it was not until after the Second World War—more than a generation later—that the smaller countries came under the aegis of their local versions of the Communist Party and became closely affiliated and eventually allied with the U.S.S.R. This difference of more than a generation no doubt means many different things, but it certainly means that the relative newness of the centrally planned system in the smaller countries creates problems and possibilities that are different from those to be found in the U.S.S.R. A longer period of history is also relevant since a good part of the territory occupied by the six countries we are considering was thought of as being oriented to Western Europe to a degree that was rarely, if ever, true of Russia. Even when this was not altogether so—in some of the Danube and Balkan countries, for instance—the smaller countries had a different experience from that of Tsarist Russia, at home and in relation to the rest of the world as well. Economic and social structures naturally differed and consequently both the problems and the resources for establishing the new centrally planned socialist systems. There are also differences dating from the diverse experiences of the East European countries in the Second World War and the years right after it. (Poland and Czechoslovakia were members of the Fund and Bank for a time; Czechoslovakia but none of the others was a founding member of GATT; the status of the German Democratic

Republic was in doubt for some time and it was the last of the group to become a member of the United Nations and its affiliated bodies).

There is no room in this paper to review historical developments or to trace in detail the differences in the way the Eastern European countries conduct their economies. It is difficult to speak of the relation to the world economy of a group of national economies that can no longer be said to conform to a simple model of central planning and execution coupled with a complete state monopoly over foreign trade. Those elements exist but they look very different in, for example, Poland, Hungary, Romania and the German Democratic Republic. Equally important, for our purposes, are the differences in structure and resources among these countries. On all these matters the reader must rely on other papers in this volume. Here significant differences will be referred to from time to time but the main effort must be to see what can be said about the group as a whole. If that is worth attempting, it is for three reasons: (1) Traditional explanations of the gap between socialist economies and the largely market-oriented mixed economies of the rest of the world are no longer adequate; (2) the experiences of the Eastern European countries have opened a number of new kinds of relations with the rest of the world the potentials of which have not been adequately analyzed; and (3) it is not at all clear how the world economy is likely to move in the next decade, or what the state of international economic cooperation will be, and the effects on the smaller East European countries could differ widely.

The perspective of this paper, in contrast to most of the others in this volume, is primarily that of the world economy; it asks how changing circumstances may affect the way the East European countries relate to the rest of the world. The author writes not as an expert on the socialist economies but as an observer of the changing international economy who has made some effort to understand the relations of the Soviet Union and its allies to it.¹ Inevitably, many issues have to be brought into the survey even though they cannot be adequately dealt with; some are analyzed in depth elsewhere in this volume. The paper points to possibilities rather than arguing a case or arriving at conclusions about them.

A VARIETY OF TRADE RELATIONS

Instead of trying to construct a full taxonomy of the significant differences among the foreign trading arrangements of the Eastern European countries one can look at the relation of several of them to GATT which illustrates some major points. Even the chronology of that subject is of some help.

Czechoslovakia was a founding member of GATT and so is entitled to the same rights as all other members. Only the United States (in

¹ Most of the work on which this paper is based has been done over a period of years in the preparation of a book for the Council on Foreign Relations on American economic policy toward the Soviet Union and Eastern Europe which will be published in 1981 by the New York University Press. A different treatment of some of these issues appears in "East European Countries in the World Economy," *The Soviet Union and East-West Relations* by Lawrence Caldwell and William Diebold, Jr. New York: McGraw-Hill for the Council on Foreign Relations (1980). I have also had the opportunity to discuss the issues taken up here with scholars, businessmen and officials in a number of countries. My indebtedness, especially to the people in Eastern Europe, is too great to be detailed here. A companion piece to this paper, "The Soviet Union in the World Economy," appeared in the JEC Compendium of 1979, *Soviet Economy in a Time of Change*, pp. 51-70. This paper was completed in February 1980.

1951) asked for and received a waiver of the obligation to treat Czechoslovakia equally. However, it is generally believed that many other countries, notably those of Western Europe, treat Czechoslovakia just as they do most other East European countries. That means that they provide formal most favored nation treatment on a wide variety of matters but in fact control imports from Czechoslovakia by various devices which could well be challenged as violations of GATT. If that challenge is not made it is presumably because the government of Czechoslovakia believes that it would not be likely to improve its trading position by such a course. It might well be—to stick only to GATT issues—that the Western European countries could make a valid claim that the introduction of state trading in Czechoslovakia after it became a member of GATT had the effect of nullifying or impairing the original tariff concessions.

A long time passed before any of the other Eastern Europe countries sought to enter GATT. Then in 1967 Poland was the first to join under a special protocol calling for annual percentage increases in its imports from the other GATT members as a group. This kind of purchase commitment as a substitute for the play of market forces that is assumed to work out when tariffs are reduced in a largely market oriented economy is an old stand-by dating back to the '30s. It provides only a very limited kind of bridge between two systems and has deficiencies when viewed from either side. The protocol calls for other countries to remove quantitative import controls on Polish goods but this has not been done by all countries in a manner satisfactory to the Polish government (or various observers).

In 1971 Romania, too, entered with a purchase commitment but this took a somewhat more sophisticated form. Not an annual increase but an assurance that the GATT members' share of planned Romanian imports would not fall was the key.

Hungary broke new ground by insisting that its new tariff plus the internal changes referred to as the New Economic Mechanism (NEM) made tariff concessions meaningful so that Hungary could enter GATT as a full member through the normal process of negotiating tariff bargains with other members. While this procedure was followed when Hungary became a member in 1973, the protocol for Hungarian accession permitted others to ask questions if the assumptions were not thought to be fully validated by later events. Invoking these with regard to Hungarian exports rather than imports, the European Community has retained some quantitative controls that the Hungarian government regards as illegal.

Bulgaria took part in the Tokyo Round of multilateral tariff negotiations (MTN) and appears to be moving toward GATT membership. That leaves the German Democratic Republic and the Soviet Union as the only two European CMEA countries that are outside the most comprehensive set of trading arrangements we have. But, as the summary has shown, being inside is not the same thing for a centrally planned economy as for others—or even the same for all such countries.²

² There is also no point-by-point correlation between GATT membership and the treatment of eastern European countries by the United States since the GATT formula calls for the completion of satisfactory negotiations with members and, for the United States, these are governed by American laws bearing, notably, on the conditions applying to most-favored-nation treatment.

This is not the place to try to strike a balance among these different types of agreements or to go further into the controversies that have surrounded the interpretation of their provisions and especially their effects. Perhaps enough has been said to make clear three points. First, although a purchase arrangement of some sort is a feasible quid pro quo for tariff concessions by countries with market economies, it falls short of being a true equivalent. Second, it is possible to organize the economy of a socialist country so that a strong case can be made for the use of traditional reciprocal tariff reducing measures. However, this conclusion is subject to some qualifications. The case is not altogether accepted by all students and observers and only the passage of time will permit a clearer judgment on the matter than is now possible. Moreover, it is far from clear whether all state trading or centrally planned economies are in fact capable of producing a system comparable to that of Hungary. And even if they were, there would remain the question whether they would want to do so. Therefore, the third conclusion is that the problem of how to relate the smaller socialist countries to a world trading system based largely on market principles has not been completely solved.

Even within the GATT framework there are more questions than the quid pro quo for tariff concessions or most-favored-nation treatment. The state trading provisions of the agreement were envisaged from the very beginning as part of the process of bridging the difference between economic systems, but very little has been done with them. This is partly because of difficulty in seeing just how they can be made effective and partly because of the late start in bringing east-west trading questions into GATT. The most important question about the state trading rules, it could be argued, is whether they can be applied to state trading in mixed economies or whether some other approach will be devised to deal with what appears to be a growing problem. Even if there is progress along these lines, it will not necessarily help very much in dealing with east-west trade.

There is another whole set of problems concerning the place of non-tariff barriers and trade distorting practices in east-west trade. Here the territory is partly old and partly new. The old largely concerns the well known problems of applying such concepts as export subsidies and dumping to state trading countries; the new concerns efforts to deal more effectively with these matters than they have been dealt with in the past that is reflected in the new GATT codes negotiated in the MTN; there are also a number of issues that are both old and new in the sense that they concern the use either unilaterally or with some multilateral sanction of various kinds of safeguards by importing countries against what is thought to be disruptive or unfair competition.

The dumping and subsidy issues as they bear on countries with centrally directed economies and prices that have little or nothing to do with either real costs or the true foreign exchange value of the currency are well known. Nothing has happened to overcome the intellectual obstacles to making a reasonable link between such arrangements and the essentially market concepts of unfair competition embodied in GATT rules or national legislation about dumping and subsidies. Most Western countries use their own price level or some more or less arbitrary standard to trigger the antidumping or countervailing

measures. They may thereby deprive themselves of the advantage of cheap imports (from what may be truly more efficient foreign suppliers) but the arrangements are workable just as others are which make the quantity or price of imports the standard of market disruption. For their part the eastern countries have as a rule been willing to abide by understandings to keep up their prices thus getting as much foreign exchange as they could for a given volume of exports and avoiding the risk of being penalized by sharper import restrictions. However, they have not always been happy with their treatment in this respect and sometimes western producers have felt themselves damaged. There have also undoubtedly been cases in which the very low prices at which goods changed hands were concealed by the western importer taking an exceptionally large markup to sell at the domestic price level. Arrangements of this sort are not very satisfactory from many points of view but they can hardly be seen as a major obstacle to the increased participation of the smaller eastern countries in the world economy unless western protectionism uses them for that purpose.

To prevent such abuse, the eastern countries have an interest in the GATT codes on dumping and subsidies which establish standards and procedures. The subsidy code is of special interest because, apart from banning fairly clear export subsidies, it emphasizes effect not form. The general principle of the code is that a subsidy is not offensive unless it hurts people in another country and then, no matter how lofty its purpose or how common its use, account has to be taken of the damage it does to foreigners. No one can be sure how these new arrangements will work out or what body of case law or common principles may be built up over time but it is clear that the door has been opened to new kinds of international economic negotiation in which all sorts of activities traditionally regarded as domestic will have to be exposed to analysis and defense before international tribunals of one sort or another. Can socialist countries engage happily and effectively in this kind of process? Even if publicity is not by itself a barrier to effective participation, the question of determining what measures may or may not distort competition can hardly be a simple matter in economies that depart so much from the market model out of which the ideas grew. However, the emphasis on judgment according to results and the requirement that damage must be shown before imports can be penalized might provide a pathway to reconciliation. Would the results be very different, though, from present arrangements? As parties to the subsidy codes, socialist countries might also find themselves challenged on the ground that certain of their domestic arrangements were narrowing (or obliterating) the market for imports of western goods and could be viewed as damaging subsidies. But if they do not adhere to the codes, the socialist countries run the risk of being discriminated against in the application of antidumping and countervailing duties and of having no appeal except to the offending government itself.

With regard to other codes the situation is somewhat different. That concerning standards ought not, in principle, pose problems for a government with one system rather than another and might help overcome prejudices against the quality of eastern goods. While the term "government procurement" may take on a special meaning in a socialist economy, the fact that the code on this subject is selective for capitalist

countries as well, applying only to agreed governmental entities and some kinds of goods, makes it conceivable that bargains could be struck that would give the socialist countries a chance to bid on some contracts in the west in return for purchasing certain amounts of their government supplies in the west (as they already do).

A little imagination opens other possibilities. Nevertheless, it is undoubtedly true that soon after acceptable—if not wholly satisfactory—ways have been found of fitting the smaller socialist countries into the traditional GATT framework with its emphasis on tariffs, quantitative restrictions and most-favored-nation treatment, the gravamen has shifted to what can be done about nontariff barriers and trade distorting practices, often on a less than universal basis (the codes apply only to those who accept them). Consequently new problems are posed and new experiments will be needed to see how serious the problems may be of fitting the Eastern European countries into the new arrangements—and what benefits they may see in taking part in them. For that matter, it is far from clear what these new efforts will amount to so far as trade among market economies is concerned; their failure would be a most serious setback in the cooperation on trade liberalization that has been a central feature of the last 30-odd years.

There is, however, much more to world trade—and the place of the smaller socialist countries in it—than what GATT takes adequate account of. Most farm products, though nominally covered by GATT rules, have for long been in a special status which in only a few cases approximates that of trade in manufactured goods. Though the problem is an old and well recognized one (good discussions of it go back to the late '40s), neither the Kennedy nor the Tokyo Rounds made a major contribution to solving it. Not the trade barriers at the frontier but the policies behind them that make restrictions on imports and subsidies on exports logical are what governments must negotiate about if they wish to develop a serious basis for international cooperation in this field. Failing that, the best they can do is to come to some understanding about how the flow of international trade will be shaped in quantities and price. And they can agree to consult when anyone has a problem that is becoming very severe. That is what the Tokyo Round results amount to, in a very limited way and concerning dairy products and meat more than anything else. These are products of considerable interest to Hungary and Poland in their trade with the west and they have suffered from import barriers some permanent and some thrown up according to the current state of the market. There should be no systemic problems involved in fitting into western arrangements but to find satisfactory bargaining power may prove to be something else again.

Also outside the realm of the kind of trade liberalization applied to manufactured goods is much of the world's trade in fuels and other raw materials. Except for duty rates and occasional quota actions on minerals, fibers and inedible oils, the GATT approaches are not central to this share of world trade either. Supply contracts, longrun commitments and buying and selling homogeneous products in spot markets are matters which the state trading countries can handle on very much the same basis as large trading entities in the market-oriented economies, whether these are public or private. To the extent that there are

agreements about stockpiles, the stabilization of the market, price ranges within which trade is to take place and other matters of the sort that sometimes exist and are more often proposed in these fields, there is no clear obstacle to full participation by the Eastern European countries. The questions from their point of view are more likely to concern the inevitable limitations on the bargaining power of small countries, whether they are sellers or buyers, whether they are better off inside a multilateral agreement or making their own more or less bilateral or ad hoc arrangements and, above all, how their obligations and possibilities in dealing with the rest of the world should be related to the pattern of their transactions within CMEA where the position of the Soviet Union as a key factor in world trade in food, fuel and perhaps other raw materials has undergone a good bit of change.

Still another segment of international trade presents few if any systemic problems. It is a rather miscellaneous segment so far as products are concerned but is marked by a much more general use of controls of various sorts than is common in the rest of international trade. Some of these controls are more or less matters of international agreement, but usually with a strong position for major importers who wish to curtail competition and "assent" extorted from exporting countries by fear of worse unilateral action by the importers. Textiles, starting with cotton goods in the '60s and expanding to manmade fibers and woollens in the '70s, stand out as having the most elaborate set of restrictions with the most formal and general international sanctions (the agreements being attached to GATT). Several of the East European countries already take part in these arrangements. A number of different products are covered by the various kinds of importer-exporter understandings that take the form of Orderly Marketing Agreements (in American law) or negotiated understandings between governments or producers in the kinds of restraints applied to Japanese sales of automobiles and other products in Western European markets. Steel provides still another case in which the restrictive measures taken by the United States and the European Community in their efforts to meet adjustment problems are undertaken in the knowledge of what the other is doing but without formal commitments, and yet some degree of coordination. Each has also made arrangements with Japan and coped with shipments from smaller exporters.

Under all these devices either the amount of trade is controlled or the prices at which goods move or both. When such limits are put on competition there are no difficulties in fitting in trade by centrally controlled economies. In short, if the trend proves to be more "managed trade," the old problems of bridging systemic differences will give way to those of discovering what constitutes a good bargaining position for getting a fair (or favorable) share of such trade and how countries are to avoid doing themselves economic damage by letting crude mercantilism dominate their policies.³

There is, finally, another category of international trade that cuts across some of those already mentioned. It is sometimes fully subject

³ A related problem arises from the use of import controls under GATT or national "safeguard" rules to prevent "market disruption." The failure of the main trading countries to agree in the Tokyo Round on an improved system of international surveillance of the use of these measures is ominous. The Eastern European countries are likely to be victims of national measures of this sort, at least from time to time.

to the kinds of rules and practices with which GATT is concerned and sometimes not, but even when it is, it has some characteristics of its own that are of special interest to the Eastern European economies. This is the exchange of goods between affiliated entities in different countries, or—more loosely—intra-firm trade. Outside the socialist world these firms are often thought of as multinationals exchanging goods within their own structure to take advantage of local situations or their global strategies. Although several of the East European countries permit actual foreign investment, this is not a necessary condition for east-west trade to take on the character of intra-firm trade. The links of many sorts grouped under the name of “industrial cooperation” often involve the western partner in acquiring eastern goods for his own use in the west or for sale to others. This may be the way the westerner is paid for the equipment, technology, capital, or management he has supplied. He may want the products because there is a good market for them in the west, as is often the case with raw materials. Or he may want the products as supplies for future processing in his own plants in the west, or as components or to fill out a line of goods.

In any of these activities (though least in barter-like arrangements) he acts very much as if he were a multinational moving goods from one place to another. In doing so he may help enormously in bridging the trading gap between the two systems and in reducing the significance of restrictions that would apply if two truly independent parties on either side of the border were exchanging goods. At the same time, he provides a form of assistance which most Eastern countries feel they need in helping to develop effective marketing in the West. Naturally, all these services command a price which is reflected in the real cost to the Eastern country and is higher when the western partner is paid in goods when he would rather have money. Nevertheless, industrial cooperation arrangements are well thought of in the east as vehicles for the import of technology (and by some people for the help they provide in removing obstacles to efficiency).

For present purposes what needs to be underlined is the importance of this particular kind of trade and the “industrial cooperation” underlying it not only in bridging the trade gap but in integrating the economies of the Eastern European countries into the world system. Several of the smaller countries have proven themselves considerably more flexible than the Soviet Union in finding forms of industrial cooperation that permit western corporations to function quite effectively. Others seem to have more difficulty. All are to a degree limited by their relatively small domestic markets. While a certain access to the whole CMEA market exists in principle, the arrangements for taking advantage of it in practice are awkward and not at all like the access an investor gains to the Common Market simply by locating in any member country. Nevertheless, the growth of trade linked with industrial cooperation remains one of the developments likely to do most to tie the smaller Eastern European countries into the world market.

The growth of industrial cooperation in the future will be determined in part by the way the factors mentioned in the last few paragraphs balance out from the point of view of either eastern officials or

western businessmen. Another factor will be the alternative opportunities that businessmen have in other parts of the world either for comparable measures of industrial cooperation or conventional direct investment. How the general state of the world economy may affect these calculations is a matter left for later but the character of this paper requires some comment on how east-west industrial cooperation might be affected by intergovernmental arrangements concerning private investment in market-oriented industrial or developing countries.

It is unlikely that we shall soon see any comprehensive understandings about direct investment comparable to those which the world has long had in trade. It is, however, hard to believe that nothing will result from the play of forces that includes: The concern of labor and some other groups that when businessmen invest abroad they export jobs and slow down investment at home; governmental measures that on the one hand solicit foreign investment and on the other set up checks against undue foreign dominance of their economies; the competition of national governments (and within nations, provinces and localities) to attract foreign investors by tax concessions and other forms of subsidy; governmental pressures on firms to export as a condition of investing; the drafting of codes for the conduct of multinationals; and any number of international disputes about taxes, finance, discrimination and legal jurisdiction. As national measures conflict, governments will be pushed toward agreements about the conditions of investment and the acceptable ways of regulating it.

The results may be bilateral or multilateral agreements and may cover only a few issues or many.

The smaller socialist countries may not be parties to such agreements; they can make their own choices about what foreign companies can become partners in industrial cooperation and on what terms. But those among them that permit true foreign investment may wish to have a part in international agreements (as is suggested by the investment treaty between Romania and the Federal Republic of Germany). Moreover, even agreements that do not formally apply can have an effect on east-west industrial cooperation. For example, if standards are set for governmental measures to encourage foreign investment that are then reflected in the price or quantity of exports, there might well be efforts to insure that exports from ventures in industrial cooperation with centrally planned economies conform to more or less the same standards, even if the method of doing that were as arbitrary as, for example, the application of antidumping procedures. If a government took measures to assure itself that foreign investments by its domestic firms did not displace exports or jobs, it would be illogical to exempt ventures in industrial cooperation because they were not technically "investment." That would be equally true of restraints put on investment to deter the transfer of technology abroad (for commercial as well as political or strategic reasons). Another possibility is that a western country will single out foreign-government-owned corporations for special attention when they appear as investors in its territory. Naturally, such an approach would logically apply to the enterprises of socialist countries (and perhaps to some forms of industrial cooperation that were thought of as joint venture). The growth of

eastern investment in western countries is sufficiently marked—in distribution and servicing, manufacturing and mining, for instance—that it may well become the subject of east-west negotiations but whether that happens or not, east-west industrial cooperation seems likely to be influenced by measures that have their primary reason for being in relations among the capitalist or mixed economy countries.

Similarly, the smaller socialist countries may be significantly affected by the future development of trade cooperation that nominally has nothing at all to do with east-west relations. Apart from what was said above about the MTN codes⁴ there is the question of the future of GATT. One view is that the main capitalist trading nations who have led in trade liberalization should carry the process to a new stage by accepting even tighter rules for trade among themselves without trying to apply these higher standards to the rest of the world.⁵ A different approach would emphasize the desirability of dealing with the wide range of trade issues not effectively covered by existing GATT rules and procedures. According to this view, commodity agreements, for example, or understandings about agriculture, should be the subject of new agreements among those countries interested in the matter without necessarily involving all the members of GATT. On many different kinds of issues codes similar to those already negotiated in the MTN could be worked out; in fact, the new codes themselves could be seen as forerunners of this approach as they only apply to the countries signing them. Some method would have to be found to be sure these agreements did not damage the interests of third parties. Most people who support this approach would say that the agreement should be open to others to join on equal terms. Another safeguard would be an "umbrella" of general principles with, possibly, a central secretariat and dispute-settlements procedures. Some people think these arrangements should supersede parts of GATT; others would tighten GATT but treat it as one agreement existing alongside the other new agreements.⁶

These two alternatives would affect the western trading relations of the eastern countries quite differently. The former—tighter GATT rules for a small group—would sharpen the difference between east-west trade and west-west trade. It would not necessarily add to the impediments to east-west trade but there would be a step away from the processes described earlier that open possibilities for a certain, though limited, degree of integration of the eastern economies into the broader international economic system. Whether the western countries would treat relations with the east in some uniform manner either by a general east-west arrangement or by individually applying a more or less uniform set of rules to centrally planned economies is not preordained in this approach.

⁴ Which may affect investment; for example, subsidies to trade may take the form of inducements to investors; nationality of firms has to be defined for government procurement.

⁵ *GATT Plus-A Proposal for Trade Reforms*, New York: Praeger Publishers for the Atlantic Council of the United States, 1975.

⁶ The general approach is set out in *The American Society of International Law, Making the System of World Trade: A Proposal for Institutional Reform*, West Publishing Company, 1976. A more fully elaborated (and somewhat different) version appears in Miriam Camps, *The Case for a New Global Trade Organization*, a Council on Foreign Relations mimeograph paper, 1980; this is a chapter from a forthcoming book by Mrs. Camps and Catherine Gwin, *Collective Management: The Reform of Global Economic Organizations*, McGraw-Hill for the 1980's Project of the Council on Foreign Relations (forthcoming 1981).

The other approach, allowing for the multiplication of arrangements, is also ambiguous on this score. Under the general umbrella there could be an agreement, or organization, devoted to east-west trade issues; that would have the advantage of permitting the working out of practices especially suited to the special characteristics of this trade, whether they differed much from those applying to trade among the market countries or not. However, one could also imagine that under the "umbrella"—which would state some basic principles reflecting common interests in trade cooperation regardless of economic system—individual socialist countries would adhere to the various arrangements that were being worked out according to their degree of interest in each. For example, Hungary could belong to tariff agreements even though the German Democratic Republic did not, but both might be parties to a set of rules about commodity agreements or arrangements concerning food and energy. The advantage of this approach is that it would take full account of the differences among the smaller socialist countries and not force a common mold on what are already somewhat different entities. To a degree one can imagine a combination of these last two approaches. But the terrain becomes more speculative than even this rather speculative essay warrants, especially as the basic course—more or less GATT, more or fewer other formal arrangements—will almost surely be determined mainly by other matters than the needs of east-west trade.

Trade issues have occupied a rather large part of this paper, partly because they are intrinsically important but also because they rather conveniently raise a number of issues that apply to other sets of economic relations as well. It would be misleading to try to summarize this section in a few words but a few propositions could be derived from the discussion. (1) Systemic differences continue to present obstacles to the full integration of state trading countries into the cooperative world trading system that has evolved primarily in relations among the market-oriented countries and that is embodied primarily in GATT. (2) However, these differences have been somewhat mitigated by developments at both ends. Within the system itself, there are some possibilities of fitting in eastern trading arrangements better than before. In some of the socialist countries the national economic systems have developed in ways that make it possible for those countries to deal with the west quite differently from others. (3) There are other areas of trade, not well handled in the GATT system, within which cooperation takes forms that do not impose major impediments to including eastern and western countries in general arrangements on more or less the same terms. (4) Most of the smaller countries have shown a good bit of interest in fuller participation in the international economy and its cooperative arrangements. When that was worked out, for example in GATT, their participation has not impaired the process.⁷

MONEY AND FINANCE

Whereas GATT provided a handy viewing glass to put in focus the relation of the smaller eastern countries to the world trading system, the International Monetary Fund does not serve the same function

⁷ The contrast with the U.S.S.R. on most of these issues is fairly marked. For a closer comparison see my paper, cited from last year's volume, p. 61 where the second full paragraph attempts a summary similar to this one.

in relation to monetary and financial issues. The reason is obvious: Of the countries we are concerned with, only Romania is a member. What its few years in that status have shown about how nearly comparable its membership is with that of other countries and what that experience may suggest about the difficulties of fitting centrally planned countries into the Fund is a complex, delicate matter about which I know too little to judge.⁸ The related but quite different cases of Vietnam and the People's Republic of China raise other questions that cannot be taken up here.

What does need to be noted, however, is that whatever the Romanian experience does or does not prove, or proves in the future, about systemic problems, these are clearly not the sole obstacle to the other socialist countries' membership in the Fund. It is not hard to see the potential advantages to these countries of membership in the Fund and Bank. In the past a significant body of opinion in Poland and Hungary, at least, has favored such a course. It would appear that Soviet opposition was the major factor keeping them out. (Not that there were not costs and disadvantages of membership that probably led some Poles and Hungarians to oppose joining). This impediment may not be permanent. That depends partly on what underlays the Soviet position: weighted voting (absent in GATT) and the heavy influence of the U.S. and Western Europe (not so absent from GATT); the need to supply information; obligations that would have put the countries under pressure to permit surveillance of their economic performance and the suspicion that this would influence what they did; a shift in emphasis away from the CMEA links; pressure for convertibility. The weight Moscow (or each eastern country itself) gives each of these factors may change over time. So may estimates of the trade-off between these factors and the ability of the U.S.S.R. or CMEA or the individual countries themselves to cope with exchange and balance of payments problems outside the Fund and Bank as well as they could inside.

Being outside the Fund and Bank does not mean that the smaller eastern countries are cut off from the international monetary and credit system. Instead, their involvement in it has increased greatly along with the increase of their trade with the west. But more than just expansion is involved. In an earlier period, east-west trade was financed largely by bilateral payments agreements of various sorts which provided the eastern partner with western credit in return for buying from the creditor. Subsequently, clearing agreements and other rather narrow arrangements gave way to more flexible practices as eastern countries became freer to use the convertible western currencies they obtained by exporting. Credits from western governments remain important as do their guarantees of private export financing. For the German Democratic Republic a very large "swing credit" from the Federal Republic—that mostly swings in one direction—is a major nexus with the west, but a special one. For the other countries, flexibility has been further enhanced by a combination of commercial credit and longer term borrowing in western capital markets,

⁸ In contrast, there are no special difficulties in seeing what it means to Romania to belong to the World Bank. Were joint membership not required, other eastern countries might well have applied to join the Bank long ago.

especially the Eurocurrency markets. These developments have a number of advantages for the eastern countries, but the point of importance here is that these activities have linked those countries with the international financial system far more fully than earlier arrangements did.

Debt is inherent in such a set of relations. The persistent one-sidedness of the balance is a natural reflection of the wish of the eastern countries to acquire technology, equipment and other supplies faster than their exports can penetrate western markets. When in the 1970's that imbalance became, for several of the countries, large enough so that they, or their creditors, began to worry, that was partly a reflection of a further shift in this relative pace as demand fell faster in the west than in the east while the interest of western entrepreneurs in exporting and lending also increased. In dealing with these problems the eastern countries have some advantage over other debtors in the great control they have over their economies. To some degree these benefit indirectly from the reputation the U.S.S.R. has gained of always being good for its debts (though how far Moscow would go to save one of its smaller allies from defaulting is a different question). While the debt problems of Poland, at least, are not fully solved at this writing, there seems little doubt that the credit nexus will continue to be an important link between the smaller socialist countries and the rest of the world economy. There are, however, two possible modifications of past trends that have to be taken into account. One is decentralization of decisionmaking about foreign trade which may reduce the ability of some socialist countries to deal easily with their balance of payments problems, forcing them to choose between subordinating the decisions to some form of central exchange control and greater reliance on credit control or other methods of holding down the demand for foreign products than has been common in the socialist countries. The other is the revived emphasis of recent years on compensation agreements in which imported western capital goods and technology are to be paid for later on by the output of the plants they equip. This is a step away from the financial flexibility that had developed before the new tightness of the '70s and back toward partial bilateralism.

Convertibility of their currencies would represent a major step toward the fuller integration of the eastern countries into the world economy. It is not, however, a condition likely to be achieved for some time, as it would entail considerable changes in planning (where the planning system is still strong) and in the way prices are set in the socialist countries. The subject is by now a familiar one that does not need to be rehearsed here except to ask whether the convertibility of an individual eastern currency is possible by itself. It is easier to see the case for a negative than a positive answer. It rests heavily on the importance of CMEA trade to each of the countries, the difficulty of making the transferable ruble convertible if the Soviet ruble is not, the divorce between domestic and world prices in CMEA countries and the lack of a consistent relation among their national price structures. Although the suggestion that a positive answer is possible is frequently made, especially with regard to the Hungarian forint, the demonstrations are not too persuasive unless a very limited kind of convertibility is intended. In that case the effect of such a step

on the integration of the country in question in the world economy would naturally be limited as well.

In recent years another obstacle to convertibility has appeared. Instability of western currencies, thanks to inflation—and especially differential rates of inflation—balance of payments pressures, speculation, uncertainty and floating exchange rates has made world money markets chancy and, to those who like predictability, unattractive. Some people in the east have understandably had second thoughts as to whether convertibility would be as much of a blessing as they had long thought. However, they have also found that inconvertibility and domestic controls have not sufficed to shield them from the disturbances in the world economy. The contraction of western markets, the rise in prices of western goods generally and of oil, food and some raw materials in particular, the resulting balance of payments pressures and the push on domestic prices (increasing the subsidies needed to hold them down) have all had marked effects, as is shown elsewhere in this volume. It could be argued that the presence of those other transmission belts should weaken objections to convertibility based on the fear that it might magnify the effect of external instability on domestic economies designed for reasonable stability. How persuasive that argument may be is hard for an outsider to say. One could go further and argue that some of the global instabilities could be seen as increasing the interest of eastern sellers in obtaining hard currency for exports within CMEA whenever possible. This plus the speeding up of the adjustment of intra-CMEA trade prices to world prices (undertaken some years ago) could be seen as adding to the circumstances which reduce the divisions between CMEA and the rest of the world. This does not by itself begin to approach the conditions of convertibility for the eastern currencies, but it might be thought to narrow some of the gaps. Conclusions on that matter must remain debatable until facts prove them otherwise but the debate is related to how one judges the significance of CMEA to the eastern countries.

CMEA

When a number of countries group together and make special arrangements for their mutual economic relations—or some aspects of them—a two-sided process begins. On the one hand, they begin to draw together in at least some matters; in contemporary parlance it is common to speak of this as some form of “integration” though it is sometimes very limited. On the other hand, a differentiation begins between each country’s relation to the others in the group and to the rest of the world. There may be a simple and clear cut discrimination in the treatment of trade or payments as in a customs union or a currency area or there may be more complex relations as in a free trade area where each member is free to work out its own external relations. A key factor may be the decision to have a common policy of the member countries toward the rest of the world in certain matters and then how that process works out in negotiations among the group and perhaps with the foreign countries concerned as well.

Though some degree of discrimination is inherent in the concept of integration of a group of countries, it does not necessarily follow that

for each member relations with the rest of the group is more important than its relations with the rest of the world. Nor does the growth of integration necessarily interfere with the development of new and stronger external ties. Indeed, one of the main purposes of forming the group may be to gain a larger "domestic" base than is provided by separate national economies and an aim or result of this may well be to strengthen the country internationally.⁹ This is quite apart from a second form of international strengthening which can come from collective action by the group of cooperating countries in dealing with the rest of the world.

All these characteristics of integration appear in CMEA and raise far too many issues to be given adequate treatment here. The comments that follow can only call attention to a few aspects of CMEA that have a direct bearing on points already made about the relation of the smaller East European countries to the world economy. The two-sidedness of the cooperative arrangement within CMEA is illustrated in trade, payments, the possibility of common action toward the rest of the world and more generally in the whole question of stability and the security of basic supplies. Through all of these subjects there also runs the question of the "price" that each country pays for the set of special relations and the gains it could not count on if it were acting alone.

So far as trade and payments are concerned it is fairly easy to see how the internal and external elements are related. Goods sold inside cannot be sold outside. That is bad if they would otherwise earn convertible foreign exchange which all the eastern countries need badly. But it is good for the seller if it means that he is able to dispose of something in the relatively easier eastern markets than he would be able to in the West precisely because he is being paid in softer currency. As a buyer the reverse situation applies, but of course it also means that one sometimes accepts lower quality or pays a higher price for the sake of conserving foreign exchange. A second trade-off concerns the advantages of assured supply or markets provided by negotiated trade agreements within CMEA versus the loss of freedom of action in external markets. A third and more complex question concerns the extent to which CMEA arrangements for the specialization of production provide economies of scale and improved efficiency.

In principle, these would permit a country to sell more effectively in world markets and also provide advantages for buyers within CMEA. Even if that happens, the producing country might react by thinking that the CMEA market was second best since no hard currency was to be earned there. Although significant results have been achieved in a few cases, it appears that the potential economies of scale through specialization are not as easily achieved within CMEA as was hoped by many people because the large "internal" market is not in fact a single market but is broken up into separate currency and trade areas the relations of which are largely settled by bilateral bargaining. The common currency for international trade within

⁹ For example, the arrangements made in Western Europe for the European Payments Union in 1950 seemed to some people to risk perpetuating an area of relatively weak currencies; instead, the partial integration lived up to the expectations of others in helping to build up the strength that helped the individual countries make their currencies generally convertible by the end of the decade.

CMEA, the transferable ruble, is in fact not very transferable (for roughly the same reasons that the currency in these countries are not more generally convertible). Therefore the usefulness of a credit balance depends on negotiation. This in itself inhibits the expansion of specialization and prevents trade within CMEA from having the kind of flexibility that to most people would seem necessary for great efficiency.

Some intra-CMEA trade is financed in hard currencies. A country may ask for this kind of payment if, over and above its commitments, it supplies another member of the group with products that it could market in the west. There are some indications of an increase in the amount of trade financed in this way and if it became large enough one could argue that a degree of currency convertibility was being provided within CMEA by a further link with the international economy as a whole. However, it is unclear how large this segment is.

A basic fact about CMEA (even if we leave out of account its less developed non-European members) is the immense difference in size between the Soviet Union and all of the other members. This naturally has an effect on the kinds of issues just discussed since a bilateral negotiation between one of the others and the U.S.S.R. immediately involves the possibility of economies of scale and raises questions of the disposition of a very large part of what each of the countries has to sell (or what it can buy) within the group. For a number of the smaller countries—notably the German Democratic Republic, Poland, Czechoslovakia and Hungary—a further special dimension is that a good deal of the bilateral trade is an exchange of manufactured goods from the smaller one against raw materials, energy and at some periods food from the U.S.S.R. (though the share of manufactured goods in Soviet shipments to the smaller countries is also substantial). Even when the bilateral pattern was different, one of the principal features of CMEA for the smaller countries was the reliable and stable supply of basic materials at less than world prices provided by the U.S.S.R. The disturbances in the world economy through price changes, supply fluctuations, and booms and busts in raw materials prices all increased the appreciation of CMEA in the smaller countries during the first half of the seventies.

By then the situation was already changing. The cost and security of supply of food and energy were affected by changes in the outside world and in the Soviet Union. A changed price formula meant that Soviet prices followed the rise in world prices, though with some lag. Several times during the decade the U.S.S.R. was a massive importer of grain and Poland and other countries had to buy from the west quantities that were formerly supplied from the east. No great reversal of the new trend is to be expected. The more gradual shift with regard to oil supplies has been under way for some time and while its future speed and magnitude remain uncertain there is little doubt of the direction of the movement. At the same time, the effort to supply as much energy as possible within CMEA (and to a degree other raw materials) increases some of the ties between the smaller countries and the Soviet Union as the former contribute in various ways to investment in the expansion of production in the broad territories of their larger partner.

Another set of issues concerns the possibility that CMEA should act as a unit in some of its external economic relations. CMEA documents—including the Comprehensive Program which is still at least nominally the framework for most major activity—stress the fact that each member is a sovereign nation and that no important powers for dealing with the rest of the world have been delegated to any central organ. The CMEA countries that have acceded to GATT have done so individually and membership in the Economic Commission for Europe and other international organizations is a national matter.¹⁰ This is in contrast to the way the European Community functions with both separate national and community representation in various international organs depending on what issues are being dealt with. There is a CMEA agreement with Finland that provides for a joint consultative commission to deal with a number of issues—but its members appear to be national representatives. The possibility of CMEA's acting as a unit in trade negotiations with the European Community has been much discussed and is treated elsewhere in this volume. I leave that issue aside though it is clear that what happens (and why) has a bearing on what further efforts might be made to think of CMEA as a unit in other international economic activities. All that can be done here is to suggest a few possibilities and note a few aspects of some of them.

Environmental issues, transportation, electricity, energy and research on these and other matters are subjects of a good bit of cooperation in Europe and it seems not unthinkable that CMEA as a unit should play some part in these matters. Many such activities would not raise anything like the same issues within CMEA as have been stirred up by the trade questions. Industrial cooperation is something else again. To act together would require agreement on at least some matters that the CMEA countries now treat quite differently. Moreover, in the west bilateral agreements on industrial cooperation have been used by Common Market countries to limit the impact of their treaty's stipulation of a common commercial policy. In the handling of export credits rivalry among the western countries has been notorious and the eastern countries presumably find this advantageous. Conceivably, if the western agreements setting standards for export credits worked more effectively in the future than in the past, the CMEA countries might have some reason to want to negotiate as a group on these issues. Western measures to regulate the Eurocurrency markets might possibly elicit a similar response perhaps partly because the CMEA banks have been borrowers as well as member governments. However, the emphasis on greater use of compensation agreements points in the other direction.

To carry further speculation on the possibilities of CMEA acting as a unit in world affairs one should dismiss for the time being questions of short run feasibility or political acceptability. Monetary issues offer some intriguing possibilities. When the transferable rouble was announced some people wondered whether it would lead to CMEA becoming a currency area that could collectively work out the rela-

¹⁰ The Hungarian GATT protocol recognizes intra-CMEA trade relations as an exception to most-favored-nation treatment (as the Common Market is for its members) and also assures other GATT signatories that their interests will not be damaged by changes in CMEA.

tions of its members to the rest of the world. Robert Triffin and some others have at times envisaged a number of regional currency arrangements (EPU, Central American) as ways of linking local convertibility with orderly relations with the rest of the world. The European Monetary System (EMS) shows another set of possibilities. Even without internal convertibility a CMEA currency unit might conduct relations with the rest of the world in ways that would give members a little more external convertibility than they could manage on their own. Ideas of this sort were part of the suggestions for convertibility based on a partial pooling of the hard currency resources of CMEA countries or the payment in convertible currency of a percentage of debt or credit margins in a country's balance with the group as a whole. There have always been good reasons why none of these ideas seemed likely to work very well and some of these reasons go deeply into the character of the economies involved. Nevertheless if one plays with ideas one is led to think of CMEA as a bloc within the International Monetary Fund. Would that overcome the part of the Soviet Union's worry arising from the weighted voting arrangement? (There would still have to be a negotiated voting strength for the U.S.S.R. appropriate to its position as a great power.) Such a step would be compatible with little or no monetary integration within CMEA but it brings one back to the problems of asymmetry within the group and the concerns that have marked the debate on trade negotiations with the European Community.

Perhaps a small conclusion can be drawn from the fact that so much of what might be said about the relation of CMEA to the outside world is speculative. Not the organization as such but the individual member countries in it—at least those with which we are concerned in this paper—have been the agents of increased involvement in the world economy. At least in part one can see that the different circumstances affecting each country and the different ways in which it conducts its domestic economy have had much to do with determining the separate courses of action. Membership in CMEA may have interfered with certain possibilities but there may have been some compensation too from the internal trading arrangements and specialization agreements. This is not a matter on which one can be sure without more detailed evidence than I have seen. There is no doubt that CMEA has provided a degree of stability and reliability especially in the supply of basic products and this has been of positive value to member countries. But the prospects of the organization—really the U.S.S.R.—continuing to perform that role are decreasing.

NORTH-SOUTH ISSUES

In Eastern Europe there is a good bit of interest in the developing world for a variety of reasons. Some of the countries have been closely connected with Soviet activities. Technical assistance of various sorts has been provided for other reasons as well. The whole range of motives for increasing ties with developing countries that are to be found in the west operate in the socialist countries: humanitarian, political, economic and whatever one wants to call the factors which have led to its being regarded as natural and normal that as countries become better off and more developed they should find ways to assist those which

are not yet so far along. It should not be forgotten that much of the early work on economic development was focused on Eastern Europe and the Danube Valley so perhaps there is a certain sense of closeness to the situation of other countries. As if to underline the connection, Romania has put itself forward as a developing country and been accepted as such in such arrangements as preferential tariffs and UNCTAD. North-South relations have also provided opportunities for some of the socialist countries to help assert their own independent personalities on the world stage (so to speak) and no doubt many individuals have found it satisfying to work for a time in new and different settings. The Eastern European experience of rapid industrialization, planning and other matters has been of considerable interest to many of the developing countries.

Naturally, trade is a large part of the concern for the socialist countries as it is for others. Developing countries are traditional suppliers of a variety of raw materials and Eastern European needs have grown with industrialization. The list of "tropical products" includes foods and beverages sometimes scarce enough to be considered luxuries in Eastern Europe. More of them can be afforded as part of bilateral trade than if they have to be paid for in scarce foreign exchange. There has been less interest in importing manufactured goods from the developing countries for reasons that are not very difficult to see. Although centrally planned countries are less vulnerable to some of the disturbances that affect market oriented economies, they have not been particularly forward in reorganizing their productive structures to take larger amounts of LDC manufactured goods imports. Intra-CMEA trading relations being what they are, an Eastern European country must sometimes find itself having to choose between a supplier within the group and an LDC from which it may be possible to get something else. It is recognized that there ought to be some greater response to the wishes of developing countries to sell more manufactured goods.¹¹ How great the response will in fact be may well depend on how much the Eastern European countries find they can sell in the developing world and how heavily their import bill is weighted by energy supplies from the Third World needed to replace the reduction in Soviet shipments to them.

Naturally, the Eastern European countries have been interested in selling to the Third World to pay for imports even when they cannot earn convertible currencies there. Slow growth and more protectionism in the west will stimulate the effort to sell to the developing countries especially if those countries continue to grow or, in the case of OPEC, become richer. Some of the Eastern European countries can sell arms. For most the emphasis is on capital goods, machinery, factory equipment and quite often the design and setting up of whole plants. Out of such relations which involve more than overnight connections there may very well develop other sets of relations and additional stimuli to some of the economic motives already mentioned.

Inescapably two sets of political relations are involved. One concerns the position of Eastern European countries in the north-south

¹¹ See, for example, the October 20, 1977 resolution of the Central Committee of the Hungarian Socialist Workers' Party cited in Istvan Dobozi, ed., *Economic Cooperation between Socialist and Developing Countries*, "Trends in World Economy," No. 28, Hungarian Scientific Council for World Economy, Budapest, 1978, p. 110.

debate about the new international economic order. Here they are to a degree subject to the same pressures as the Soviet Union to add greater practical performance to their diplomatic and rhetorical support of the aspirations of the developing countries. Naturally, what is expected from them is not as much as from the huge Soviet economy (but what the U.S.S.R. does is bound to influence the action of the others). The other main set of issues concerns the advantages in north-south relations that the smaller countries have compared to the Soviet Union. In the eyes of the developing countries it may sometimes seem less of a political problem to be associated with these smaller countries than to establish a large Soviet presence. Visitors from LDC's to Berlin, Warsaw and Budapest may also feel a difference from Moscow that is relevant to their aspirations. The smaller countries may also be more flexible in some development matters than the U.S.S.R., as has proved true in some aspects of east-west relations such as industrial cooperation. However one weighs these factors, they are probably less important in shaping the future of Eastern European countries ties with the developing countries than the impact of the directions in which the world economy moves in the next decade or so.

HOW THE WORLD ECONOMY MIGHT GO

We shall look at the future of the world economy in two ways: A simple forecast of main trends (or the range within which they may fall) and then some hypotheses concerning the different ways governments may deal with these conditions. The reality will be shaped by the interaction of factors, and while one may suspect that one combination is more likely than another, the rules of the game require leaving open a series of possibilities. To avoid spinning too many scenarios, we take a single rather broadly phrased forecast that probably commands a good deal of general assent. Then three possible patterns of international cooperation—not altogether mutually exclusive but with different central emphases—give an oversimplified but fairly wide range of possibilities in the light of which one can consider the position of the Eastern European countries over the next decade or so.

Quite a few people are forecasting a future along these lines: Slower growth in the OECD world than has been known for the last thirty years; scarcer and dearer energy which will require a good bit of adaptation of most economies and will pose balance of payments problems for many countries, rich and poor: a widespread effort by people to hold on to what they have and keep doing what they are doing—and for governments to support these wishes—even though failure to adapt to changing circumstances will add to the burdens of slow growth and inflation and will hold back investment and reduce incentives to innovation that might contribute to improving matters. Within this general formula there is room for some differences in what is assumed about how well that kind of world masters inflation, the evolution of the international monetary system, the cost of raw materials and what new stimuli can be expected from research and development. A key factor will be whether the developing countries that have established themselves as leaders in industrialization over the last

decade or so—the NIC's—will be able to keep a substantially faster rate of growth than the OECD countries. All that is specifically assumed about these matters here is that none of them develops in such a way that it falsifies the central proposition of the summary.

Plainly such a world is less attractive to the Eastern European countries than that of the 1960's and even much of the 1970's. But how serious their problems are likely to be and what favorable opportunities may open up depend heavily on the second element of our look ahead, that is, alternative assumptions about the kind of international co-operation that develops.

It is possible that in the face of slow growth and other difficulties the main trading nations will try to make the best of the situation by carrying further the cooperative approach that contributed so much to their past prosperity. They would continue trade liberalization and provide for fair competition through the MTN codes; some understanding would be arrived at about the management of floating exchange rates that would provide more stability than has existed in recent years without recreating the difficulties of the fixed rate system. To this strengthening of what can be thought of as the core of the Bretton Woods system they would add at least consultation and, when necessary, further agreements about investment, capital movements, the coordination of macroeconomic policies and related matters. If the western countries did that, the Eastern European countries would gain a degree of security and some indirect material benefits resulting from the contributions the cooperation made to the health of the OECD world. They might well be able to take advantage of some of the possibilities of fitting into the larger pattern of cooperation that were pointed out earlier. However, it is also conceivable that in giving new life to cooperation among themselves the OECD countries would treat outsiders more harshly than in the past. They might, for example, find that it was easier to keep open trade channels among themselves if they discriminated more against outsiders on the grounds that there is a limit to how much adjustment a country can make in difficult times and that competition among OECD countries is strong enough to assure reasonable efficiency.

It seems more likely, however, that for a number of different reasons they would seek to develop their relations with some countries outside the OECD. Priority would surely be given to oil suppliers and the developing countries that offered the largest and fastest growing markets. How far there would then be any bias against the East European countries is hard to say, but they might well be thought to offer fewer attractions for favorable treatment. If one were going to negotiate in that part of the world, the Soviet Union would be the most interesting partner thanks to the size of its market.

The second general pattern—not incompatible with the first but differently focussed—would put the emphasis of the main trading nations' activities on new kinds of international cooperative arrangements. These might concern especially subjects on which past arrangements have been lacking or unsatisfactory, such as food, energy, investment and international business. Almost surely, they would emphasize issues of special interest to some of the developing nations. This should not be thought of as primarily a partial enactment of the New International Economic Order—though commodity agreements,

the oceans and technology transfer are likely subjects. There would be as much emphasis on working out new relations between the older centers and the newly important ones, the oil and raw material producers, the customers for capital goods and plants; there might even be rough approximations of the kind of arrangements that forward-looking thinkers have imagined for a long time in which the growth of industries in new countries was roughly geared to the dual process of the decline of competing industries in the old centers and the expansion in these of the manufacture of equipment for the new producers.¹²

Where would the Eastern European countries be in this process? It is hard to be sure. Systemic impediments of the sort that have held back the participation of centrally-planned economies in past international understandings would not be major, one would think. In a number of cases, there would be a certain presumption that the new agreements would be open to all (especially those agreements coming out of United Nations discussions). In other cases the important part of the bargain would be struck among a few key countries; the inclusion of others would be a secondary matter. As small countries, they would rarely be crucial to these negotiations but they might often offer some desirable variety without raising the kinds of questions that are inescapable when the issue is Soviet participation in international agreements.

The third possible line of development is considerably less orderly. Slow growth, difficulties of adjustment, expensive energy, scarcities of some raw materials, balance of payments difficulties, sharp competition for markets—these elements of the forecast spell not cooperation but rivalry, not the repair and improvement of the Bretton Woods world but its erosion and the violation of agreements. The MTN codes, under this hypothesis, become either dead letters from no use or failures as strong countries increasingly feel cheated and so disregard them. Safeguard clauses—Article XIX of GATT or national measures—prove to be not foci of new international surveillance but devices that put pressure on “disruptive” suppliers to come to terms with the complaining country for fear of losing still more of their markets. Under this scenario new agreements would more often than not be bilateral deals between an OECD country (or sometimes the European Community) and suppliers of energy or raw materials or customers for capital equipment and whole plants. The OECD countries would be looking in some cases for secure supplies and in others for privileged positions in the foreign markets. To reciprocally let in manufactured goods from the NIC’s or, later on, OPEC petrochemical products, they would “make room” by excluding from their markets the products of other suppliers. The discrimination would come to apply to other OECD countries as well as the new competitors. Slow growth, failure to deal well with inflation, international monetary instability would create pressures on every government to restrict; the refusal to adapt would worsen the problems of each country to whom the rest of the world would increasingly become the “them” on whom it is legitimate to put all possible burdens unless “their” ability to strike back is too great.

The Eastern European countries would surely not be happy in such a world. It would deprive them of the indirect advantages of more

¹² For example, Eugene Staley, *World Economic Development: Effects on Advanced Industrial Countries* published by the International Labour Office, Montreal, 1944.

constructive measures in the west, limit markets that they have found shrinking in recent years and leave them in a weak position for dealing with new difficulties. They might well see the picture as that of the troubles of the 1970's magnified and intensified. And yet there would be some opportunities for them in the turbulent situation. Western export rivalry, especially in capital goods, would provide the chance of obtaining supplies of capital goods and technology on favorable terms with quite a lot of credit. Industrial cooperation to be paid for by compensation arrangements would be more interesting for some western partners than before. The breakdown of general rules would mean that a western or developing country would have less difficulty in working out bargains tailored to the particular interests of an eastern country even if it ignored others. Perhaps some of the eastern countries could make good use of such opportunities. By and large, however, their bargaining position would be fairly weak. That would be less true of the U.S.S.R. so perhaps the result would be to tighten the ties of the smaller nations with their big ally or even to make less unlikely a common CMEA line. In any case, the relative security CMEA provides would increase in value whereas in the other scenario sketched above a larger emphasis would be on the disadvantages of CMEA so long as it did not become more flexible.

Cutting across all these possibilities, and probably outweighing most single economic factors, is the future state of east-west relations. At its base is the strategic relation between the United States and the U.S.S.R. and the atmosphere that engenders. But whether the tone of that relation is that of 1968, 1972, 1975 or 1980, there is still room for a range of relations of the Eastern European countries to the world economy. Assume that NATO and the Warsaw Pact are each solid and both pursuing their primary purposes; that still does not, in itself, determine the state of economic relations between the members of those two organizations. East-west economic relations in Europe are far more important to the economic future of the smaller eastern countries than their relation to the United States. But the United States has for long differentiated in its economic policies among the countries of Eastern Europe. If the dominant note of American economic policy toward the Soviet Union were as negative as it was through the 1950's and 1960's, that would have a bearing on some aspects of American economic relations with the smaller countries. Still, over only a small range of issues would identical treatment seem sensible or even politically natural. From the side of the eastern countries, Soviet-American tension would create a considerably more difficult situation than general detente. They would be constrained from taking advantage of some opportunities the west might open. But there would still be reasons, in the east as in the west, to look at some of the possibilities that have been laid out in this paper. It is not that political and strategic realities can be ignored, but that there are also economic realities of some value to be taken into account. Those considered here will not shape the world but they can make it a better or worse place.

ENERGY PERFORMANCE AND PROSPECTS

THE POLICY DILEMMAS OF EAST EUROPE'S ENERGY GAP

By John M. Kramer*

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I. OVERVIEW

Although a recent Radio Moscow broadcast claimed that "Comecon was the only industrially developed zone on this planet which has not been affected by the energy crisis,"¹ numerous developments in Eastern Europe belie this assertion. Whereas Eastern Europe has experienced an "energy gap" since approximately 1960 in which primary energy consumption has exceeded primary energy production (see table 1), the situation only became acute in the 1970's with spiraling world market prices for energy and increasing concern about the USSR's continued capacity and willingness to meet the region's requirements for liquid fuel imports.² How to close the region's energy gap in the coming decades has already become a question of paramount political significance that is debated at the highest governmental and Party levels of the states concerned. The three most recent annual sessions of the Comecon Council have devoted primary attention to this question, and elaborated a number of joint projects to develop the fuel and power resources of the member states. Joint projects to this end announced since the June 1978 session of the Council represent a watershed in Soviet-East European relations for they will require an enormous commitment of resources by the participating parties and create among them an interlocking dependence in the provision of their energy supplies.

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¹ Radio Moscow, August 10, 1979. In this study, Eastern Europe refers to the European members of Comecon exclusive of the U.S.S.R.

² For previous discussions of East Europe's energy situation see the following: John M. Kramer, "The Energy Gap in Eastern Europe," *Survey* (Winter-Spring, 1975), 65-78; "Between Scylla and Charybdis: The Politics of Eastern Europe's Energy Problem," *Orbis* (Winter, 1979), 929-950; John Haberstroh, "Eastern Europe: Growing Energy Problems," in U.S. Joint Economic Committee, *East European Economies Post Helstinki* (Washington: GPO, 1977), 379-395.

TABLE 1.—EAST EUROPE'S ENERGY GAP
 [In millions of tons of standard coal equivalent]

Country	Production of primary energy ¹		Consumption of primary energy ¹		Energy gap		Energy gap as per cent of consumption	
	1960	1975	1960	1975	1960	1975	1960	1975
Bulgaria.....	7.7	8.8	9.5	34.8	-1.8	-26.0	18	74
Czechoslovakia.....	49.8	65.8	54.4	95.4	-4.6	-29.6	8	31
East Germany.....	73.6	89.6	84.0	122.7	-10.4	-33.1	12	26
Hungary.....	14.7	19.7	18.6	36.2	-3.9	-16.5	20	45
Poland.....	93.4	165.9	85.1	149.2	+8.3	+16.7	-----	-----
Romania.....	34.5	77.6	25.7	83.2	+8.8	-5.6	-----	6
Total.....	273.7	427.4	277.3	521.5	3.6	94.1	-----	-----

¹ Data include coal, crude oil, natural gas, hydroelectric, and nuclear electric power.

X—Calculated only for countries with a deficit energy gap

Source: Computed from data in tables 78 and 79 in Central Intelligence Agency, Research Aid: "Handbook of Economic Statistics 1976" (Washington, D.C., 1977).

The principal initiatives that the Eastern Europeans are taking to close their energy gaps—importation of fuels and power from the U.S.S.R. and noncommunist countries, and the expanded production and more assiduous conservation of indigenous energy reserves—carry with them significant policy dilemmas.

These dilemmas in the Soviet-East European energy relationship relate primarily to the price and quantity of future Soviet energy exports to its allies and to questions concerning joint Comecon projects for the development of the region's fuel and power reserves. Most importantly, should the Soviet Union price its energy exports to Eastern Europe at the world market level and demand that its allies pay for these exports with hard currency and/or with goods competitive on international markets? If the price is not to be at the world market level, then what should it be and how will it be computed? To the extent that the Eastern Europeans must allocate an increasing share of their resources to export in payment for Soviet energy imports, what consequences will this have on their capacity to import from the West advanced technology with which to modernize their economies and consumer goods to mollify their populations? How does the U.S.S.R. assess the costs and benefits of its energy exports to Eastern Europe and what are the policy implications of such an assessment? Does the U.S.S.R. increasingly see Eastern Europe as an economic liability that it must subsidize by selling energy at lower than world market prices? On the other hand, does the Soviet Union see the Eastern Europeans providing political and economic benefits—for example, the diplomatic and material support of bloc countries for Soviet foreign policy initiatives in Africa or their participation in joint Comecon projects to develop the U.S.S.R.'s fuel and power reserves—that mitigate the cost of the price subsidy so far entailed in its energy exports to the region?

What will be the future quantity of Soviet energy exports to Eastern Europe, especially if predictions by the Central Intelligence Agency prove accurate that declining domestic production of oil will compel the U.S.S.R. to become a net importer of petroleum by the early 1980's?³ What are the opportunity costs to the U.S.S.R. of its

³ Central Intelligence Agency, *Prospects for Soviet Oil Production* (Washington: Government Printing Office, 1977).

energy exports to Eastern Europe compared to similar exports to capitalist countries? Would it be better for the Soviet Union to maximize its petroleum exports to capitalist countries, currently the U.S.S.R.'s single largest source of hard currency, and then help the Eastern Europeans in other ways to resolve their energy problems or, perhaps, simply accept the existence of these problems and the attendant economic dislocations that accompany them?

Further, what are the optimum strategies within Comecon to deal with the energy gap? Should the primary emphasis be placed upon the expanded production of energy resources through joint Comecon projects or the conservation of existing reserves? Is it better, for example, to allocate the huge amounts of fiscal and material resources that the joint projects will necessitate, or could at least part of these resources be better utilized on importing advanced technology from the West to modernize obsolete production processes and thereby reduce energy consumption?

East Europe's effort to close at least part of its energy gap through purchases on the international energy market also raises a series of policy dilemmas. First and foremost, how much energy should and can Eastern Europe purchase on this market? Will OPEC nations demand hard currency in payment for these purchases or will they accept barter arrangements to cover most of the costs? If payment is in hard currency, where will the Eastern Europeans acquire the necessary reserves? Will they acquire them primarily through increased borrowing on Eurodollar markets, and, if so, what will be the policy implications of this growing indebtedness on East-West relations in general and on relations between individual communist and capitalist countries in particular? Will they be more likely to seek this hard currency through increased trade with capitalist countries, and, if they do, what are the political and economic implications of diverting internal reserves now available for consumption and other domestic purposes to the export market? Will the U.S.S.R., which charges the world market price for its energy exports to capitalist countries, pursue its own economic and political self-interest and support OPEC when it raises prices, even though this means that the Eastern Europeans must also pay more for energy imported from OPEC nations and for goods imported from the West whose cost has been driven up by inflation included, at least in part, by escalating prices for energy?

What will be the political implications of the Soviet bloc's increasing dependence on non-communist sources for energy? Will bloc countries, and, in particular, the U.S.S.R., become "hostage" to the political positions adopted by nations that they rely upon for vital energy supplies? How will the Soviet Union and its allies react if instability threatens a politically conservative regime—for example, Iran under the Shah—that nevertheless supplies bloc countries with energy? Will they seek to exacerbate this instability as a mechanism for spreading their own influence in the country and enhancing their revolutionary image among radical forces? Or will they view the instability as threatening their economic interests and seek to support the regime and/or provide little, if any, encouragement to the forces opposing it?

A final series of policy dilemmas relate to domestic initiatives to close the energy gap. Will the need for energy conservation necessitate,

as the Central Intelligence Agency has predicted it may, a slowdown in economic growth, and, if so, to what extent? * How should the economic burden of energy conservation measures be apportioned among the population, and, what steps, if any, ought to be taken to cushion their deleterious consequences for consumer welfare? What changes are necessary in economic planning so that producers will have a monetary incentive to conserve energy, and can such changes be implemented without fundamentally altering the existing economic system? To what extent will shortages of labor and capital constrain efforts to move away from energy intensive production activities, and what steps can the Eastern Europeans feasibly take to mitigate these constraints? What are the economic and political implications of devoting an increasing share of investment resources to the development of domestic sources of energy, primarily coal and nuclear power?

What role should potential threats to public health and the physical environment play in decisions to exploit these energy sources, and what measures ought to be taken—and at what cost—to minimize such threats? And, finally, and perhaps most importantly, do many of these domestic initiatives carry with them the prospect of engendering political instability? Will, for example, price increases for fuel and power and other energy conservation measures precipitate a response similar to that which occurred in Poland, when in 1970 the announcement of increases in consumer prices led to rioting that toppled then United Workers Party First Secretary Wladyslaw Gomulka and where in 1976 the same announcement again led to rioting that almost ousted Gomulka's successor, Edward Gierek?

The above provides only a suggestive list of the policy dilemmas that East Europe's political leaders must deal with now and in the future. Clearly divergent interests and views regarding these dilemmas among East European nations and the U.S.S.R. have already led—and, undoubtedly, will continue to lead—to considerable controversy, debate and even public, albeit, muted and usually implied, criticism of Soviet policies—in short, to a policy setting more typically associated with alliances among democratic states. An analysis of the principal initiatives that the Eastern Europeans have pursued to close their energy gaps deepens our understanding of the policy dilemmas confronting political leaders in this area and the efforts they have undertaken to resolve them.

II. THE SOVIET-EAST EUROPEAN ENERGY RELATIONSHIP

The U.S.S.R. exports huge amounts of fuel and power to Eastern Europe: between 1976–1980 over 400 million tons of petroleum and petroleum products, 88 billion cubic meters of natural gas, and 64 billion kilowatt hours of electricity. Between 1970–1980 Soviet energy exports to these countries will more than double although their annual rate of growth is to decline between 1976–1980 as compared to the preceding five years. Soviet Premier Aleksei Kosygin recently indicated that the U.S.S.R. would increase its deliveries of fuel and power to Eastern Europe by about 20 percent during 1981–1985, although data now suggest that the annual level of liquid fuel exports

* ———, *Soviet Economic Problems and Prospects* (Washington: GPO, 1977), p. 241.

during these years may not exceed the level attained in 1980.⁵ Except for Rumania, which to date has imported no liquid fuels from the U.S.S.R., Soviet energy exports comprise a substantial amount of the fuel and power consumed in the European Comecon countries.

Although the U.S.S.R. has until now largely satisfied the energy importation requirements of the Comecon countries, the Soviet-East European energy relationship has nevertheless experienced considerable strain in recent years. Much of the strain results from the increasing expense of exploiting Soviet energy reserves located primarily in Siberia and concern that these reserves are insufficient simultaneously to satisfy its own internal needs, maintain, if not expand, energy exports to capitalist countries, and fulfill all of the energy requirements of the Comecon countries. As noted, the Central Intelligence Agency has even predicted that the U.S.S.R., currently the largest producer and second largest exporter of petroleum in the world, may itself soon become a net importer of oil as its domestic production declines sharply in the 1980's.

While the Central Intelligence Agency assessment has not gone undisputed both within and without the U.S.S.R., the Soviets themselves recognize that their energy reserves are not inexhaustible and that their exploitation is increasingly difficult and costly. One consequence is that determining the volume of Soviet energy exports to Eastern Europe has now become an annual ordeal for Soviet leaders seeking to reconcile the multiple and competing claims on their limited energy resources.

Another consequence is that the U.S.S.R. has pressed vigorously for—and made it plain that future Soviet energy exports depend upon—the fiscal and material participation of East European countries in the exploitation of the region's energy reserves, primarily those located in the U.S.S.R.⁶ While many in Eastern Europe traditionally have resisted proposals for multilateral cooperation, seeing in them a mechanism for enhancing Soviet political control in the region, now even that prominent symbol of independence from Moscow, Rumania, has called publicly for the conclusion of such agreements.⁷

Thus, the 1977 session of the Comecon Council called for the elaboration of "target programs" of ten to fifteen years duration for multilateral cooperation in several fields, with particular emphasis on fuel, energy, raw materials, and energy-related areas of engineering (e.g.,

⁵ For data on Soviet energy exports to Comecon countries during 1976-1980 and for Premier Kosygin's remarks on energy export plans for 1981-1985, see *Pravda* (Moscow), June 27, 1979. Soviet exports of fuel and power to Comecon countries grew at an annual rate of 9.5 percent during 1971-1975, but are scheduled to grow at about six percent annually between 1976-1980. Data from Czechoslovakia suggest that the U.S.S.R. in 1981-1985 may not increase the annual level of liquid fuel exports to Eastern Europe beyond the level attained in 1980. Thus, Slovak Premier Peter Colotka stated recently that Czechoslovakia had "ensured" in the 1980's from the Soviet Union annual deliveries of 18 million tons of crude oil and eight billion cubic meters of natural gas, that is, approximately the amount of these fuels that the U.S.S.R. is scheduled to deliver to Czechoslovakia in 1980. Radio Prague, Sept. 18, 1979. Further, Czechoslovakia Premier Lubomir Strouhal has commented that after 1980 any increase in crude oil imports can "only" come from noncommunist countries. Radio Hvezda, Aug. 31, 1979.

⁶ As one Soviet commentator bluntly explained, "the growth of these exports after 1980 depends largely on the condition that the interested countries take part in building up the additional oil and gas extracting capacity and recognize the expenses needed to maintain the production of these important products at an adequate level." (*Vneshniaya Torgovlia* (Moscow), October 1975, p. 5.)

⁷ *Scinteia* (Bucharest), June 9, 1979, called for the conclusion of: "new cooperative ventures, long-term government agreements, conventions, and contracts for the capitalization of the raw materials, fuels, and power reserves of the Comecon countries, in order to increase deliveries and to cover as much of the import needs of those countries with limited natural resources as possible."

nuclear engineering). All Comecon members now include in their national economic plans a separate section that specifies their particular contributions to joint projects.

The Orenburg natural gas pipeline and a 750 kilovolt electric power grid are the two major multilateral projects for the development of energy announced to date. The Orenburg project involves the participation of all European members of COMECON in the construction of a gas pipeline and associated facilities from the Orenburg gasfields in the Urals to the Soviet-Czechoslovak border where it will connect with existing pipelines. The pipeline is scheduled to achieve its full capacity of 28 billion cubic meters by 1981, although gas began flowing through it in 1979. For their participation in the project, which included the provision of manpower, credits, and machinery some of which they purchased with hard currency in capitalist countries, the Eastern Europeans are to receive annually for 20 years an amount of natural gas equivalent to approximately one-half of the total proven reserves of natural gas in Eastern Europe. Eventually the Orenburg pipeline will be part of a larger system of jointly constructed pipelines that by 1990 is scheduled to carry huge amounts of Soviet natural gas annually to Eastern Europe and also to Western Europe. How these plans will be affected, if, in fact, Soviet exports of natural gas to Eastern Europe between 1981-1985 do not rise above the 1980 level, remains to be seen.

The 750 kilovolt electric power grid, which will entail the construction of high tension transmission lines and a complex of nuclear power stations located in the U.S.S.R., is to be completed by 1990 when it will boost the power generating capacities of the Comecon countries by more than one-third over present levels. Recently, P.T. Neporozhny, U.S.S.R. Minister of Power and Electrification, expressed interest in eventually expanding this system to transmit power to Western Europe as well. Previous proposals to this end had floundered on the insistence of West Germany that West Berlin be included in any such project, but Neporozhny now indicated that the issue of West Berlin was "only a secondary question that could be resolved."⁸

The first part of the power grid is now completed, and in 1980 this section will provide Hungary with approximately 20 percent of the electricity that it requires in that year. As part of the grid, in March 1979 the U.S.S.R., Czechoslovakia, Hungary, and Poland agreed to the joint financing of the Khmel'nitskii nuclear power station in the Ukraine. The East European participants are to finance one-half of the estimated \$2.2 billion cost of the project, with Poland contributing more than \$600 million and Czechoslovakia over \$350 million, including the delivery of four 1,000 megawatt nuclear reactors. In fact, however, these figures may represent only nominal, not overall, costs: the total cost to the Eastern Europeans for this project may be more than double the published figures (see below). The participants are to be repaid for their contribution with electricity from Khmel'nitskii between 1984-2003, after which they can purchase electricity from the station at regular commercial rates.⁹

⁸ *Pravda* (Moscow), June 27, 1979. For details of Neporozhny's remarks, see the *Washington Post*, June 30, 1979.

⁹ See Radio Prague, Mar. 29, 1979, for details of this project.

Cost estimates of all Comecon joint investment projects during 1981-1990 range between \$100 billion and \$130 billion, that is, approximately eight times the estimated cost of such projects envisaged between 1976-1980.¹⁰ In 1976-1980 the Eastern Europeans are to pay approximately one-half of these costs. Yet, two factors indicate that these figures represent only nominal, not overall, costs. First, the usual interest rate of 2 percent planned on loans for these projects¹¹ has been far below the rate prevailing on Eurodollar markets so that, in affect, creditor nations (typically those in Eastern Europe) have provided debtor nations (typically the U.S.S.R.) with an interest rate subsidy that substantially raises the cost of a joint project to the creditor. Second, the Comecon practice of valuing investment credits and the goods to be used in repayment at the different times they are provided considerably devalues the credit during periods of rapid inflation, because the debtor has to provide less goods to repay the loan. The consequences of the interest rate subsidy and the devaluation of credits because of inflation may well make the real cost of joint investment projects to the Eastern Europeans approximately double the nominal cost. These additional costs are only partially offset by other, considerably smaller, investment projects in which the Soviet Union plays the role of creditor.

The enormous costs of these projects have sparked rare public, albeit muted, criticism of Comecon policies and, implicitly, of the U.S.S.R. Thus, a Hungarian source has said of the methods for financing the joint projects:

The currently existing credit system and the low interest rates fail to fulfill their most important functions—to serve as incentives for granting credits. The rising level of contract prices dictated by economic necessity depreciates the value of the credits expressed in transferrable rubles; indeed the real value of the fixed credit sum grows smaller every year. This development can be favorable to the debtor because the later he complies with his obligations, the less he has to deliver to repay the loans.¹²

Further, Premier Lubomir Strougal of Czechoslovakia, usually an unswerving supporter of Soviet policies, has publicly stated his conviction that the “contribution of interested states to individual integration projects need not always take the form of immediate participation through loans or sharing in a given project.” Part of the problem, Strougal explained, is the “high demands” of the joint projects. Indeed, Strougal has reported that between 1976-1980 Czechoslovakia’s obligations to these projects will require 13 percent of the total increase in investments during that period while Hungary must allocate to such projects four percent of its total investments and ten percent of its industrial investments in 1976-1980.¹³

With all East European nations currently devoting at least 30 percent of their national income to investment, these additional allocations place a heavy strain on the already limited resources available

¹⁰ Radio Free Europe *Background Report*, No. 59, Mar. 13, 1979, p. 3. Note that these cost estimates are for all joint investment projects during this period, not just those concerned with the development of fuel and energy reserves. In fact, however, most of the joint projects do involve the exploitation of raw material and energy reserves.

¹¹ E.G., *Ekonomicheskaya gazeta*. (Moscow). No. 8, 1975, reports that for the Orenburg project “it was decided to establish a lower interest rate in transferable rubles based on two percent annually for the entire term of the credit.”

¹² *Kulgasdasag* (Budapest), April 1978.

¹³ See *Rude pravo* (Prague), June 9, 1976, and April 14, 1976 for Strougal’s remarks. Data for Hungary from *Kozgasdasagi Szemle* (Budapest), April, 1977.

for consumption and other domestic purposes. Ironically, one consequence of this circumstance is that the Eastern Europeans find it difficult to import specialized (and expensive) machinery from the West with which to modernize obsolete production processes, and thereby reduce energy consumption.¹⁴

That Communist countries find it impossible to calculate the profitability of the joint investment projects, because prices employed in intra-Comecon trade are established administratively and bear little relationship to the dictates of supply and demand, has also generated criticism. As an article in an Hungarian journal succinctly stated: within Comecon "foreign trade prices and the present national price systems . . . prevent the establishment of uniform criteria for economic efficiency within the socialist division of labor."¹⁵ Premier Strougal of Czechoslovakia has also spoken on this point urging that Comecon consider "the relation of the expected expenditure to the anticipated effect of the joint undertaking. The point is that in the future we should devote increased attention to the value aspect of preparing and executing the joint projects."¹⁶

Sharp increases in the world market price for oil since October 1973 have also strained the Soviet-East European energy relationship provoking considerable turmoil within it. Initially, East European officials had argued that they would be largely unaffected by such increases, because prevailing prices in intra-Comecon trade had been set in 1971 and were not scheduled to change until 1976.

However, the U.S.S.R. soon demanded a revision of Comecon prices, since after 1973 these prices for many commodities, especially fuel and energy resources, were far below prevailing world market prices.¹⁷

The Eastern Europeans, while conceding the inevitability of a price increase, naturally sought to minimize its extent. That too great an increase in Soviet energy prices could engender political instability resulting from economic dislocations was the most persuasive argument that the Eastern Europeans employed to this end. The comment of an unidentified East European official captures the essence of this argument:

It is quite clear that unfavorable economic developments mean a direct blow to the living standards of our working men. And this unavoidably leads to a sharpening of both social and political differences and to imaginary notions about the inadequacy of the system.¹⁸

The revised price formula permitted the U.S.S.R. a special price increase for 1975 based on average world market prices for 1972-1974, and thereafter an annual adjustment in commodity prices based on average world prices for given commodities in the preceding five year period. Further, the U.S.S.R. demanded that the Eastern European

¹⁴ As one official has commented, "the main problem is that the East Europeans spend far too significant a share of resources to expand sources and supplies of energy and too little remains for the building of a modern economic structure and the development of economic activities including a lower demand for raw materials." Radio Budapest, February 23, 1978. A Polish source reports that modernization of Poland's foundries would save approximately 15 million tons of standard fuel annually, but "the country seems to have neither the financial resources nor the manpower to make any telling modernization of its processing methods." *Zycie Warszawy* (Warsaw), Mar. 13, 1979.

¹⁵ *Kozgazdasagi Szemle* (Budapest), November, 1979.

¹⁶ *Rude pravo* (Prague), July 9, 1978.

¹⁷ This was a consequence of the so-called "Bucharest" formula used between 1958-1975 for setting commodity prices in intra-Comecon trade. Under this formula, prices for a given commodity were established for a five-year period and were based on the adjusted-average world market price for that commodity during the preceding five-year period.

¹⁸ Quoted in the *New York Times*, Jan. 25, 1976.

pay in hard currency at current world prices for any above plan deliveries of crude oil. Although the official price of Soviet petroleum to Eastern Europe has risen substantially as a result of the revised price formula, nevertheless at the beginning of 1979 it was reportedly still approximately one-third below the then prevailing world market price for crude.¹⁹ However, the Eastern Europeans must also pay several "hidden" charges for Soviet petroleum that substantially raise the total price that they pay for this commodity. First, the Comecon price does not apply to above plan deliveries of Soviet crude oil which, as noted, must be paid for in hard currency at world market prices. Second, this price represents only the nominal, not the overall, price that the Eastern Europeans pay for Soviet petroleum, because it does not consider the interest subsidy that they provide and the devaluating impact of inflation on their investments in joint Comecon projects. Further, the U.S.S.R. has linked the provision of its energy exports to willingness by the Eastern Europeans to accept Soviet goods priced above their world market value or in quantities that the latter do not desire. As an official in the World Economic Research Institute of the Hungarian Academy of Sciences complained:

... We are not always able to buy the commodities we required and eventually make a profit on them, but must accept the kind and quantity our partner links to the delivery of his raw materials . . . the profits of our Soviet partner derived among other things from the fact that it was able to sell commodities which it would have been unable to sell on the world market, or at least not for the same price, i.e., with smaller profit. That is, in order to offset such "price losses" it was able to have costs acknowledged by the socialist countries which were not accepted at all or to a smaller degree by other nonsocialist partners.²⁰

Hence, while the data are not publicly available to calculate the total price of Soviet petroleum to Eastern Europe, it is undoubtedly far higher than the official Soviet price would indicate and may approach, if not exceed, world market levels. On the other hand, a calculation of the total price must also consider that the Eastern Europeans pay for much of this petroleum through barter with "soft" commodities that are not competitive on international markets.

What one can say with assurance is that higher prices for Soviet energy and participation in joint Comecon projects have had deleterious consequences for the economies of Eastern Europe, although, naturally, not all of the region's countries are affected equally. Thus between 1976-1978 Czechoslovakia's trade deficit with the U.S.S.R. more than tripled, and in the same period over 70 percent of Czechoslovakia's total trade deficit derived from the widening gap between the prices it paid for imports of fuel and other raw materials and the prices it charged for exports of machinery and finished products. Hungary has failed to achieve a surplus in its trade with the U.S.S.R. since 1974, and in 1978 its trade deficit with that country increased by approximately 10 times over the 1977 level.²¹ The Eastern Europeans have also been forced to increase their borrowing on hard currency markets to pay for energy imports. Although this factor by no means accounts for all of the hard currency indebtedness of these countries,

¹⁹ According to Premier Strougal of Czechoslovakia as reported by Radio Hvezda, Aug. 31, 1979.

²⁰ *Kozgazdasági Szemle* (Budapest), November, 1979.

²¹ Data for Czechoslovakia calculated from material in *Statistické prehledy* (Prague), No. 4, April, 1979 and from Radio Hvezda, Aug. 31, 1979. Data for Hungary from *Magyar Statisztikai Évkönyv* (Budapest), 1974-1978.

it is instructive to note that in 1973, when international market prices for fuel and other raw materials had just begun to escalate, East European hard currency indebtedness stood at \$8.3 billion whereas at the end of 1977 it had risen to \$28.5 billion.

These circumstances have as well created problems for the U.S.S.R. Thus, higher world market prices for petroleum have led the U.S.S.R. to reassess the opportunity costs of its oil exports to Eastern Europe. These costs have always been relatively high since much of Soviet-East European trade, as noted, is on a barter basis, with the latter often supplying low quality goods that cannot be sold on international markets, whereas petroleum exports to non-communist countries are the U.S.S.R.'s single largest source of hard currency and a primary means whereby it acquires the sophisticated Western technology so desperately needed to modernize its economy. If, as the Central Intelligence Agency predicts, petroleum production in the U.S.S.R. begins to decline in the 1980's, then the Soviet dilemma will become even more acute as it seeks to determine the optimum balance between domestic petroleum consumption and petroleum exports to communist and non-communist countries.

While economic considerations may argue for an increase in Soviet energy exports to non-communist countries and a reduction in such exports to communist countries and/or a requirement that the Eastern Europeans pay for these exports in hard currency at world market prices, political considerations caution against these initiatives. First, the Soviet leadership must be sensitive to the potential for political disorder that could accompany the economic dislocations resulting from pursuit of such alternatives. Second, the dependence of East European countries on the U.S.S.R. for energy constitutes an important means whereby the latter can exercise political control over the former. The U.S.S.R. has not been unaware of this circumstance. Thus, Radio Moscow's Rumanian Service recently informed its listeners of the U.S.S.R.'s success in increasing deliveries of oil to its "friends," and added that in 1981-1985 these "friends" would receive 20 percent more Soviet energy than at present;²² a none too subtle suggestion to the Rumanians that if they wished to have their expressed desire for Soviet liquid fuel exports fulfilled, then they should cooperate more closely with the U.S.S.R. In fact, Western sources report that in 1979 the Soviet Union may have agreed to export to Rumania a small amount of oil, and that the latter, in anticipation of additional such imports, is reducing its diplomatic support of the Pol Pot government in Kampuchea²³—a development that can only please Moscow.

The considerable debate, controversy, and even limited public criticism of Soviet policies among Comecon members as they grapple with their energy problems testify to the seriousness of the policy dilemmas inherent in the Soviet/European energy relationship and to the fact that few, if any, of these dilemmas have as yet been resolved. If domestic production of petroleum in the U.S.S.R. does begin to decline sharply in the 1980's, then the resulting strains on Soviet energy export capacities can only exacerbate these dilemmas.

²² Quoted in Radio Free Europe, *Rumanian Situation Report*, Sept. 14, 1979.

²³ If the U.S.S.R. has agreed to supply oil to Rumania remains unclear. Both United Press International and Reuter of Nov. 20, 1979 reported that Rumania would soon begin to import 350 thousand tons of Soviet crude. However, neither country has ever publicly confirmed this agreement, and the 1980 Soviet-Rumanian trade protocol includes no such provision.

III. EAST EUROPE AND THE INTERNATIONAL ENERGY MARKET

The adverse consequences for East Europe's energy situation resulting from the fall of the Shah of Iran illustrate the growing involvement of these countries in the international energy market. First, Communist diplomats reported that as a result of Iran's suspension in October 1978 of natural gas exports to the U.S.S.R. (which had been averaging approximately ten billion cubic meters annually) the latter had reduced its energy supplies to Eastern Europe. Negotiations in March 1980 between Iran and the U.S.S.R. to resume these exports have broken down over the latter's refusal to meet Iran's demand for a five-fold increase in the price of its natural gas as compared to that charged by the Shah.

Previously, Iran's revolutionary radio had singled out the U.S.S.R. for having "swindled" Iran for its buying and selling of Iranian natural gas while the Shah was in power. "If you take delivery of Iranian natural gas at the border and then, without involving yourself in any processing, resell it there and then for three times the amount you paid for it, then this is a clear case of swindling, even if you are the Soviet Union," the radio added.²⁴ Second, the decision of the post-Shah regime to reduce substantially Iran's petroleum exports adversely affected several East European countries, particularly Rumania, for whom Iran had become an important source of crude. Further, Iran's new petroleum export policy has created problems for the Adriatic pipeline, a joint construction project among Czechoslovakia, Hungary, and Yugoslavia that was to provide these countries annually in the 1980's with 34 million tons of Middle Eastern crude, much of it from Iran. Third, the Shah's successors, like most other members of OPEC, have announced that only in unusual circumstances will they permit barter deals in payment for energy exports, whereas the Shah was willing to conclude such deals with Communist regimes chronically short of hard currency.

Finally, and most important, the Iranian government announced in July 1979 cancellation of the "IGAT-11" pipeline project whereby the U.S.S.R. would help construct a pipeline to bring 17 billion cubic meters of natural gas annually from Iran for use in its Transcaucasian republics and then export 15 billion cubic meters of its own gas via Czechoslovakia for distribution in Western Europe. In 1976, as part of the project, Czechoslovakia concluded its largest agreement ever with a non-socialist state when it signed a \$2.5 billion contract with Iran for construction of a pipeline to transport natural gas from the U.S.S.R. to Western Europe. In payment for the construction and for pipeline transit fees Czechoslovakia was to receive a volume of natural gas that would cover approximately one-third of its total importation requirements for this fuel in the 1980's.

Where, if at all, Czechoslovakia will find an alternative source for the natural gas lost when Iran cancelled "IGAT-11" remains to be seen. Premier Strougal has indicated that Czechoslovakia has already sought, and failed to find, such a source.²⁵ The development may force the U.S.S.R. to alter its apparent policy of holding annual natural gas exports to Czechoslovakia in 1981-1985 at the level attained in 1980.

²⁴ Quoted in the *Washington Post* Feb. 25, 1980.

²⁵ Radio Hvezda, Aug. 31, 1979.

The threat of Western trade sanctions and a military blockade of Iran's Persian Gulf ports in response to the continued detention of the American hostages in Iran interjects a new variable into the prospects of Iranian energy for Eastern Europe. The Iranian Finance Minister has promised that if trade sanctions against Iran are implemented in part "we will purchase what we need from the East European countries," and Iran and the U.S.S.R. have just concluded an agreement for the transportation of Iranian goods through the Soviet Union if the United States imposes a naval blockade. Increased deliveries of agricultural and industrial products by Soviet bloc countries to Iran since the beginning of 1980 are already evident, and in April of this year Iran announced that it would sell to Rumania 100 thousand barrels of oil a day at world market prices.²⁶ Ironically, then, a rapprochement between the stridently anti-communist Iranian revolutionary regime and Soviet bloc countries may be one of the primary consequences of American initiatives designed to free the hostages.

East European countries have also suffered from the rapidly escalating cost of energy on the international market. Initially, the U.S.S.R. and its allies enthusiastically greeted the Arab oil boycott and the substantial increase in energy prices in the post 1973 period as instruments whereby the economic stability of capitalist countries could be undermined. By 1979, however, a Hungarian press report was labelling as "irresponsible" the June 1979 price increase adopted by OPEC,²⁷ an especially interesting observation in that the U.S.S.R., as noted, charges the OPEC price for its petroleum exports to capitalist countries and to some extent to the socialist countries as well.

Two factors account for the change of attitude. First, inflationary pressures in capitalist countries, induced in part by increased energy costs, also adversely affected the socialist countries in the form of higher prices for goods imported from the West. Second, higher petroleum prices—and the unwillingness of most OPEC members to conclude many barter deals—forced the Eastern Europeans to revise plans for substantial increases in petroleum imports from the Middle East by 1980. Whereas in 1975 East European countries, excluding Rumania, imported only 6.5 million metric tons of Middle Eastern oil, they were scheduled to increase these imports to 41 million tons in 1980 but now are planning to import only 13 million tons.

These developments have especially affected Rumania which receives all of its petroleum imports (almost nine million tons in 1977) from OPEC members. Besides entailing obvious economic costs, these developments may also constrain Rumania's capacity to pursue its independent foreign policies. Thus, in the aftermath of the Shah's downfall, Rumania has sought crude oil from Arab countries (e.g., Libya) with much more hardline postures toward Israel than the Shah's—a situation that makes Rumania susceptible to pressure from these countries to alter its policy of being the only nation in Communist Europe to extend diplomatic recognition to Israel. Further, developments on the international energy market have impelled Rumania to seek liquid fuel imports from the U.S.S.R., a circumstance that the Soviets, as mentioned, have attempted to exploit as a means to restrict Rumania's independence from Moscow.

²⁶ *Washington Post*, Apr. 24, 1980.

²⁷ Cited in *Ibid.*, July 15, 1979.

These developments also present the U.S.S.R. with a series of difficult policy choices, especially if Central Intelligence Agency predictions of declining Soviet petroleum production in the 1980's materialize. If the Soviets increase their own energy exports to Eastern Europe to compensate for the loss of Middle Eastern imports, this could necessitate a reduction in their energy exports to hard currency markets. If, however, the Soviets urge the Eastern Europeans to restrict energy consumption through conservation and/or reductions in economic growth, this could spark political unrest as consumer welfare declines or stagnates. The Soviets might also provide OPEC oil to Eastern Europe either through direct purchase or by guaranteeing loans for this purpose on the Eurodollar market—initiatives that would strain the U.S.S.R.'s own limited reserves of hard currency. In fact, this latter initiative is now being pursued. Comecon's International Investment Bank is seeking for the first time hard currency credits for East European countries to purchase petroleum on the international market.²⁸

Growing involvement in the international energy market will also inevitably impact upon the foreign policies of communist countries. The case of Romania provides an obvious example of this circumstance. Of even greater import, it will increasingly become a variable in how these countries view stability or turmoil in the capitalist world. To the extent that communist political elites recognize that political and economic turmoil in capitalist countries can adversely affect the interests of socialist states, this may serve as a stabilizing force in international politics. It seems clear, for example, that communist leaders are ambivalent about the recent events in Iran, undoubtedly applauding the breakup of the American-Iranian alliance but viewing with dismay the exacerbation of East Europe's energy problems resulting from the downfall of the Shah. Further, economic dislocations in capitalist countries, created in part by the worldwide energy crises are viewed apprehensively by many Eastern Europeans as these dislocations impact adversely upon their economies, rather than being greeted enthusiastically by them as a mechanism to undermine political stability in the capitalist world.

This is not to argue that communist leaders will always, or necessarily even usually, see their interests better served by stability than turmoil in capitalist states. It may be, for instance, that declining domestic energy production in the 1980's will impel the U.S.S.R. to support more vigorously revolutionary movements in an effort to install regimes friendly to it in such oil rich, but politically conservative and anti-communist countries, as Saudi Arabia and the states of the Trucial Coast. It is to suggest, however, that in today's increasingly complex and interdependent world that these leaders are not necessarily always desirous of, nor do they always derive benefits from, political and economic dislocations in capitalist countries.

IV. ENERGY CONSERVATION AND PRODUCTION PROGRAMS

With no hope of closing their energy gaps through importation, all East European regimes have initiated programs to conserve and expand production of internal energy reserves.

Because of the heavy reliance for power on coal with a low caloric content, obsolete machinery, a predominance of energy intensive in-

²⁸ *Financial Times* (London), Mar. 13, 1979.

dustries among power consumers, and the imperatives of economic plans that emphasize production of goods rather than conservation of resources, energy consumption in Eastern Europe is excessive in comparison to other industrialized regions. Overall, Comecom countries consume 70 to 80 percent more energy than do advanced capitalist countries to produce the same unit of national income.²⁹

Energy conservation measures enacted to date, while varying by country, include the conversion of production processes from liquid to solid fuels, a stress on economic activities that are not energy-intensive, substantial increases in prices for fuels and power, restrictions on energy consumption for non-essential purposes (e.g., street lighting), and steps to make the transportation sector more energy efficient, including the imposition of, or lower, speed limits, greater use of public transportation, and the retirement of trucks, buses, and other vehicles with a high fuel consumption.

Increases in prices for fuels and power undertaken by all East European regimes in varying degrees during 1979 are the most prominent feature of the latest conservation measures. The Hungarian price revisions illustrate the extent and magnitude of the increases. There, prices for fuels and power increased overall by 34 percent with average percent increases for gasoline, coal, fuel oil and electric power of 63, 20, 30, and 50 respectively.³⁰

The price increases are policy initiatives of the utmost significance. First, they depart fundamentally from the usual response of budgetary subsidies to the higher cost of commodities, including energy. Thus, in 1978 Czechoslovakia provided over \$300 million to subsidize the cost of home heating fuel, whose price had remained unchanged since 1953; the head of the Federal Price Office has estimated that the subsidy would more than double in coming years for this fuel if the price remained the same.³¹ Several factors, however, made the continued allocation of subsidies increasingly unfeasible: (1) They place severe constraints on the capacity of regimes to pursue alternative policies and programs; (2) they make impossible rational decision-making by distorting the real costs of production activities; and (3) they provide little incentive to conserve energy.

Yet, while justified in economic terms, these increases may entail political costs by redounding adversely upon consumer welfare. That payments for energy, according to one Western estimate, now consume approximately 10 percent of the average monthly wage of Romanian industrial workers, compared to 5 percent before the recent price increase, suggests the deleterious consequences for consumer welfare of these initiatives,³² and that authorities in Czechoslovakia reportedly ordered reinforced and highly visible police patrols to guard against disturbances when they announced the 1979 price in-

²⁹ *Nepszabadsag* (Budapest), Jan. 23, 1974. Rumania and Czechoslovakia, for example, consume respectively 3,000 and 1,930 Kilograms of conventional fuel per \$1,000 of national income, while in Sweden, Italy, and Germany the respective figures are 1,260, 1,230, and 1,200 per \$1,000 of national income. *Scintila* (Bucharest), Nov. 2, 1978.

³⁰ Radio Budapest, July 21, 1979.

³¹ *Rude pravo* (Prague), July 21, 1979.

³² Radio Free Europe, *Background Report*, No. 255, Nov. 23, 1979. Several regimes, including those in Czechoslovakia and Hungary, sought through income supplements to mitigate somewhat the economic impact of these price increases on consumers. However, none of the measures promulgated to date will compensate consumers completely for the higher prices they must pay for fuels and power. See Radio Hvezda, July 20, 1979, and Radio Budapest, July 21, 1979 for the measures taken by, respectively, the Czech and Hungarian regimes in this area.

creases suggests their recognition of the politically sensitive nature of these initiatives.³³

The limited data available suggest that the energy conservation programs to date have had only minimal success.³⁴ This is so for several reasons. First, industrialists concentrate primarily on fulfilling the production quotas of economic plans and devote little, if any, attention to the conservation of energy resources. For example, a recent survey on the state of energy conservation at Hungarian enterprises found an "appalling picture" of indifference to this task and called upon industrialists to effectuate a "radical change of outlook and action" in this area.³⁵ Second, East European regimes lack the financial resources necessary to modernize their production processes substantially and thereby make them more energy efficient. Much of the machinery required for this purpose must be imported from the West and paid for with hard currency—a commodity in very short supply in the region. Third, the still heavy reliance upon coal, much of it of low caloric content, throughout the region for industrial, household, and other purposes impedes the drive for greater energy conservation.

East European regimes have also stepped up the search for, and sought to expand the production of, indigenous energy reserves. These efforts will entail enormous capital expenditures. According to one Hungarian authority, investments allocated to this end in several East European countries already comprise 40–45 percent of total industrial investments and will soon attain this level in other countries.³⁶ Such expenditures will likely strain the capacity of these regimes to pursue alternative investment opportunities, including the modernization of production processes to reduce energy consumption and initiatives to raise consumer welfare. In the words of the same Hungarian authority, these expenditures may become a "serious drag on modernizing manufacturing industries and improving public welfare."

Expanded production of energy in Eastern Europe must come primarily from coal and nuclear fuels, and, perhaps, from the exploitation of oil and natural gas deposits in the Black and Baltic Seas. One estimate indicates that between 1978–1985 the states of Communist Europe may purchase from the West as much as \$9 billion in equipment for the exploration and exploitation of off-shore energy reserves.³⁷ Few discoveries of off-shore energy deposits have occurred to date, although Rumania announced in late 1979 that it had uncovered what it hoped would be "big and exploitable" reserves of oil in the Black Sea.³⁸

Coal production in the region between 1971–1975 grew at an annual rate of only 1.6 percent, and production actually declined in Bulgaria, East Germany, and Hungary and increased only marginally in Czechoslovakia.³⁹ Economic plans for 1976–1980 envision only

³³ As reported by the *New York Times News Service*, July 22, 1979.

³⁴ See for example, Radio Prague, Aug. 22, 1979, and *Figuelo* (Budapest), July 27, 1979, for data indicating that, so far, in Czechoslovakia and Hungary few savings in energy have been realized.

³⁵ *Figuelo* (Budapest), July 18, 1979.

³⁶ Isteran Dobozl, "Policy Responses to the Energy Crisis: East and West", paper presented at the U.S.-Hungarian Economic Round Table, May 7–9, 1980, Cambridge, Massachusetts, p. 27.

³⁷ *Wall Street Journal*, Sept. 11, 1978.

³⁸ According to Rumanian President Nicolae Ceausescu at the 12th Congress of the Rumanian Communist Party, as quoted in the *Washington Post*, Nov. 20, 1979.

³⁹ Compiled from data in *Statisticheski Eshendnik Stran-Chlenov Soveta Ekonomicheskoi Vzatpomoshchi* (Moscow: Statistika, 1978), 75.

modest increases in output of coal, except in Rumania which projects an increase in production of approximately 75 percent during these years. Preliminary plan data suggest that all countries in the region will place greater emphasis on expanding production of coal in the 1980's. This development, while helping to close the region's energy gap, will not be without its own costs: it will require huge capital investments in machinery and transportation facilities, impede efforts to make production processes more energy efficient, and intensify already high levels of air and water pollution.

While expanded production of coal may prove a short run palliative for East Europe's energy problems, officials in the region see nuclear power as the longer run answer to their problems. In contrast to many countries in the West, concern over the safety aspects of nuclear power seems largely absent in the region. As a citizen of East Germany commented: "We have watched protest demonstrations on West German television, but they did not make too much sense. Unless we want to turn off the lights, we will just have to live with nuclear power."⁴⁰ Whereas in 1975 the amount of electricity generated by nuclear power in the region was negligible, all regimes have now committed themselves to a substantial expansion of their nuclear power capacities by 1990 (see tables 2 and 3). Nuclear power stations are already operating in Bulgaria, Czechoslovakia, East Germany, and the U.S.S.R., and are scheduled to begin operating in Hungary, Poland, and Rumania in the early 1980's.

TABLE 2.—CONSUMPTION OF PRIMARY ENERGY IN EASTERN EUROPE

[In percent]

	Primary energy source							
	Coal		Oil		Gas		Hydro and nuclear	
	1965	1975	1965	1975	1965	1975	1965	1975
Eastern Europe.....	81.1	63.3	11.4	21.2	7.2	14.7	0.3	0.8
Bulgaria.....	72.4	52.2	26.0	40.9	.5	4.1	1.1	2.8
Czechoslovakia.....	87.0	70.9	10.7	22.1	1.5	5.7	.8	1.3
East Germany.....	93.3	69.0	6.4	18.0	.2	12.4	.1	.6
Hungary.....	74.2	42.2	19.3	37.1	5.9	19.4	.6	1.3
Poland.....	91.5	80.6	6.4	13.1	2.0	6.2	.1	.1
Romania.....	20.2	22.1	25.1	25.2	54.6	51.8	.1	.9

Source: Secretariat of the United Nations Economic Commission for Europe, "Economic Survey for Europe" (New York: U.N., 1976), p. 90.

TABLE 3 —Electricity To Be Generated by Nuclear Power in 1990¹

	Percent
Bulgaria.....	50
Czechoslovakia.....	42
East Germany.....	33
Hungary.....	15
Poland.....	21
Rumania.....	13

¹ Estimated.

Source: Secretariat of the United Nations Economic Commission for Europe, "Economic Survey for Europe" (New York: UN, 1976), p. 111.

Much of the work in this field is proceeding under the auspices of Comecon's International Atomic Energy Association, established in 1973 by the European Communist states to coordinate the production

⁴⁰ Quoted in the *New York Times*, Apr. 15, 1979.

of nuclear power equipment among the member countries and provide technical assistance and training for specialists in the design, construction, and operation of nuclear power stations. Czechoslovakia has emerged as an important producer of, and source of supply for, nuclear reactors within Comecon. Under an agreement concluded in 1974 with the U.S.S.R., Czechoslovakia plans to produce between 1981-1984 about 18 light water reactors of the Soviet Voronezh type for use in the Soviet Union and Eastern Europe, and a recent commentary on Radio Prague boasted that "it will not take long before we are exporting these reactors even to Cuba."⁴¹ In 1978, Rumania concluded an agreement with Canada valued at \$1 billion for the delivery of four 600 megawatt nuclear reactors, and thereby became the first Comecon country to receive Western aid in this area. This agreement is part of a larger deal between the two nations whereby Rumania in the next 20 years will receive 16 reactors built either by Canada or by Rumania under Canadian license.⁴²

Soviet support for the development of nuclear power in Eastern Europe represents a departure from the U.S.S.R.'s past policy when it failed to honor agreements concluded with the Eastern Europeans during 1955-1956 for technical assistance in this area. The change in policy appears primarily to be a response to the region's widening energy gap. That the U.S.S.R. can enhance its political leverage over East European regimes dependent upon it for developing their nuclear power capacities may also account for the change in policy.

V. PROSPECTS

Are the Eastern Europeans engaged in a Sisyphean endeavor to close their energy gaps? Indeed, all options available to this end—increased importation of energy from the U.S.S.R. and/or from the international market, better conservation of existing energy reserves, and the expanded production of indigenous sources of energy—engender painful policy dilemmas, entail obvious costs, and provide no panacea for the resolution of the region's energy problems. The extent to which the U.S.S.R. is capable of, and willing to, close East Europe's energy gap through liquid fuel exports will be a variable of primary importance in determining how acute these policy dilemmas will become. In grappling with these dilemmas, East Europe's leaders, like many of their counterparts in other political systems, are likely to seek policy options that minimize costs and avoid choosing definitively between one or another course of action. Whether such a policy of "muddling through" will prove an appropriate response to the policy dilemmas examined herein is a question of keenest interest to observers of political life both within and without Eastern Europe.

⁴¹ Radio Prague, Mar. 17, 1979.

⁴² For background on this agreement, see Radio Bucharest, Oct. 25, 1977.

THE LINKAGE BETWEEN ENERGY AND GROWTH PROSPECTS IN EASTERN EUROPE

By Robin A. Watson¹

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SUMMARY

All of the countries of Eastern Europe face a decade of sharply reduced economic growth in the 1980's. This prospect is especially grim in light of the region's rather impressive economic gains during the 1970's and the expectations this record created for continued improvements in living standards. Factors such as slowed investment and employment growth are bound to hold down GNP gains in the 1980's; prospective energy shortfalls will simply lower the growth potential even further.

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The interdependence of economic growth, international trade, and the energy balance in Eastern Europe means that all of these issues must be considered in any assessment of the region's growth prospects. The objective of this study is to estimate future economic growth in each country consistent with energy and hard currency constraints. Thus, we employ an analytical framework that incorporates explicit linkages among growth, trade, and energy. In particular, this approach allows us to examine the sensitivity of East European growth prospects to Soviet energy policies in the 1980's. The overwhelming role of the Soviet Union as a source of industrial materials, especially oil, means that each country's outlook is particularly dependent on Soviet energy policies and prospects.

The confluence of effects resulting from tighter energy supplies and limits on hard currency trade are likely to make the 1980's a decade of economic retrenchment for all of the countries of Eastern Europe. Our projections suggest that economic growth between 1980 and 1985 will average barely half the rate of the 1970's. Though myriad factors contribute to the slowdown, projected energy shortages will constrain economic growth in all of the East European countries. In most countries, energy shortages are likely to account for half or more of the decrease in economic growth. Hard currency trade will provide little, if any, relief through imports of Western oil. In several countries—Czechoslovakia in particular—per capita growth may be little more than zero, and living standards could actually stagnate.

All countries except Poland and Romania rely heavily on Soviet oil deliveries to support their consumption of petroleum products. Our calculations indicate that a fifty percent reduction in those deliveries between 1980 and 1985 would drive the average annual rate of growth over that period to one percent or less in Hungary, Czechoslovakia and the GDR. Alternative policies for allocating reduced Soviet oil exports might reduce somewhat the growth losses incurred by these countries, but the overall prospects would still be stark indeed.

INTRODUCTION

The rapidly shifting world energy balance promises to make the decade of the 1980's a difficult period for the economies of Eastern Europe.² The six countries of Eastern Europe are already highly dependent on imported energy. As a whole, the region imports about a third of all the energy it consumes; excluding Poland and Romania, the share of energy supplies imported is nearly half.³ The region's dependence on imported oil is even more pronounced. The six countries produce less than 20 percent of the oil they consume, and excluding Romania the share is only four percent.

Soviet oil deliveries, provided at prices below world market levels, account for almost 80 percent of Eastern Europe's oil imports. Moscow's uncertain oil situation in the 1980's is well documented⁴ and the prospect of slowed Soviet energy deliveries is an ominous prospect for

² In this paper, Eastern Europe is taken to include the German Democratic Republic, Poland, Hungary, Bulgaria, Czechoslovakia, and Romania.

³ *Energy Supplies in Eastern Europe: A Statistical Compilation*, National Foreign Assessment Center, Central Intelligence, ER 79-10624, December 1979, p. 5.

⁴ *Prospects for Soviet Oil Production*, ER 77-10270, Central Intelligence Agency, Washington, D.C., April 1977.

the region's energy supplies. For example, if: (a) East European energy consumption were to continue to grow at rates experienced in the 1970's; (b) domestic supplies were also to increase at the rates of the 1970's; and (c) Soviet oil deliveries were held constant at 1980 levels, the region would need to buy about one and a half million barrels per day of oil from the West by 1985. This could cost almost 30 billion dollars a year in 1985 prices, more than one half of projected total export earnings by then.

Since purchases of this magnitude seem unrealistic, we need to examine growth prospects for the region within a framework of two simultaneous constraints: energy supplies and hard currency trade. This task is the focus of the analysis that follows. The analysis will examine East European economic prospects within a quantitative analytical framework that describes the links connecting each country's energy requirements and availability, hard currency trade, investment in productive capital, and overall economic growth. In particular, a principal advantage of such an integrated system is the consistency among economic variables that it imposes in any projection of growth prospects. Moreover, through such a comprehensive analysis it becomes possible to gauge the sensitivity of economic prospects to alternative assumptions of energy availability or financing constraints. In the analysis below, we look specifically at three different conditions for each country: (1) Growth prospects given likely trends in investment, hard currency trade and energy supplies and requirements; (2) potential growth with no energy constraint; and (3) sensitivity to reductions in Soviet oil deliveries.

BACKGROUND

The Origins of Energy Shortages in Eastern Europe

Energy availability in each of the countries in Eastern Europe is determined by domestic production, net imports from other communist countries, and net imports from the West. Domestic production of energy varies widely among the six countries. Only Poland and Romania are able to meet the bulk of their energy needs through domestic production.⁵ All of the countries except Romania acquire most of their oil and natural gas from the Soviet Union. Thus Soviet deliveries of oil and gas have generally been a critical energy source for most of Eastern Europe. Efforts during the 1960's and 1970's to "modernize" or "rationalize" energy consumption have reduced the share of coal in total energy consumption in every country except Romania and have raised significantly the relative shares of oil and gas (see table 1). At the same time, these efforts have increased each country's dependence on imported energy sources.

⁵ The analysis that follows will frequently consider Romania and Poland separately from the other countries of the region because of their distinctive advantage in the form of indigenous energy supplies.

TABLE 1.—EASTERN EUROPE: ENERGY CONSUMPTION BY FUEL TYPE

[Percent of total consumption]

	Coal	Oil	Gas	Primary Electricity
1970:				
Bulgaria.....	50.9	44.4	2.0	2.8
Czechoslovakia.....	74.6	18.1	3.4	3.9
German Democratic Republic.....	86.0	12.3	.7	1.0
Hungary.....	53.1	28.0	13.8	5.1
Poland.....	82.7	10.4	6.3	.7
Romania.....	19.9	25.8	54.0	.2
Eastern Europe.....	68.8	18.0	11.4	1.8
1978:				
Bulgaria.....	30.6	49.1	9.1	11.3
Czechoslovakia.....	61.4	26.4	9.2	3.0
German Democratic Republic.....	68.9	21.3	6.6	3.2
Hungary.....	30.5	41.6	23.4	4.4
Poland.....	76.5	15.6	7.5	.5
Romania.....	18.1	30.0	48.9	3.1
Eastern Europe.....	55.8	25.6	15.6	3.0

Source: "Energy Supplies in Eastern Europe: A Statistical Compilation," National Foreign Assessment Center, Central Intelligence Agency, ER 79-10624, December 1979.

Abundant and bargain priced Soviet energy exports were the basis for most of the growth of East European energy supplies over the past decade or more. Thus the need to expend hard currency on energy imports has been small, accounting in most of the countries for only a few percent of total hard currency imports (see table 2). However, depleted reserves and the increasing opportunity cost of supplying East European needs are likely to limit the quantity and increase the price of Soviet oil deliveries during the 1980's.⁶ Therefore, the East Europeans will be increasingly forced to turn to the world market to meet their incremental oil needs or, equivalently, to pay for Soviet oil with goods that might otherwise be sold in the West.

TABLE 2.—EASTERN EUROPE: ENERGY CONSUMPTION BY SOURCE

[In barrels per day of crude oil equivalent]

	Domestic production	Imports from Communist countries	Imports from the West	Exports	Consumption ¹
1970:					
Bulgaria.....	151	228	19	7	391
Czechoslovakia.....	906	324	8	101	1,136
German Democratic Republic.....	1,172	365	22	68	1,491
Hungary.....	277	176	8	29	431
Poland.....	1,895	232	0	474	1,653
Romania.....	879	43	46	124	844
Eastern Europe.....	5,280	1,368	102	805	5,946
1978:					
Bulgaria.....	152	445	27	4	620
Czechoslovakia.....	949	600	17	104	1,462
German Democratic Republic.....	1,174	571	44	82	1,707
Hungary.....	304	305	29	46	592
Poland.....	2,530	410	76	639	2,377
Romania.....	1,127	92	259	165	1,313
Eastern Europe.....	6,236	2,423	452	1,040	8,071

¹ These figures are apparent consumption defined as domestic production plus total imports minus total exports.

Source: Energy Supplies in Eastern Europe: A Statistical Compilation, National Foreign Assessment Center, Central Intelligence Agency, December 1979.

⁶ The price of Soviet oil to Eastern Europe is now calculated from a five-year moving average of world oil prices. A change in this price formula could mean markedly increased energy costs for the region.

The Balance of Payments Constraint

The prospects for covering any future energy shortfall with purchases on the world market are not especially promising for the countries of Eastern Europe. Eastern Europe's ability to purchase energy through hard currency trade is a complicated function of each country's export earnings, debt-service obligations, requirements for other hard currency imports, borrowing from Western creditors and the price of imported energy.⁷ Several of the countries, notably Poland, are already uncomfortably indebted to the West. Poland's interest and principal repayment obligation on the existing debt now amounts to almost all of her hard currency export earnings. Moreover, none of the countries can expect marked improvement over the near term in their ability to earn hard currency. Their capacity to provide raw materials and semi-finished products for export is not expected to increase significantly. At the same time, long range plans to upgrade the quality and quantity of manufactured exports will be severely hampered by constraints on imports of Western technology and equipment.⁸ Certainly, earlier plans to expand the region's chemical and petroleum refining industries have been dashed by the current world energy crunch and the resulting shortage of feedstocks. Moreover, the OPEC price increases in 1979 and those certain to follow will cut into the affordability of oil in the future. Even if future price increases are moderate, the balance of payments burden of any oil imports would be large.

The ability of Eastern Europe to finance trade deficits through Western credits is limited both by the availability of Western credits and by East European reluctance to become more heavily indebted. The burden of future debt obligations could become especially heavy with higher interest rates, a shorter maturity structure, and a rising share of short term borrowing.

Nonenergy Hard Currency Imports

Eastern Europe's capacity to import energy for hard currency depends on its non-energy import requirements and its debt-service obligations. The magnitude of the non-energy requirement in hard currency trade is undoubtedly large but difficult to gauge precisely. In general, East European countries became increasingly dependent on trade with the West during the early 1970's. Between 1970 and 1975 the region's trade with Western developed countries more than doubled; Poland increased the value of its imports from developed countries by more than six fold during the same period. Concerted efforts have generally been made to control the growth in hard currency imports since 1975, principally as a result of strained payments balances. Trade with the West has grown less rapidly in recent years, but has remained at high levels. Although food imports—especially grain—

⁷ Hard currency trade includes all trading partners except the Soviet Union and Eastern Europe. Trade data are found in *Handbook of Economic Statistics 1977*, National Foreign Assessment Center, Central Intelligence Agency, ER 79-10274, August 1979. We have constructed hard currency debt and balance of payments series from various sources including official statistics.

⁸ CMEA economic planners have frequently touted Western technology as a "quick fix" for their economies, and their inability to import more from the West has been blamed for some of their economic problems. It may be, however, that systemic shortcomings are an overwhelming problem that would persist even if hard currency trade were less constraining.

have occasionally comprised a healthy share of the hard currency import bill, industrial materials, capital goods, and high technology products have generally dominated. Thus, the capital stock in Eastern Europe has become increasingly reliant on Western technology and spare parts. This increased dependence on hard currency imports other than energy is an important factor to be considered in assessing the flexibility of the import mix. Certainly there is a practical, if not precisely identifiable, limit to any country's ability to increase energy imports at the expense of other Western imports.

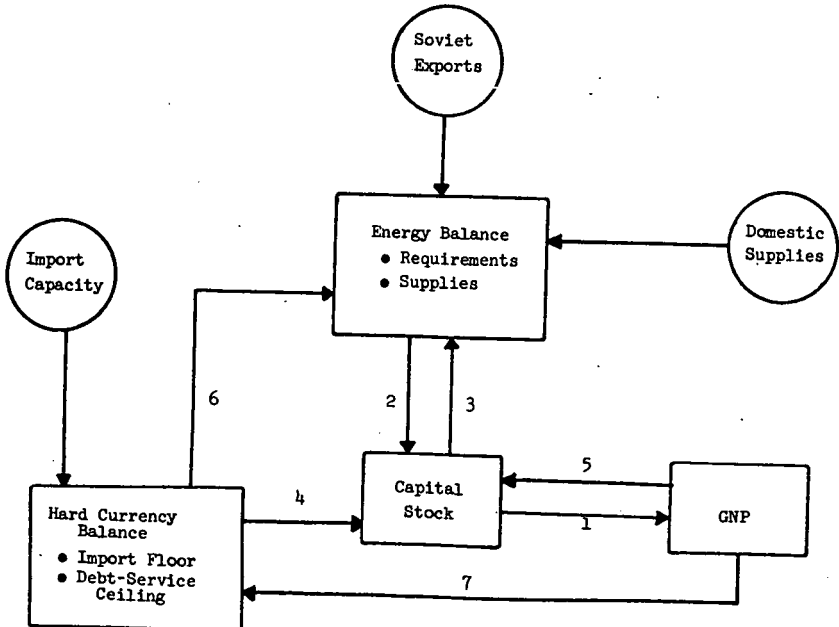
One discretionary component of imports from the West is consumer goods other than food products. Manufactured consumer goods, however, have traditionally represented a very small share of imports—generally less than five percent. Even in the unlikely event that they are eliminated entirely, little additional import capacity is freed for other uses. Thus, the flexibility to trim non-energy hard currency imports is severely limited for all of the countries in Eastern Europe. In addition, most countries have already taken painful steps to trim any excess from the import bill, and little fat seems to exist now.

THE ANALYTICAL FRAMEWORK

We have developed a simple macroeconomic simulation model to examine growth in the East European economies. The objective of the model is to estimate future growth in GNP consistent with the energy and hard currency constraints that will exist for each country. Figure 1 represents the most important components in the analytical system we

Figure 1

EAST EUROPEAN GROWTH PROJECTIONS FRAMEWORK



employ to examine the linkages among energy, trade, and economic growth in Eastern Europe (see the appendix for a more detailed description of the model). The rectangles represent endogenously determined variables, while the circles generally indicate variables that are specified exogenously by assumption. GNP is determined in the model by employment and active capital stock (link 1).⁹ The portion of the capital stock that can be used (the "active" part) depends on the ratio of energy availability to energy requirements (link 2).¹⁰

We assume that energy and capital are pure complements; as such, the energy requirement is generated by the size of the capital stock (link 3). Net additions to capital stock are a function of total investment.¹¹ Investment is in turn broken down into two categories; that which is imported (link 4) and that which is produced domestically (link 5). Thus international trade becomes an important determinant of GNP both as a component of investment and as an alternative source of energy (link 6).

The capacity of each East European country to import goods from the West depends on its merchandise export earnings (link 7), net earnings from invisibles, borrowing propensity, and the availability of Western credit. Net invisibles deficits, at least for the near term, will exert a significant drag on the import capacity of several of the countries as a result of large debt-service obligations on recent heavy borrowings. To estimate debt-service obligations, we have specified the interest and principal repayments components of debt-service separately. Interest payments depend on total debt and the average interest rate, which varies with the assumed rate available on new borrowings. Principal repayments depend on the repayments obligations on existing debt and the assumed maturity structure of new debt incurred. Hard currency import capacity not absorbed by debt-service is allocated to two categories: non-energy imports—raw materials, food, and manufactured goods—and energy imports. The portion of import capacity devoted to energy imports is simply the residual left after debt-service obligations have been met and minimum non-energy import requirements have been satisfied.

UNDERLYING ASSUMPTIONS ABOUT THE EARLY EIGHTIES

Projections of near term economic prospects in Eastern Europe depend upon a myriad of external factors. The overwhelming role of the Soviet Union as a source of industrial materials, especially oil, means that every country's outlook is particularly dependent on Soviet policies and prospects. At the same time, prospects for energy supplies from the West are intimately linked to hard currency earnings potential and ultimately to economic growth in the West. Our

⁹ The employment, capital stock, and GNP data are reported in Thad Alton, et. al., *Eastern Europe Projected Growth of Official Output Measures and Project's GNP Measures to 1980 and 1985*, (L. W. International Financial Research, Inc., New York: May 1978).

¹⁰ Historical data on energy are taken from *Energy Supplies in Eastern Europe: A Statistical Compilation*.

¹¹ Official investment data were used for Hungary and Romania. Investment in the other countries was calculated from the residual series in Thad P. Alton, et. al., *Czechoslovakia, Hungary, and Poland: Domestic Final Uses of Gross Products, Structure and Growth, Selected Years, 1965-78*, opp 55, (L. W. International Financial Research, Inc., New York, April, 1979), and Thad P. Alton, et. al., *Bulgaria and East Germany: Domestic Final Uses of Gross Product, Structure and Growth, Selected Years, 1965-1978, OP-58*, (L. W. International Financial Research, Inc., New York, August 1979).

ability to assess these factors with any confidence rapidly diminishes as we extend the time frame of our projections, so we have limited them to a five-year horizon, which is itself somewhat heroic.

Assumptions About Hard Currency Trade

As suggested earlier, non-energy goods from the West are important to East European economies. Recent modernization efforts have created a large appetite for Western technology and materials. Moreover, chronic hard currency balance of payments problems have presumably already forced most of the countries to trim non-essential goods from the hard currency bill. Thus, we have assumed that there exists a floor on hard currency non-energy imports which must be maintained. This floor has been set at 90-95 percent of the 1978 ratio of non-energy imports to GNP for each country. Non-energy imports are maintained at least at this floor throughout the projection period.

We have made rather optimistic projections of Eastern Europe's ability to generate hard currency earnings. But recent experience has been disappointing in this area, and the impending slowdown of economic activity in OECD countries is a further discouraging factor. Nevertheless, we have extrapolated growth in export earnings at three percent per year in real terms, which exceeds the expected rate of growth in GNP in most countries. Romania exports a large amount of oil products, and the price of the oil component of Romanian export earnings has been forecast to grow at an average rate of 20 percent per year (8 percent above the general inflation rate) consistent with our expectations of the general upward trend in the real price of oil. Similarly, Poland exports considerable quantities of coal to the West and coal price increases are projected at the slightly more modest rate of 16 percent per year (4 percent above the rate of inflation).

The constraint on hard currency borrowing that the East European countries face is not easily quantified. We have specified a financing limit through a ceiling on the debt-service ratio, a constraint that may be externally or internally imposed. It is clearly inappropriate, however, to apply the same debt-service ratio ceiling to all of the countries. Currently, debt-service ratios are about 20 percent in Romania and Czechoslovakia, around 40 percent in Hungary and the German Democratic Republic, about 50 percent in Bulgaria, and nearly 80 percent in Poland.¹² We have assumed that the highest debt-service ratio in the 1970's suggests the maximum likely ratio in the early 1980's, and have thus used this as a ceiling during the projection period. In those projections where the debt-service ratio ceiling is reached before minimum requirements are met for non-energy imports, some additional deterioration in the ratio is allowed until minimum non-energy imports are obtained.

A variety of factors determine the size of debt-service in the several countries. The average maturity of medium and long term debt varies from less than 3 years for Poland to over 8 years for Hungary. Our projections assume average maturity between 4.5 and 8 years. Interest

¹² We calculate the debt-service ratio as: (principal repayments plus interest payments) / (export earnings plus invisibles).

rates display some variation, but we have assumed that future rates are equal to the expected inflation rate, 12 percent. The share of debt carried in short term instruments varies between 30 and 50 percent. Naturally, small changes in any of these factors can markedly change the apparent severity of servicing obligations of a given level of debt for a particular country.

Assumptions About Energy Supply and Demand

Energy supplies from domestic sources and net imports from other communist countries are projected exogenously in our analysis, while hard currency energy imports are determined within the model based upon calculations of residual import capacity. We have projected Soviet oil deliveries at a constant level between 1980 and 1985 for our base case. On the other hand, natural gas deliveries from the Soviets are expected to increase substantially by 1985. Indigenous energy sources are not expected to change markedly except in two countries: Polish coal production could expand at about 3-4 percent per year over the period and Romanian oil production seems certain to decline as reserves become severely depleted. On the average, the energy base provided by domestic resources and Soviet fuel deliveries will probably expand at only 1.7 percent per year between 1980 and 1985, compared with 4 percent during the 1970's. Naturally, the size and impact of such a slowdown in energy growth vary greatly among the several countries of the region, as we will show in a later section of this paper.

Forecasting energy demand can be an even more formidable task than forecasting supply. We have not found the popular technique of tying energy use or demand to output to be particularly appealing. Briefly, the possibilities that exist for altering the input mix, conservation, and fuel switching make the connection between energy and GNP a flexible one at best. Instead, we have tied energy demand to the stock of capital and have extrapolated the trend in energy use per unit of the capital stock.¹³ This procedure is consistent with a hypothesis that energy and capital are complementary factors of production, while capital and labor are substitutes.

The energy requirement, in standard fuel units, is projected as a function of the capital stock and a coefficient describing the average energy intensity of the capital stock. In every country of Eastern Europe, the total energy used per unit of capital stock has steadily declined since the late sixties. Figures 2 through 7 show the historical and projected trends in energy used per unit of capital for each country in Eastern Europe. The rate of decline has averaged from nearly three percent per year in Romania to less than one percent per year in Poland. As the figures show, the stability of the trend varies among the countries. In several cases—the GDR is an example—the trend of the last several years differs from that of the longer term and may even turn out to be more indicative of the 1980's. In the absence of firmer evidence, however, we have used the 1968-1978 trend in our projections, which admittedly gives only a rough estimate of the likely energy intensity of capital through 1985.

¹³ The capital stock series that we employ (Thad Alton, et. al., 1978) includes housing, an important energy user, and excludes non-productive capital assets.

Figure 2

BULGARIA: Total Energy Use
per Unit of Capital Stock

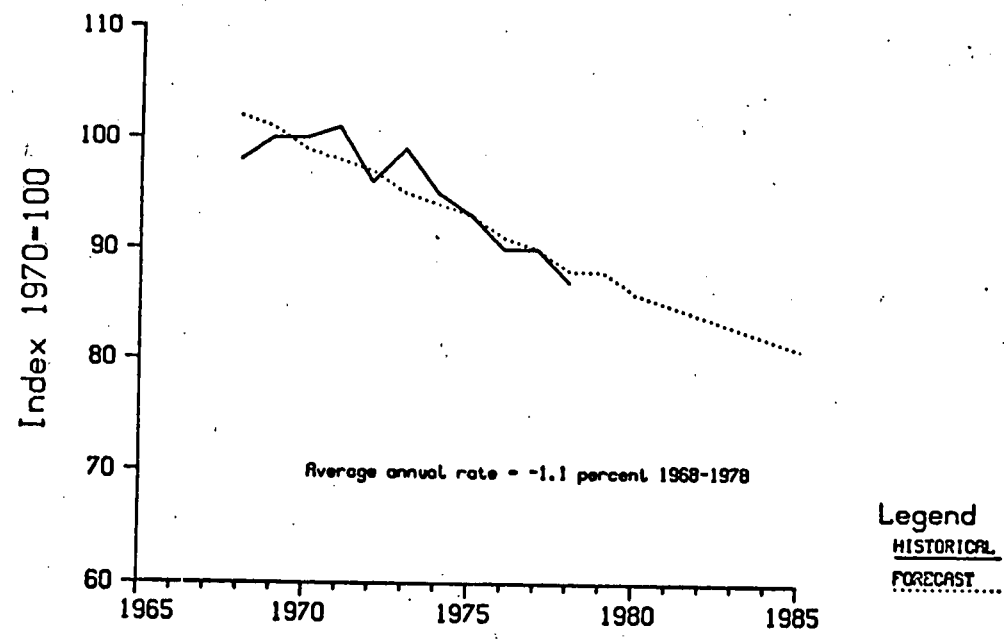
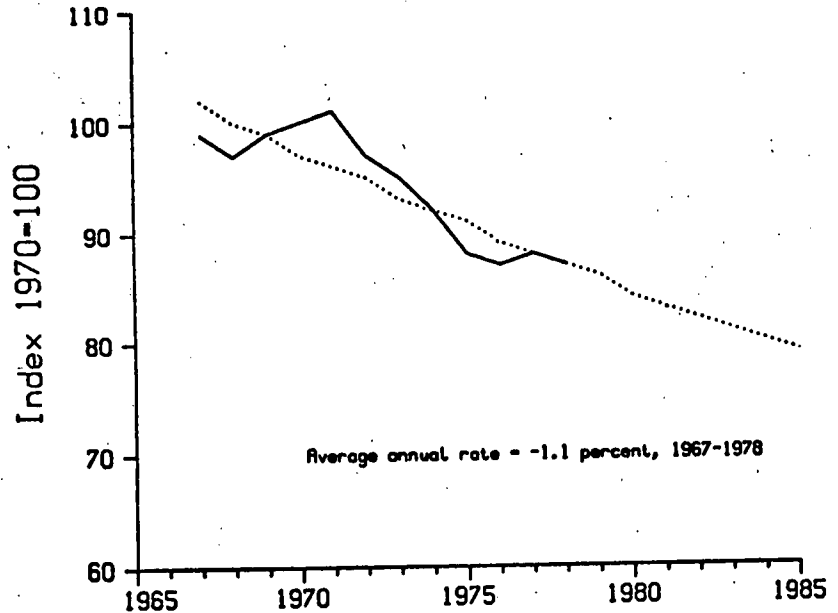


Figure 3

CZECHOSLOVAKIA: Total Energy Use
per Unit of Capital Stock



Legend
HISTORICAL
FORECAST.....

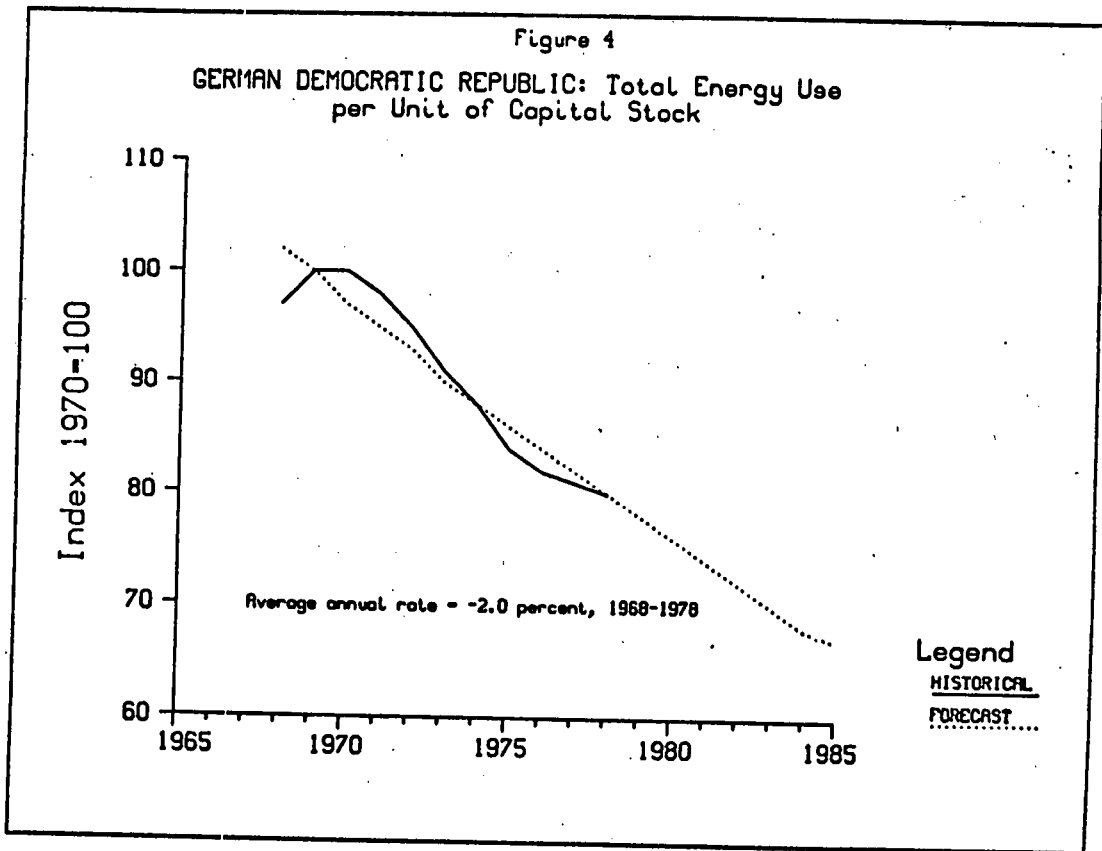


Figure 5

HUNGARY: Total Energy Use
per Unit of Capital Stock

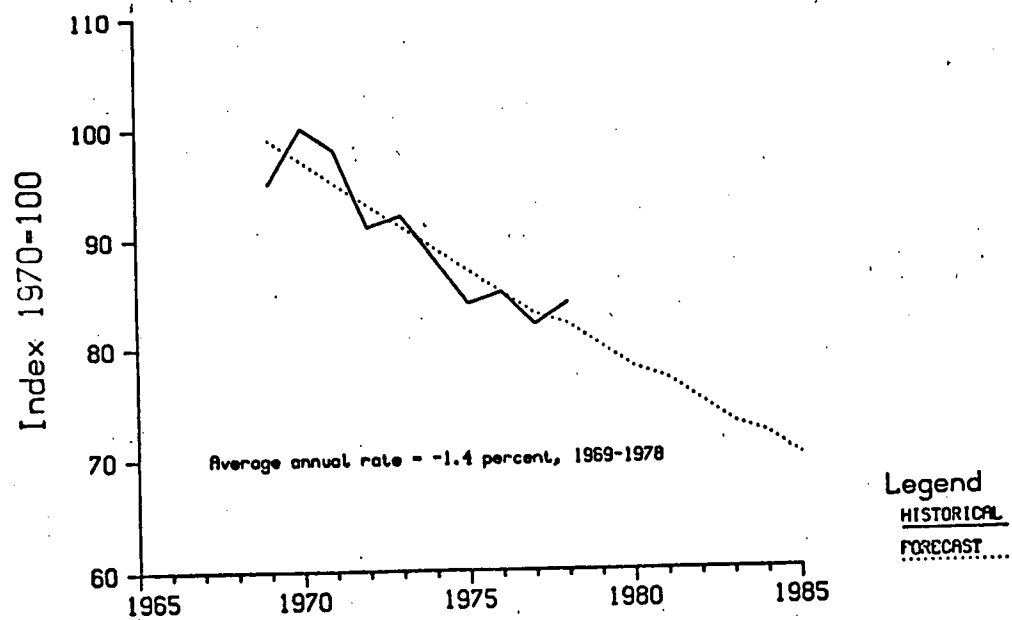


Figure 6

POLAND: Total Energy Use
per Unit of Capital Stock

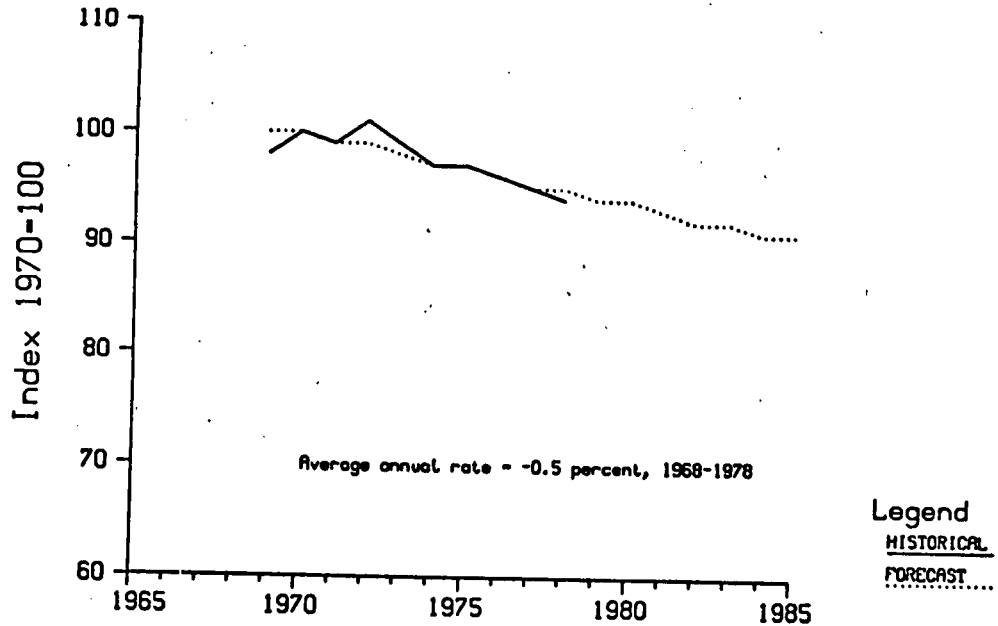
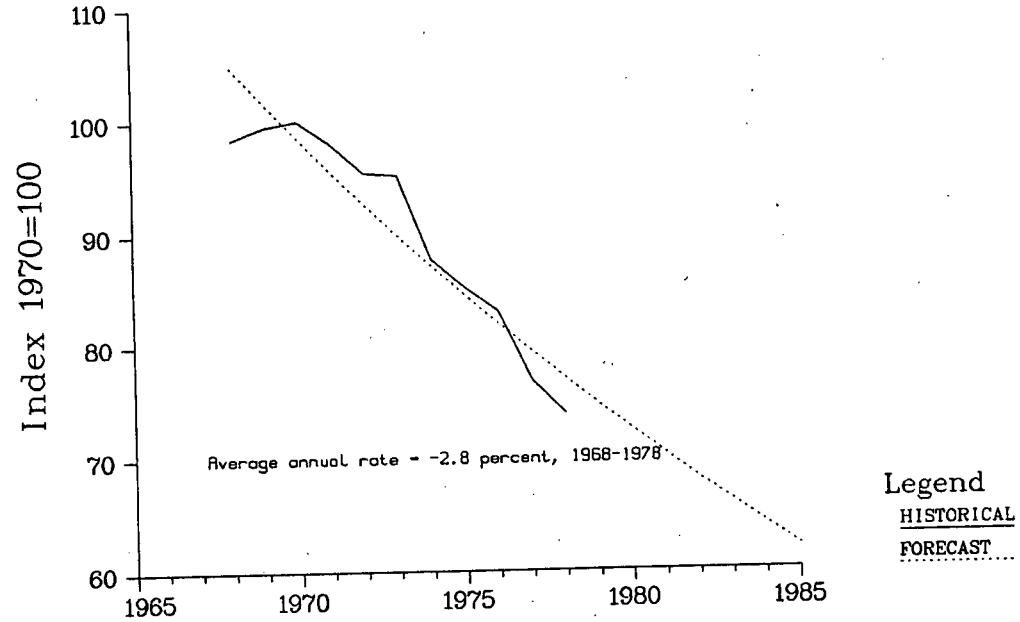


Figure 7

*ROMANIA: Total Energy Use
per Unit of Capital Stock*



The rate of decline in Romania has been extraordinarily rapid, principally due to the extraordinarily rapid growth in Romania's capital stock over the period, which in turn allows a more rapid improvement in the average efficiency of capital. The rate of improvement has been much slower in the other countries; around 2 percent per year in Hungary and the GDR, about 1.5 percent in Bulgaria and Czechoslovakia, and less than 1 percent in Poland. Changing fuel mixes have a good deal to do with changes in efficiency. Thus, the improvements shown by the graphs also reflect changes in the fuel mix in most countries—from less efficient solid fuels, primarily coal, to more efficient oil and gas. Conversion from coal to gas and oil has been quite marked except in Poland and Romania. As a country shifts to a more thermodynamically efficient fuel mix, less gross energy is required to obtain a given amount of useful work. Consequently, the apparent average energy intensity of the capital stock measured in gross energy terms can fall without an equivalent fall in useful work done per unit of capital.

Continuing our complementarity assumption between the energy requirement and capital, we allow the ratio of total energy available to total energy required to determine the utilization rate of the capital stock. That is, if the projected energy availability will satisfy only 90 percent of requirements in a given year, the active or utilized capital stock will be only 90 percent of the nominal capital stock. Although the Cobb-Douglas production function formulation recognizes a degree of substitution between labor and capital, no substitution between capital and energy is allowed except for some undefined degree of substitution implied by the decline in the energy requirement per unit of capital stock.

Summary of Key Assumptions

Table 3 presents our assumptions for some key energy and non-energy variables used in the model. The assumed rates of employment growth, which follow from demographic trends, reflect significant slowdowns in all countries relative to labor force growth rates of the last several decades. The growth in total domestic energy output is a composite of our assumptions about changes in the output of individual fuels. Projections of energy imports from CMEA incorporate an assumption that the Soviets will increase gas while holding oil deliveries constant. Hard currency export earnings are projected to grow three percent per year in real terms except in Poland where coal exports should provide faster growth. Except for the GDR, investment was assumed to depend on GNP growth and imports. As such, the growth rate of investment was determined within the analysis. In the case of the GDR, we assumed investment was constant in real terms between 1980 and 1985. Everywhere except Bulgaria rates of investment growth are significantly lower than rates realized in the 1970's. Bulgaria apparently already had begun to constrict investment by 1976.

TABLE 3.—EASTERN EUROPE: PROJECTIONS OF KEY EXOGENOUS VARIABLES

[Average annual rate of growth, 1980-85]

	Growth in employment	Growth in energy production	Growth in energy imports from CMEA	Growth in hard currency exports	Maximum debt-service ratio ¹ (percent)
Bulgaria.....	0.7	7.6	2.4	3.0	50
Czechoslovakia.....	.3	1.9	0	3.0	28
German Democratic Republic.....	.7	.8	.1	3.0	67
Hungary.....	.2	2.7	.7	3.0	41
Poland.....	1.0	2.9	2.0	4.6	80
Romania.....	.4	.9	2.1	3.0	25

¹ The debt-service ratio is allowed to exceed the assumed "ceiling" in Czechoslovakia, the German Democratic Republic, and Hungary to meet minimum non energy import requirements after energy is no longer affordable.

IMPACT OF ENERGY CONSTRAINTS ON EAST EUROPEAN ECONOMIC GROWTH

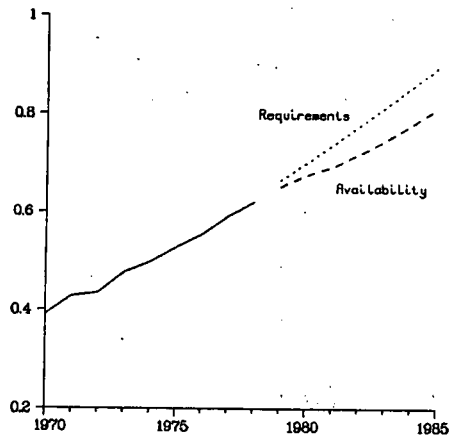
Projected Energy Balances—The Base Case

Even though other factors will hold down growth of GNP in Eastern Europe in the 1980's prospective energy shortfalls are likely to impose an additional barrier to economic growth. In our analysis, we define energy requirements as the energy needed to operate fixed capital fully; energy supplies include affordable imports of Western oil. Supplies for each of the East European countries in 1970-78 and supplies and requirements in the projection period, 1979-85, are depicted in figures 8-10. The quantities of hard currency oil imports affordable in 1985 are shown in table 4. Because financial constraints sharply restrict these imports in all countries, hard currently purchases cover no more than a small portion of the projected energy deficit by 1985. These energy shortfalls lead to reduced utilization of the capital stock throughout the region. In our projections, utilization rates in 1985 vary from 97 percent in Poland to less than 80 percent in Romania.

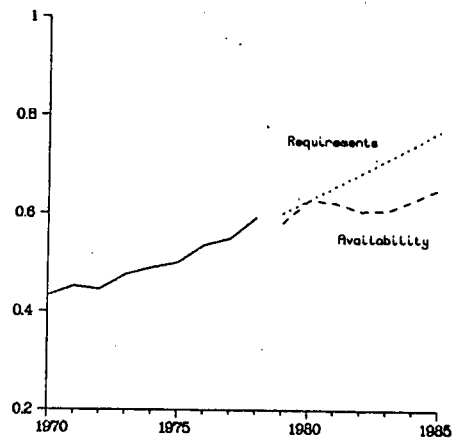
Figure 8.

Nominal Energy Requirements and Availability *
Million Barrels per Day

Bulgaria



Hungary



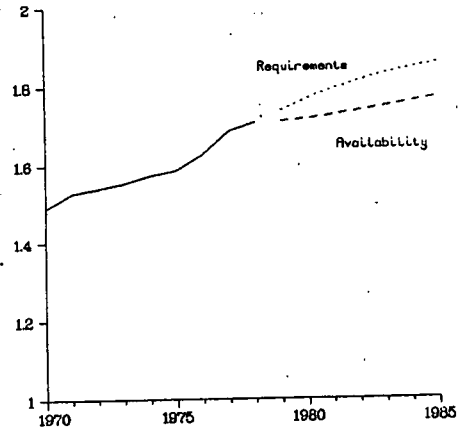
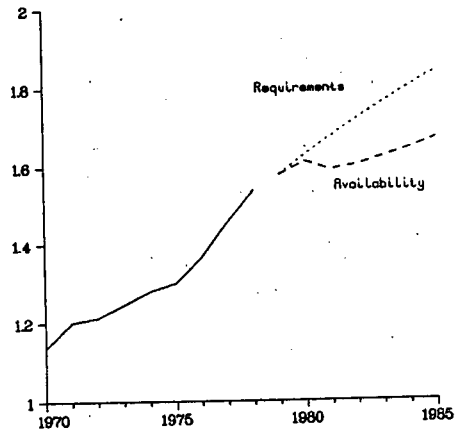
* Values for 1970-78 are historical data. Values for 1979-85 are projections.

Figure 9

Nominal Energy Requirements and Availability *
Million Barrels per Day

Czechoslovakia

German Democratic Republic



* Values for 1970-78 are historical data. Values for 1979-85 are projections.

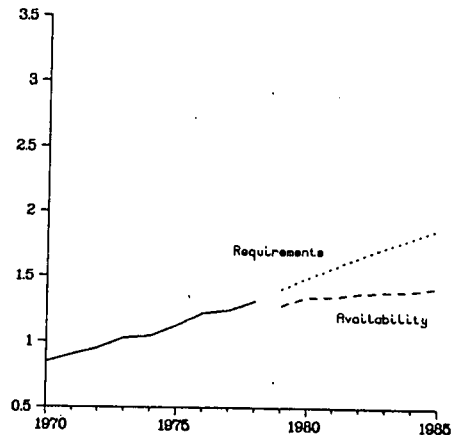
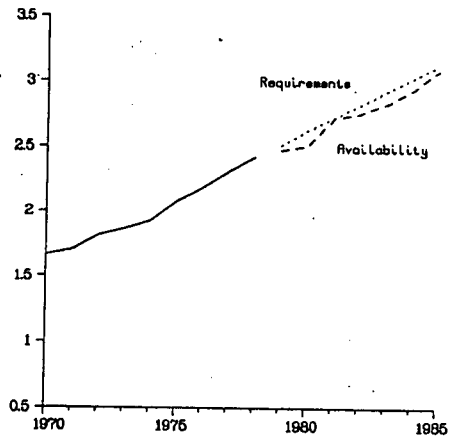
Figure 10

Nominal Energy Requirements and Availability *

Million Barrels per Day

Poland

Romania



* Values for 1970-78 are historical data. Values for 1979-85 are projections.

TABLE 4.—EAST EUROPEAN CRUDE OIL IMPORTS FROM HARD CURRENCY COUNTRIES

[In thousands of barrels per day]

	1970 ¹	1978 ¹	1985
Bulgaria.....	19	27	26
Czechoslovakia.....	8	17	0
German Democratic Republic.....	22	44	0
Hungary.....	8	29	0
Poland.....	0	76	99
Romania.....	46	194	221
Total.....	102	452	342

¹ Source: "Energy Supplies in Eastern Europe: A Statistical Compilation."

Although the projected deficit is relatively larger in countries such as Czechoslovakia and Bulgaria, a significant gap is evident even in Poland, where domestic coal production is assumed to grow quite rapidly. Nearly all of the countries begin to develop a noticeable gap between requirements and supplies beginning in 1980, although Hungary, Poland, and Czechoslovakia can obtain some short-term relief by buying oil for hard currency. The contrasting roles of domestic energy are particularly evident in Poland and Romania (figure 10). Whereas the rapid growth assumed for Poland's coal production seems to hold the shortfall within a small range, the expected decline in Romanian oil production creates an increasing and sizable gap by 1985.

Bulgaria is counting mainly on nuclear electrical generating capacity and significantly increased Soviet gas deliveries to increase energy supplies in the 1980's. Hungary, in contrast, can hope to have much more nuclear capacity only near the mid-1980's, and will be hard pressed to purchase much oil from the West. Severe balance-of-payments constraints seem inevitable for Czechoslovakia and the German Democratic Republic. The fall-off in energy supplies between 1980 and 1981 in Czechoslovakia is mainly due to the balance-of-payments-forced reductions in hard currency imports.

Projected Economic Growth

GNP in Eastern Europe grew at an average of 4.4 percent per year in 1971-78. In marked contrast, our base case projections suggest that economic growth between 1980 and 1985 will decline to barely half this historical rate (table 5). In fact, all of these countries face dramatic slowdowns in economic growth. In Poland and Romania, GNP growth falls to only half the rate of the 1970s while Czechoslovakia faces near stagnation.¹⁴ On a per capita basis, the situation is even worse, with almost no increase in per capita GNP in most East European countries. Bulgaria seems capable of maintaining respectable although considerably lower growth rates in the early 1980's, in large part due to imports of Soviet energy. However, it now has the lowest per capita GNP in Eastern Europe, and rapid growth during the

¹⁴ Recent statistics indicate that the slowdown in Poland's growth rate has been very pronounced. If this reflects a further deterioration in Poland's near-term growth potential, our present estimates of Poland's growth to 1985 may be too optimistic.

1970's may have created optimistic expectations for continued improvement that three percent growth is unlikely to fulfill. Growth rates in Hungary and East Germany are not expected to drop precipitously, but they were already below the average for the region.

TABLE 5.—GNP GROWTH RATES IN EASTERN EUROPE
[Average annual percentage change]

	Bulgaria	Czechoslovakia	German Democratic Republic	Hungary	Poland	Romania
Historical (1971-78) ¹	4.0	3.2	3.3	3.0	5.2	6.5
Projections if energy requirements are fully met (1980-85).....	3.7	2.3	2.7	2.9	2.7	6.0
Projections constrained by feasible energy supplies (1980-85).....	2.9	1.3	2.3	1.9	2.5	3.2

¹ Thad Alton, et al., 1979.

Thus the long awaited and continually deferred prospects for a catch-up in living standards with the West seems remote. Eastern Europe's leaders have been hard pressed in the last few years to maintain investment and still improve the lot of the consumer; the task can only become more difficult when total output grows more slowly.

Table 5 also presents an estimate of what East European growth might be under an alternative scenario in which limits on energy supplies do not prevent the full use of fixed capital. These rates of growth unconstrained by energy availability imply high and probably unrealistic levels of borrowing to finance oil imports from the West. The debt-service ratio is driven above 100 percent in both Poland and Romania, and in the other countries it rises to more than twice the ceiling assumed in the base case. The difference between the most likely (base case) scenario we have presented and the potential for growth in the absence of an energy constraint might be viewed as the sacrifice imposed by the expected energy shortage. The remaining retardation in growth is due to other factors, such as slower growth in the labor force and the capital stock.

In the case of Poland, for example, 2.5 percentage points of the drop in growth from 5.2 to 2.5 percent can be attributed to non-energy factors and 0.2 percentage point (2.7-2.5) to the projected energy gap. Reduced growth of capital stock and labor also account for most of the slowdown in the GDR. In the other four countries, however, energy seems to be a relatively much more important factor. Energy supplies are especially critical to the large industrial sectors in Czechoslovakia and the German Democratic Republic. Hungary's and Bulgaria's susceptibility to an energy shortage, however, result principally from their overwhelming dependence on imported supplies. Romania, though especially vulnerable to energy problems over the next five years, is much less dependent specifically on the Soviets for their imported energy.

To fully cover East European energy needs, and allow growth at the higher projections in table 5, the Soviets would have to increase energy deliveries to Eastern Europe by over one million barrels per day in 1985, compared with total deliveries of about 1.6 million barrels per day in 1979. This would raise total Soviet oil exports to Eastern

Europe to 30 percent of production. If instead Moscow were to purchase this additional oil on the world market, the cost of such a quantity could be close to \$20 billion (1985 prices). In either case, the burden seems unrealistic.

Prospect for Consumption

GNP growth rates do not necessarily translate into growth in per capita consumption. Trends in living standards, which are linked directly to movements in per capita consumption, depend upon both the share of GNP going to public and private consumption and population growth. Therefore, projections of GNP must be combined with projections of consumption's share and of population growth to assess prospects for the standard of living. Typically, however, East European definitions and reporting of non-consumption GNP components are not easily adapted to a simple calculation of the residual available for consumption.

The consumption residual expected for most of the countries suggests that growth in consumption will probably closely follow growth in GNP. That simply means stagnation on a per capita basis. Poland and the German Democratic Republic have made genuine efforts to limit the investment claim on production to allow some growth in production of consumer goods. Through such a strategy the GDR and Poland may be able to maintain an average annual growth in consumption at something like one percent over GNP growth. In both of these countries, however, the greater projected growth in consumption than GNP is made possible by a reduced investment share, and this holds obvious implications for longer term growth.¹⁵

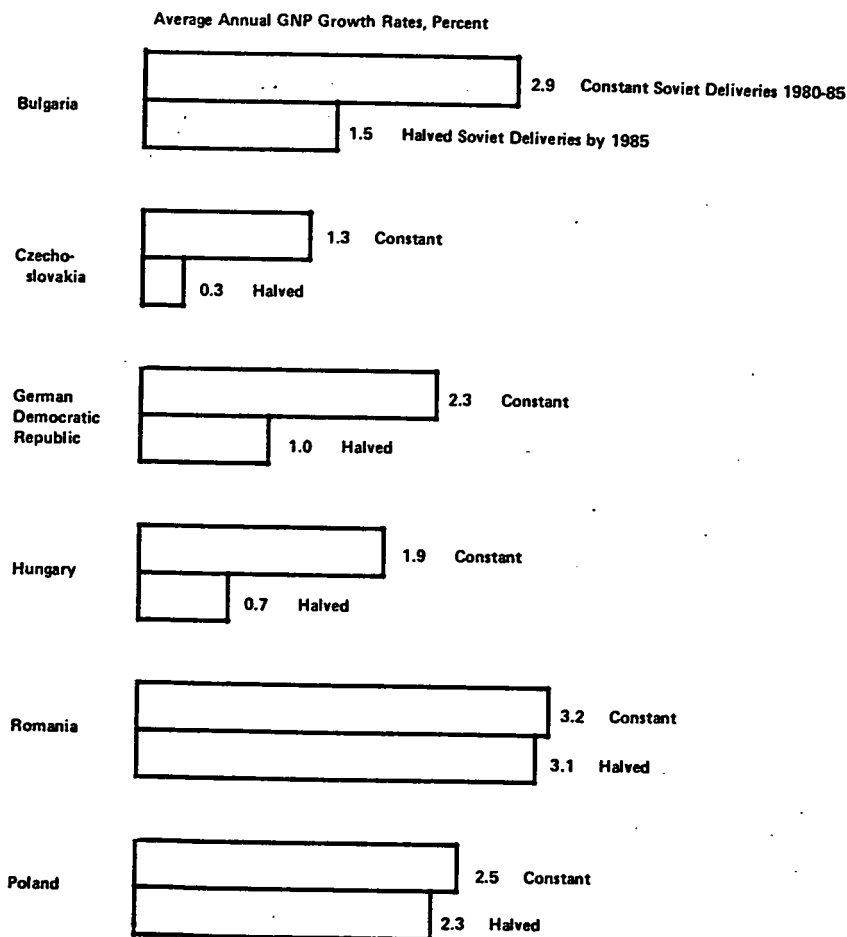
SENSITIVITY TO SOVIET OIL DELIVERIES

The growth projections examined above were based on the assumption that annual Soviet oil deliveries to Eastern Europe will remain at their 1980 levels through 1985. There certainly is little reason to believe that the Soviets will be willing or able to increase oil exports to Eastern Europe above 1980 levels. The eventual level of Soviet deliveries to the six countries is highly uncertain, however, and it is useful to gauge the impact on our growth projections of alternative assumptions regarding Soviet delivery policy. For comparison, we have considered the rather bleak prospect that the Soviets gradually halve their oil exports to Eastern Europe by 1985. Naturally, the impacts would be profound.

Figure 11 shows the average annual rates of GNP growth that could be expected under the assumptions presented earlier, modified by a 50 percent reduction in Soviet oil deliveries. On a GNP-weighted basis, such a policy might reduce East European growth from an average of 2.3 percent to 1.7 percent per year. The implications for per capita GNP growth are even more pronounced. In Czechoslovakia, for example, per capita GNP might actually fall and lower Soviet deliveries could lead to an absolute decline in the living standard.

¹⁵ In addition, to the extent that the U.S.S.R. forces East European governments to increase their defense budgets at a rapid pace, the increments to GNP available for consumption will be smaller.

Figure 11
EASTERN EUROPE: Effects of a Fifty Percent Reduction in Soviet Oil Deliveries on 1980-85 GNP Growth¹
 (Average Annual GNP Growth, 1980-85)



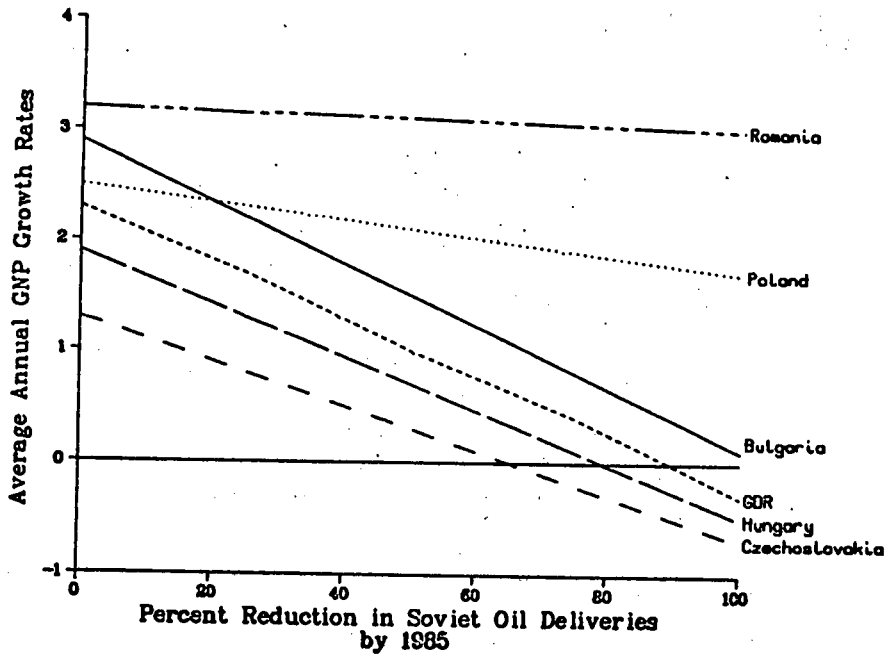
1. Comparison of effects of, (a) holding Soviet oil deliveries constant and (b) cutting deliveries steadily to half the projected 1980 level by 1985.

Figure 11 also points out the relative insulation from Soviet oil export policy that some of the countries enjoy and the marked vulnerability of others. Romania, for example, is barely affected by a halving of Soviet deliveries, whereas growth rates in Czechoslovakia, Bulgaria, Hungary, and the GDR would be sharply depressed. In terms of absolute levels of GNP in those four countries, the level feasible in 1985 with flat Soviet oil deliveries is seven percent higher than that possible if Soviet oil exports were cut in half by the end of the period.

The impacts of reduced Soviet oil deliveries to Eastern Europe depend upon the particular criterion selected by the Soviets as a basis for policy. The estimates in this paper view economic growth in Eastern Europe as partly a function of Soviet oil deliveries. Rough extrapolations from these results can be used to construct the relationship between growth and Soviet oil deliveries shown in figure 12. The vertical intercept of each line represents expected growth in that country if Soviet oil deliveries remain constant between 1980 and 1985 (the constrained growth rates shown in table 5 above). The slope of each line measures the sensitivity of the particular country's growth to reduced Soviet oil deliveries, everything else being held constant. Not surprisingly, Romania and Poland—where domestic energy resources provide the bulk of energy supplies—are much less sensitive to reduced Soviet oil deliveries than the other four countries.

Figure 12

*East European Sensitivity to Soviet Oil Deliveries
(1980-1985)*



Would Moscow take into account the rather pronounced variation in vulnerability among the countries in deciding on future oil allocations? If so, what specific criterion might be used? If Moscow chose to distribute a reduction in proportion to current deliveries, the result, at least for a 50-percent reduction by 1985, would be the situation described above. This criterion favors countries which depend little on Soviet oil—like Romania—and discriminates against countries—like Hungary—which rely heavily on Soviet exports. A more equitable policy would take into account the differing vulnerabilities of each country and would impose roughly equal burdens in terms of reduced growth, not reduced deliveries.

If we suppose that the ultimate Soviet goal is to reduce total oil deliveries to Eastern Europe by 50 percent in 1985, while ensuring equal sacrifices in growth, an interesting strategy emerges. First, Moscow would completely eliminate oil exports to Romania and Poland since even with no Soviet deliveries their indigenous energy supplies would limit the loss in growth to less than that imposed on the other countries in the region. The rest of the desired overall 50-percent reduction could then be realized by cutting allocations to Bulgaria by 32 percent, to Czechoslovakia by 41 percent, to the German Democratic Republic by 35 percent, and to Hungary by 38 percent.¹⁸ Each of the last four countries would thus have their average GNP growth rate reduced by less than one percentage point (figure 12)—a noticeably less severe sacrifice than that entailed in an across-the-board equal percentage cut in Soviet oil deliveries. Disproportionate reductions of these relative magnitudes may thus be most equitable in terms of sacrifices imposed. Although several of the countries could be expected to appreciate the logic of such a strategy, the Poles and Romanians might well define equity quite differently.

PROSPECTS FOR AVERTING THE SLOWDOWN

The uncertainty associated with economic prospects for Eastern Europe is great, and the confidence one has in any projection quickly erodes as the forecast horizon is extended. In particular, the potential for social and political change, managerial-technological innovations, and transformation of productive factors is greatly multiplied as the time is extended.

Especially low rates of capital stock retirement in Eastern Europe coupled with an expected slowdown of productive investment seem to define a fairly predictable short term picture for growth of capital stock. That is, neither the quantities nor the characteristics of productive assets in Eastern Europe are expected to change radically before 1985. Moreover, one doubts that the existing output mix will shift very much. International trade patterns and the mix of trade commodities probably will not be profoundly modified either. The relatively fixed economic structure permits some confidence, therefore, in the connections between energy demand and capital stock.

We certainly recognize a potential range of values for internal and external economic variables, however. Perhaps the most volatile com-

¹⁸ These estimates are derived from the slope coefficients incorporated in figure 11. The individual country sensitivity coefficients provide relative weights which are used to distribute the oil cut in such a way that the reductions in annual growth (in percentage points) are equally shared.

ponent of these economies is agriculture. Our projections assume average agricultural performance through 1985. Because the difference in agricultural output between a bad and bumper year is substantial, the subsequent need for imported food can have a marked impact on a country's balance of payments. Poland, for example, has occasionally been forced to use large amounts of precious hard currency to buy grain. Any shift—up or down—in the trend of agricultural output in the near term could sharply effect our projections.

One key growth constraint for Eastern Europe is the assumption that the potential to generate greater hard currency export earnings depends largely on the trend in export prices. Our basic projections assume that real hard currency exports can be expanded three percent annually, although even this modest rate is generally higher than the expected growth in domestic output. This rate of growth also involves the further optimistic assumption that export growth can exceed the rate of GNP growth in hard currency trading partners, since few OECD countries expect a three percent economic growth rate over the next few years.

There have already been indications that the diversion of output to the U.S.S.R. may impede efforts to supply the hard currency market. Additionally, there exists the very real prospect that the Soviets may demand payment in higher quality goods for whatever level of energy deliveries that may be set. Joint ventures to develop Soviet energy resources also divert precious investment goods from the domestic economy. Any such diversions of hard goods means a consequent erosion of the capacity to import from Western countries. Nonetheless, the bleak growth prospects indicated above would be tempered somewhat if East European countries can raise export earnings more rapidly than we have assumed.

The capacity to import oil from the West might be improved if the recently increased dependence on other hard currency imports can be scaled down. Of course any requirement for imported grain would be curtailed with great difficulty. Similarly, imports of industrial materials, machinery and spare parts are not likely to be reduced without significant sacrifice. Already there have been indications that restrictions on imports of Western goods have affected Poland's ability to generate hard currency exports. Another means of reducing hard currency non-energy imports exists, at least in theory. If the CMEA countries can achieve greater integration and expand their joint capacity to produce high technology goods, a measure of import substitution from hard currency markets to intra-CMEA trade may be realized. But this possibility seems more viable in the long run than in 1981-85.

None of the other CMEA countries is in as serious a financial state as Poland, and several of the countries are relatively creditworthy. Czechoslovakia could probably expand its borrowing substantially. None, however, would seem inclined to over-extend their indebtedness to the West even if abundant credit were available. Most of the countries seem willing to borrow heavily only to cover what they view as short term aberrations in their balance of payments. Such a view of borrowing from the West militates against borrowing heavily to cover

a chronic shortage, which can hardly appear transitory seven years after the first run-up of oil prices. These factors could modulate any internal propensity to finance chronic large trade deficits by borrowing. Of course any reluctance on the part of Western bankers to further exposure in Eastern Europe could narrow East European options unilaterally.

Finally, of course, the extent of the prospective economic slowdown in Eastern Europe depends on whether the emphasis placed by the several regimes on raising productivity can be translated into results. In principle, significant gains in productivity—greater than achieved in the past—might allow continued rapid growth even in light of the slowed growth in the capital stock and the labor force. There are however important impediments to the success of this course. One is the slowdown in investment which means slower improvements in the average quality of the capital stock. Another is the reduced access to superior Western technology because of difficulties in financing trade with the West. Lastly, a course which tends to substitute coal for more expensive oil and gas would probably involve an efficiency sacrifice which could undermine overall productivity.

Coupled with the dimmed prospect for a rapid improvement in the capital stock are factors affecting labor productivity. One expects that the prospect of slower growth or even stagnation in per capita GNP and per capita consumption would erode work incentives. Any action to prop up productive investment by further reducing investment in housing and public facilities would also detract from a strategy aimed at improving labor productivity.

In sum, the confluence of effects from tightening energy supplies and hard currency trade are likely to make the 1980's a decade of economic retrenchment for the countries of Eastern Europe. Domestic policy choices may make the situation somewhat more or somewhat less tolerably, but they are not likely to alter the basic trends.

APPENDIX

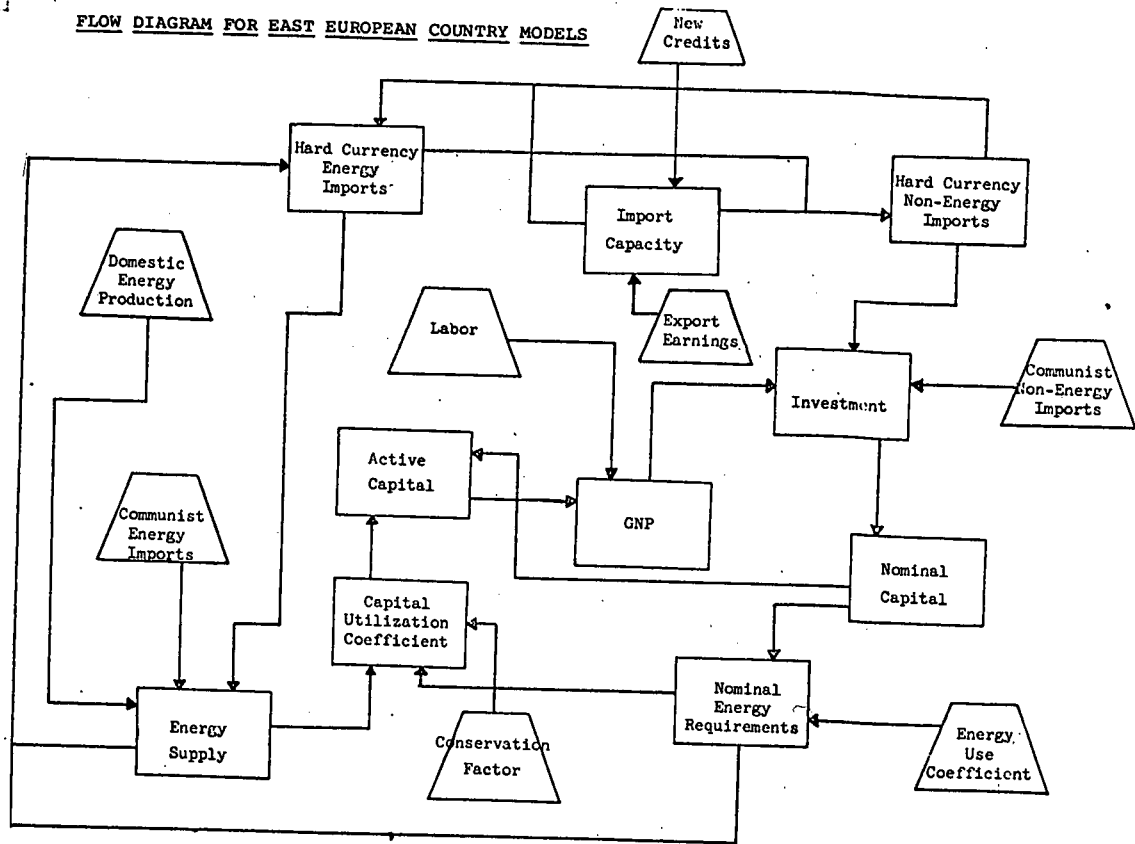
MODEL DESCRIPTION

Our goal has been to develop an analytical framework assessing prospects for economic growth in each country in Eastern Europe. The framework had to meet two important criteria. First, it had to be supported by the data base for each of the six East European countries, which meant it had to be consistent with the "lowest common denominator" from a data standpoint. Second, it had to maintain the essential linkages among productive factors (including energy), the level of economic activity, and the hard currency balance of payments in each country. Thus, the purpose of the framework is to ensure that projections of GNP for each country are consistent with both energy and hard currency constraints.

A flowchart of the important components and linkages in our general country framework is represented in figure A1. Rectangles represent endogenously determined variables, and trapezoids represent exogenous variables.

Figure A1

FLOW DIAGRAM FOR EAST EUROPEAN COUNTRY MODELS



This analytical framework generates values for variables in the following categories:

Production.—GNP is computed as a function of employment and the active capital stock.

Capital formation.—Total investment, both domestically produced and imported, is the source of additions to the capital stock.

Energy balance.—The model generates forecasts of total energy requirements and total energy supplies. The ratio of these two variables is used to estimate the effective or active portion of the capital stock.

Hard currency energy imports.—Affordable energy imports from the West are calculated consistent with projected balance of payments accounts.

Hard currency balance of payments.—East European trade with the West is specified so that we can assess new borrowing, hard currency debt, principal repayments, interest payments, and the debt service ratio.

These projections from the model reflect our assumptions about the following variables:

Employment.—The projected growth of employment is based on official projections and is exogenous to the model.¹⁷

Energy supplies.—Energy production, energy imports from communist countries, and energy exports are estimated outside of the model.

Balance of payments.—Hard currency export earnings are considered to be principally demand driven and therefore exogenous. We also assume likely values for the interest rate, average maturity of the debt, and a debt-service ratio ceiling.

The functional relationships among the variables are shown in table A1. Variable names are defined in tables A2 and A3. These equations define the endogenous variables and describe the linkages connecting them and the exogenous variables.

Production.—We use a Cobb-Douglas production function to generate estimates of GNP from projections of employment and active capital stock, which is simply nominal capital stock adjusted for utilization (equation 1).¹⁸ The utilization rate of the nominal capital stock is determined by the ratio of energy availability to energy requirements (equation 2).

Capital formation.—An identity calculates this year's capital stock from last year's capital stock and net capital formation (equation 3). Net additions to the capital stock are generated from estimates of total investment and the assumed rate of retirement of the capital stock (equation 4). Investment in fixed assets is determined by both domestic output and total imports of non-energy goods (equation 5). Thus, in addition to providing a potential source of energy, international trade is a critical determinant of total investment. The ratio of non-energy imports from the West to GNP is not allowed to fall below an assumed floor (equation 6).

Energy balance.—Total energy supply in each of the countries is the sum of domestic production, net imports from communist countries (essentially Soviet deliveries), and the net imports that can be purchased for hard currency on the world market (equation 7). The balance of payments accounts determine how much import capacity will be available for hard currency energy purchases. Energy requirements are computed from the capital stock and projections of the average energy intensity of capital (equation 8). Thus, we implicitly assume that energy and capital are complementary factors of production. The energy requirement per unit of the capital stock is extrapolated from the historical trend (equation 9).

Hard currency energy imports.—The capacity to import energy for hard currency is influenced by a number of factors. It not only depends on export earnings, new borrowings, and the structure and size of the debt. It also depends on competing needs to import non-energy goods (equation 10). Our basic assumption is that hard currency will be allocated to energy

¹⁷ Thad Alton, et. al., 1978.

¹⁸ Statistical estimation with a conventional Hicks-neutral specification of disembodied technological change proved unsuccessful in most of the countries. Our assumption of constant-returns-to-scale incorporates some of the technological change effect because actual returns to scale are probably less than one. Thus, technological change is embodied in the growth of the capital stock and to some degree in the specified returns to scale, and not in a separate trend of improvement in total factor productivity.

imports only after debt-service obligations have been met and minimum levels of non-energy imports have been satisfied. The volume of affordable hard currency energy imports is calculated from this residual import capacity and assumed future oil prices (equation 11). New financing for Western imports is constrained through an assumed ceiling on the debt-service ratio (equation 12).

Hard currency balance-of-payments accounts.—We have disaggregated debt-service into principal and interest payments. Although we have been able to estimate crudely the maturity structure of the Polish debt, data limitations prevent this breakdown for all of the countries. For these cases, principal repayments are simply a function of three factors: total debt, the portion which is medium and long term, and the assumed average maturity structure (equation 13). Interest payments depend upon the average interest rate and the size of the debt (equation 14). The average interest rate in a given year (equation 15) is generated as a weighted average of the average interest rate on old debt and the assumed rate on new borrowings. The debt-service ratio is calculated as the ratio of interest and principal payments to total export earnings, including those from invisibles (equation 16). Total debt is determined from an accounting relation as the prior year's debt plus new borrowings minus repayments (equation 17).

TABLE A1.—*Condensed Model Structure*

Production:

1. $GNP=f(KA,L)$
2. $KA=K \times (ES/ER)$

Capital Formation:

3. $K=K(-1) + NKF$
4. $NKF=f(RET,I)$
5. $I=f(GNP, NEMC, NEMHC)$
6. $NEMHC=f(GNP)$

Energy Balance:

7. $ES=EP+EMC+EMHC-EX$
8. $ER=K \times Q$
9. $Q=f(t)$

Hard Currency Energy Imports:

10. $VEMHC=X+INVIS+GF-IP-PMTS-NEMHC$
11. $EMHC=VEMHC/EPR$
12. $GF=f(DSR)$

Balance of Payments:

13. $PMTS=f(MAT, MLT, DEBT(-1))$
14. $IP=f(IR, DEBT(-1))$
15. $IRA=f(IRA(-1), DEBT, IR, GF)$
16. $DSR=(R+PMTS)/(X+INVIS)$
17. $DEBT=DEBT(-1)+GF-PMTS$

TABLE A2.—*Exogenous Variables*

EM	Energy imports
EMC	Energy imports from Communist countries
EP	Energy production
EPR	Price of oil imported from hard currency trading partners
EX	Energy exports
INVIS	Invisible earnings (hard currency)
IR	Interest rate on new borrowings
L	Employment
MAT	Average maturity of medium and long term hard-currency debt
MLT	Portion of hard currency debt that is medium and long term
NEMC	Non-Energy imports from Communist countries
RET	Rate of retirement of fixed capital
t	Time
X	Hard currency export earnings from merchandise trade

TABLE A3.—*Endogenous Variables*

DEBT	Hard currency debt
DSR	Debt-service ratio on hard currency debt
ER	Energy requirements
EMHC	Energy imports from the hard currency market
ES	Total energy supply
GF	Gross financing (hard currency)
GNP	Gross national product
I	Investment
IP	Interest payments on hard currency debt
IRA	Average interest rate on debt
K	Capital stock
KA	Active capital stock
NEMHC	Non-energy imports from hard currency countries
NKF	Net capital formation
PMTS	Principal repayments on hard currency debt
Q	Energy requirement per unit of capital stock
VEMHC	Current dollar value of energy imports paid for in hard currency

EAST EUROPEAN TRADE WITH OPEC: A SOLUTION TO EMERGING ENERGY PROBLEMS?

By Ronald G. Oechsler and John A. Martens*

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I. INTRODUCTION

Over the past twenty years, energy consumption in the East European CMEA countries has increased steadily, rising by an average of 4 percent per annum since the mid-1950's. Given the absence of significant domestic energy resources,¹ increased consumption has translated directly into a rise in energy imports—particularly oil and gas—much of which has been supplied by the Soviet Union.

East Europe's ability to maintain its recent levels of energy consumption and imports, however, has been severely undermined by a number of international economic developments, namely:

Production difficulties in Soviet oil industry,² which have seriously constrained the available near term supplies of Soviet oil for Eastern Europe;

Rapid rises in OPEC and Soviet oil prices, which have severely taxed Eastern Europe's ability to afford increased energy imports; and

Slower economic growth in the West, which has reduced demand for many East European export products, thereby cutting into hard currency earnings which otherwise might have been used to pay for additional energy imports.

* Office of East-West Policy and Planning, U.S. Department of Commerce. The authors wish to thank Larry Kessler, Andrew Oleksiw, and Keith Paneff for their valuable statistical assistance.

¹ Poland, with its large coal production, is East Europe's only net producer of energy. Romania has the greatest production of oil (about 290,000 b/d in 1978), but in 1976 Romania became a net importer of oil.

² CIA, *Prospects for Soviet Oil Production*, ER 77-10270, Washington, D.C., April, 1977; Robert Campbell, "Implications for the Soviet Economy of Soviet Energy Prospects," *ACES*, Volume XX, No. 1 (1978), pp. 37-52.

In addition, the large Soviet natural gas deliveries which have recently eased East Europe's energy situation will peak and level off over the next five years, after which other new energy sources will have to be found to cover consumption increases.

While none of these developments will necessarily create a massive energy crisis, East Europe's growing energy difficulties will have to be solved if economic growth is to continue. In tackling this problem a number of policy options are available, each of which will likely be employed to some extent in fashioning a comprehensive energy program.³ These include: conservation, accelerated development of domestic coal and hydropower resources, nuclear power, increased imports of oil and gas from the USSR and, finally, imports of oil from the OPEC countries.

As a path to solving its energy problems, the latter alternative—increased trade with OPEC—holds a considerable attraction for Eastern Europe, as testified to by the growing amount of scholarly and media commentary devoted to this theme.⁴ To begin with, OPEC accounts for the major share of noncommunist oil production and exports, and thus could be a principal source for additional East European purchases of crude oil from outside of CMEA. Throughout the 1970's, in fact, East European oil imports from non-communist sources rose more than fourfold and now comprise nearly a quarter of EE's total crude oil imports (see table A-1, appendix). OPEC holds considerable promise as a market for East European exports in view of OPEC's massive oil revenues and broad-scale economic development programs. This has created the need for vast amounts of machinery, equipment, materials, and technical assistance which East Europe could provide as a means of paying for crude oil purchases. Additionally, because the OPEC countries are less developed economically than East Europe, factors which have constrained growth in East European exports to the developed West—for example, the less sophisticated nature of East European products and technologies, the difficulty of breaking into long-established Western markets, and protectionist barriers against imports—appear to be largely absent in OPEC. Finally, over the years East Europe has devoted considerable efforts to cultivating political relations with many OPEC members, in part with the aim of creating a favorable climate for trade. These factors create a strong motivation for East European countries to utilize trade with OPEC as a means of resolving pressing energy needs.

This paper examines East European trade with OPEC since 1970 in order to assess its present and future role in the resolution of East Europe's emerging energy problems. In addition to charting the overall development of trade, the paper pays particular attention to the growth in East European exports to OPEC. These exports are likely to be East Europe's principal means of paying for imports of OPEC oil, and therefore are the basic determinant of the viability of East-European-OPEC trade as a partial solution to the region's energy needs.

³ See, for instance, Edward A. Hewett, "The Soviet and East European Energy Crisis: Its Dimensions and Implications for East-West Trade." May 1978, mimeo.

⁴ See "Trade Relations Between CMEA and OPEC Countries," *AW DDR-Aussenwirtschaft*, vol. 7, No. 41, Oct. 10, 1979 (translated in *JPRS* 74707, Dec. 4, 1979, pp. 1-3); and "The Third World—An Important Direction for Cooperation," *Handel Zagraniczny*, No. 3, Mar. 1979, pp. 11-14 (translated in *JPRS* 73986, Aug. 9, 1979, pp. 79-90). For an excellent Western discussion of this issue see, John Haberstroh, "Eastern Europe: Growing Energy Problems," in *East European Economics Post-Helsinki*, Joint Economic Committee (Washington, D.C.: 1977), esp. pp. 386-389.

No attempt is made in this paper to predict the outcome of what is now widely discussed by Western analysts as Eastern Europe's pending energy crisis. Nor do we imply that trade with OPEC countries is the best—or most likely—path to the solution of the region's energy problems. Instead, the study limits itself to conclusions on the viability of East European-OPEC trade as one of the alternative paths open to the East European countries in surmounting their coming energy problems.

The organization of the paper is as follows. Section II discusses the sources of data and the methodology used in analyzing East European trade with OPEC. Section III provides a detailed examination of the trade between 1970 and 1978, focusing chiefly upon East European exports to the OPEC countries and the East European merchandise trade balance with OPEC. In order to gauge the major East European export strengths and weaknesses, this section also analyzes the geographical orientation of EE exports, their commodity composition, and East European market shares in OPEC. Section IV examines the trading positions of the individual East European countries, and Section V outlines the study's major conclusions and their implications for the future.

II. DATA AND METHODOLOGY

The analysis in this paper centers on East Europe's merchandise trade with the OPEC countries. While East Europe's commercial relations with the OPEC countries also include military assistance programs and invisibles, we have not included either of these areas of trade for the following reasons:

While there are no published estimates of the size of East Europe's military assistance programs, they are believed to comprise only a moderate source of East Europe's revenues from OPEC;⁵

While East European technical services to LDCs have become "a lucrative outgrowth of the aid program," one can reasonably assume that technical services generate frequent spin-offs of merchandise trade, and therefore are reflected in the merchandise trade data; and

While services and "invisibles" are an important part of international commerce, many of the more important invisible items—tourism, banking, direct investment, insurance, shipping, etc.—are relatively minor in East European commercial relations with OPEC.

The analysis of merchandise trade is primarily based on data obtained from foreign trade handbooks published by the thirteen OPEC countries. These handbooks are the source for statistics on East European merchandise exports to OPEC, as well as EE imports from OPEC of all products except crude oil. Data on crude oil imports from OPEC have been obtained from the East European foreign trade handbooks and are defined as the residual between total oil imports

⁵ The total value of East European military equipment deliveries to all LDCs in 1976 was \$315 million. If one assumes the proportion of Communist military technicians which were in the Middle East and North Africa (60 percent of total Communist presence in all LDCs) to be the same as the proportion of East European military equipment sold to OPEC, then East European military sales to OPEC would be approximately \$190 million. This represents about 20 percent of the value of East Europe's merchandise trade. Furthermore, while East European military equipment sales grew at an average annual rate of 22 percent between 1970 and 1976 the East European merchandise trade with OPEC grew at a 25 percent rate for the same period. See CIA publication (ER 79-10412U), *Communist Aid Activities in Non-Communist Less Developed Countries 1978*.

and imports obtained from the CMEA countries.⁶ 7 To obtain the approximate cost of these imports to East Europe, the volume of imports (in barrels) was multiplied by the average OPEC price for the given year.⁸ Added to nonoil imports from OPEC, this yields an approximation—most likely a very close one—of the value of total East European imports from OPEC. These data in turn are compared with data on East European exports to construct yearly East European trade balances with OPEC for the 1970–1978 period.

Aside from compiling summary data on East European-OPEC trade during 1970–78, additional data was used to analyze EE exports in more detail. Eight OPEC countries regularly publish detailed trade data according to commonly used international commodity classifications. These eight countries⁹ (referred to as the OPEC-8), include nearly all the major OPEC oil exporters; moreover, they generally account for well over three-fourths of all EE exports to OPEC as a whole.¹⁰ Data for these eight countries, therefore, provide a good indication of the kinds of products shipped by East Europe to the entire OPEC group, including those countries for which detailed trade figures are lacking. Regrettably, these data are available only for 1970 through 1976. However, given the stability of EE exports during this period, observations made on this basis should be valid for subsequent years as well.

To facilitate analysis of the composition of EE exports to the OPEC-8, one-digit SITC tabulations were constructed for East Europe as a whole and for the six individual EE countries. In addition, a tabulation of East Europe's most important two-digit SITC export products was also compiled. In order to establish trends in East Europe's share of OPEC markets, an additional tabulation was compiled providing a one-digit SITC breakdown of total OPEC-8 imports from the world. Where appropriate, these tables have either been provided in the body of the paper or in the appendix. Such comprehensive and detailed data provide insights into the specific areas of East European export strengths and competitiveness on OPEC markets, as well as a basis for speculation on the prospects for expanded East European-OPEC trade.

Section III focuses mainly on a region-to-region analysis of East Europe's trade with OPEC (and the OPEC-8 subgroup), while Section IV highlights the specifics of each individual East European

⁶ East European data were not used due to the following limitations: (1) Complete and detailed foreign trade information for each East European country was lacking—due to the absence of detailed statistics for the GDR and Romania; (2) Much of the data in East European trade handbooks are expressed in physical rather than monetary units, thereby preventing the compilation of complete merchandise trade balances with OPEC; and (3) East European data cannot all be expressed according to a common trade classification, again owing to the absence of detailed trade figures for several East European countries.

OPEC foreign trade data, by comparison, presented none of these limitations, and allowed compilation of complete figures, in value terms, for trade with every East European country for the 1970–78 period. In addition, detailed trade data, expressed either in SITC format, or convertible to the SITC classification, were available for eight major OPEC countries (see below), thereby permitting detailed analysis of the composition of EE-OPEC trade.

⁷ These data are conveniently provided in the CIA publication (ER 79-10624), *Energy Supplies in Eastern Europe: A Statistical Compilation* (December 1979), particularly table 19, p. 13. For convenience, a copy of this table—with special corrections for GDR oil imports (described below)—is provided in the appendix (table A-1).

Since not all OPEC countries include oil exports in their foreign trade statistics, and since there are usually discrepancies between exporting and importing country reporting of oil trade—due to transshipments, changes in destination, cargo swapping, etc.—OPEC country figures on oil exports to EE were not used in this paper.

⁸ See table A-2, appendix, for the average OPEC prices used in this study.

⁹ Algeria, Indonesia, Iran, Kuwait, Libya, Nigeria, Saudi Arabia, Venezuela.

¹⁰ Iraq, the most important country not included in the OPEC-8, constituted 11 percent of East Europe's exports to OPEC in 1978.

country's trade with OPEC. However, in the regional analysis we frequently distinguish between Romania and the other five East European countries, owing to Romania's special energy situation. Specifically, Romania is the only significant East European producer and exporter of oil and oil products.¹¹ Furthermore, Romania is the only East European country that traditionally has not depended on the Soviet Union for its oil imports, instead obtaining nearly all of its imports from OPEC.¹² In 1978, in fact, Romania imported more OPEC oil and exported more oil products than the rest of East Europe combined. These differences must be taken into account in any analysis of East European-OPEC trade. Thus, wherever Romania's special oil situation would cloud the analysis, Romania has been treated separately.

However, Romania's oil situation is rapidly changing. In 1976 Romania became a net importer of oil. As a result, Romania now faces costly OPEC oil bills which cannot be balanced by oil and oil product exports—a trade situation increasingly resembling that of Romania's East European partners.

Finally, it is important to note that throughout the paper considerable emphasis is given to East Europe's trade balance with OPEC, which is used as a convenient barometer for gauging East Europe's success in keeping exports to OPEC in line with purchases of OPEC oil. It is, of course, simplistic to assume that countries must balance their trade either with individual trading partners or groups of trading partners. Nevertheless, recent developments in East Europe's overall trading position make it almost imperative for them to endeavor to maintain as close as possible a balance in trade with OPEC. These developments include:

- Persisting trade deficits with the developed West, which have already led to the accumulation of sizable hard currency debts;
- Burgeoning trade deficits with the USSR, following the CMEA price adjustments of 1975. Since Soviet oil prices are pegged to the OPEC price, the cost of Soviet oil will continue to rise, thus insuring continuing large EE deficits with Moscow; and
- The likelihood of a stagnation in trade with the LDC's—a source of modest surpluses in the past—as the LDC's themselves become burdened by growing energy bills.

Therefore, lacking substantial additional hard currency reserves, the East Europeans are likely to feel continued pressure to keep a positive balance in trade with OPEC.

III. ANALYSIS OF EAST EUROPEAN-OPEC TRADE

A. General Trends

1. TRADE WITH OPEC AS A WHOLE

From 1970 through 1978, East Europe's trade with OPEC expanded vigorously, with imports growing at a rate of 44.3 percent per annum,

¹¹ In 1977, Romania produced 288,000 barrels per day of crude oil—84 percent of total East European oil production; in the same year Romania exported 153,000 b/d of oil products—over half the EE total. See *Energy Supplies in Eastern Europe: A Statistical Compilation*.

¹² In 1980, Romania made its first sizable purchase of Soviet oil, importing 1.5 million MT (30,000 b/d) for hard currency at prevailing OPEC prices. Bucharest would doubtless seek to step up these imports if payment could be made on a clearing account basis. However, Soviet unwillingness to accept such terms makes large-scale Romanian importation of Soviet oil unlikely.

and exports at a rate of 27.1 per annum (see table 1). OPEC was the fastest growing segment of East European foreign trade in the 1970-78 period. Overall, however, OPEC still accounts for a minor share of East Europe's total trade—3.1 percent in 1978—although it currently makes up a major share (40 percent) of EE trade with all LDC's.

TABLE 1.—EASTERN EUROPEAN TRADE WITH OPEC, 1970-78

(Millions of U.S. dollars)

	1970	1971	1972	1973	1974	1975	1976	1977	1978 ¹
Total Eastern Europe:									
Exports.....	281.4	349.0	395.2	534.1	854.1	1,264.1	1,329.6	1,788.1	1,920.2
Imports.....	117.5	149.9	203.9	407.4	1,007.7	1,039.8	1,547.8	1,705.8	2,206.9
Crude oil.....	37.1	61.0	98.8	280.7	851.4	870.9	1,318.4	1,536.5	2,040.9
Other.....	80.4	88.9	105.1	126.7	156.3	168.9	229.4	169.3	166.0
Balance.....	+163.9	+199.1	+191.3	+126.7	-153.6	+224.3	-218.2	+82.3	-286.7
Romania:									
Exports.....	70.1	86.2	91.6	139.5	221.1	435.0	392.4	479.6	638.7
Imports.....	24.3	47.0	58.8	135.0	405.9	443.9	751.2	842.8	1,233.1
Crude oil.....	18.4	28.4	32.3	102.8	373.7	409.4	728.2	831.5	1,221.1
Other.....	5.9	18.6	26.5	32.2	32.2	34.5	23.0	11.3	12.0
Balance.....	+45.8	+39.2	+32.8	+4.5	-184.8	-8.9	-358.8	-363.2	-594.4
Other Eastern Europe:									
Exports.....	211.3	262.8	303.6	394.6	633.0	829.1	932.2	1,308.5	1,281.5
Imports.....	93.2	102.9	145.1	272.4	601.8	595.9	796.6	863.0	973.8
Crude oil.....	18.7	32.6	66.5	177.9	477.7	461.5	590.2	705.0	819.8
Other.....	74.5	70.3	78.6	94.5	124.1	134.4	206.4	158.0	154.0
Balance.....	+118.1	+159.9	+158.5	+122.2	+31.2	+233.2	+135.6	+445.5	+307.7

¹ Partly estimated by IMF "Direction of Trade" based on previous years' data (Iran, Nigeria, Libya, Saudi Arabia, Qatar, and Gabon). For all other OPEC countries either full year 1978 figures, or extrapolated partial year data were used.

Source: OPEC Foreign Trade Handbooks and IMF, "Direction of Trade."

During the early 1970's, East Europe's exports to OPEC well exceeded imports of OPEC products, which in addition to crude oil included sizable quantities of food (fruits, coffee, cocoa) and raw materials (rubber, phosphates). This situation changed drastically by 1974, however, owing to the seven-fold rise in OPEC oil prices (increasing from an average of \$1.54 per barrel in 1972 to \$11.54 per barrel in 1974). Between 1973 and 1974 East Europe's imports from OPEC nearly quintupled to \$1 billion. Notwithstanding strenuous efforts to boost exports to OPEC, which grew over 60 percent in both 1973 and 1974, East Europe's trade balance with OPEC nonetheless registered its first deficit in 1974. Romania's balance with OPEC swung deeply into deficit and the other five East European countries lost nearly all of their previous surpluses.¹³ In subsequent years, Romania's deficit with OPEC widened to over half a billion dollars by 1978, as burgeoning imports of OPEC oil far exceeded the growth in Romanian exports to OPEC. In contrast, a continued expansion of exports by the other East European countries, coupled with only modest increases in imports of OPEC oil, enabled the reestablishment of a sizable (\$310 million) trade surplus with OPEC by 1978. Figure 1 shows the development of East European trade with OPEC in 1970-1978.

¹³ Grouping all six East European countries together, however, masks significant differences between Romania, which imports practically all of its crude oil from OPEC, and the other five countries, whose imports from OPEC comprise a relatively small—if growing—share of their total oil imports. Romania has accounted for about half of the dollar value of recent EE oil imports from OPEC, while its exports have comprised about one-third of the EE total.

Figure 1.

Eastern
European Trade
with OPEC,
1970-1978

(Millions of U.S. Dollars)

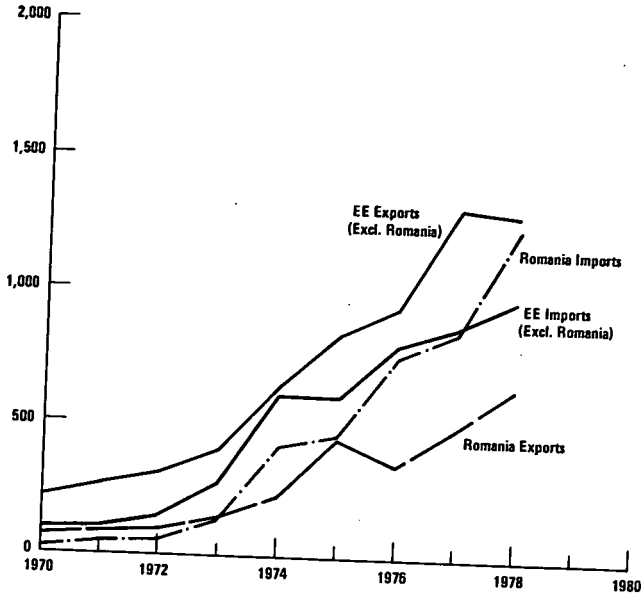


TABLE 2.—OPEC IMPORTS FROM EASTERN EUROPE, 1970-78

(Millions of U.S. dollars)

	1970	1971	1972	1973	1974	1975	1976	1977	1978
Iran.....	78.1	92.7	83.4	113.5	153.6	333.0	376.2	552.8	565.0
Algeria.....	21.8	31.4	42.8	66.2	108.9	138.8	138.9	244.9	302.5
Nigeria.....	31.1	33.9	28.1	41.2	52.8	80.8	102.8	202.9	224.0
Iraq.....	52.9	83.9	116.0	111.4	188.7	262.5	257.8	232.6	212.6
Libya.....	34.0	46.1	60.6	101.9	148.2	182.9	172.3	193.0	212.0
Kuwait.....	20.8	23.7	23.5	32.2	42.9	74.5	95.1	127.0	133.0
Saudi Arabia.....	8.3	12.1	18.7	32.0	35.8	23.9	60.9	96.0	107.0
United Arab Emirates.....	1.8	2.8	3.4	6.8	41.0	34.1	67.3	76.4	55.5
Indonesia.....	9.6	6.5	4.7	8.4	62.0	101.8	26.4	21.8	52.0
Venezuela.....	17.5	9.0	8.2	11.1	9.0	18.1	22.0	27.0	30.3
Ecuador.....	4.7	5.5	5.0	5.2	8.1	10.5	5.9	10.8	21.5
Qatar.....	.6	.8	.7	1.5	3.0	2.6	3.5	2.7	3.1
Gabon.....	.2	.3	.1	.1	.1	.1	.8	1.6	1.7
Total from EE.....	281.4	349.0	395.1	534.1	854.1	1,264.1	1,329.6	1,788.1	1,920.2
Total from world.....	9,623.7	10,838.0	14,067.6	19,842.6	33,551.6	53,792.0	62,569.3	86,988.1	101,556.0
EE share (percent).....	2.9	3.2	2.8	2.7	2.5	2.3	2.1	2.1	1.9

¹ Partly estimated by IMF (see table 1, footnote 1).

Source: OPEC Foreign Trade Handbooks and IMF, "Direction of Trade."

2. TRADE WITH INDIVIDUAL OPEC COUNTRIES

Iran has been East Europe's leading OPEC trading partner since the mid-1970's (see table 2). Between 1975 and 1978, Iranian imports from EE grew 3.7 times to an estimated \$565 million, 29 percent of total OPEC imports from East Europe. Under the Shah, Iran signed a number of long-term barter agreements providing for deliveries of crude oil in exchange for EE goods, a factor which undoubtedly aided the expansion of EE exports to Iran. Since 1979, however, the Iranian rulers have disavowed these agreements and

have required East Europe to pay for all crude oil deliveries in hard currency, at prevailing world prices. It is too early to tell whether this change—and the continuing political instability in Iran—will affect the level of East Europe's trade with Iran. However, the loss of all or part of the Iranian market, where EE goods have received fairly broad exposure, would strike a severe blow to East Europe's efforts to balance merchandise trade with OPEC.

The second largest OPEC importer from East Europe in 1978 was Algeria, whose imports approximately doubled since 1976. A relatively minor oil supplier to East Europe, Algeria has provided well over half of East Europe's non-oil imports from OPEC.¹⁴ Algeria is currently participating in a variety of joint projects with EE partners (particularly Poland), concentrated in housing, infrastructure development, water projects, and basic industry.¹⁵ The joint projects appear to create a good basis for continued EE export growth to Algeria, as well as potential increases in oil deliveries to East Europe. Should trade with Iran stagnate, Algeria would probably emerge as East Europe's leading OPEC trading partner.

Nigeria was the third largest importer from East Europe in 1978, with imports (\$224 million) doubling since 1975. Since 1975 Iran, Algeria, and Nigeria have been the most rapidly growing OPEC markets for East European goods. From 1975 to 1978, East European exports to these three countries doubled to an estimated \$1.1 billion (57 percent of total EE exports to OPEC). During the same period, East European exports to the rest of OPEC grew only 15 percent—suggesting, perhaps, the existence of OPEC markets as of yet untapped by East European exporters.

Iraq, an important customer for East European military hardware, significantly reduced its merchandise imports from East Europe after 1975—causing a decline of 20 percent in imports by 1978. In fact, Iraq is the only major OPEC country to show a consistent decline in imports of East European goods during the 1970's.

It is particularly noteworthy that despite the vigorous growth in EE exports to OPEC, East Europe's share of the total OPEC import market steadily contracted throughout the 1970's. In the region as a whole, the EE market share dropped from a peak of 3.2 percent in 1971 to only 1.9 percent in 1978 (see table 2). Individually, no OPEC country—including the five largest importers from EE—obtained more than 5 percent of its total imports from East Europe. Moreover, in nearly every OPEC country East Europe suffered a significant loss of market share following the OPEC price hike.

The above outlined trends illustrate both the apparent constraints on East European export capabilities, as well as the evident preferences of the newly rich OPEC countries for Western as opposed to East European goods.

B. Composition of East European Exports to the OPEC-8

The composition of East Europe's exports to the oil producing countries is presented using disaggregated data for the countries com-

¹⁴ These include sizable amounts of phosphate fertilizers, iron ore, and textile fabrics.
¹⁵ See, for instance, "Our Bridgehead in Algeria," *Polityka* (Warsaw), No. 24, Jun. 18, 1979, Supplement p. 19 (Translated by JPRS 73986, Aug. 9, 1979, pp. 102-107).

prising our OPEC-8 subgroup.^{16 17} The aim of this disaggregation is to identify the basis for the recent expansion in EE exports to OPEC. Of particular interest is the degree of success which East Europe has achieved in the manufactured goods sector, which we would expect to be a major growth area given the OPEC countries' moves to industrialize and East Europe's higher level of economic development vis-a-vis OPEC.

1. GENERAL COMPOSITION

Table 3 provides a breakdown of East European exports to the OPEC-8 at the one digit SITC level. The data show that EE exported predominately primary products (chiefly food) and intermediate goods (chemicals, steel, cement, glass, textiles, etc.) Together these two groupings accounted for 65 to 75 percent of EE exports to the OPEC-8 between 1970 and 1976, compared with 25 to 35 percent for finished manufacturers. Significantly, primary and intermediate goods provided over three-fourths of the growth in East European exports to the OPEC-8 in 1973-75, quadrupling from \$180 to \$711 million. Over the same period finished manufactured exports grew only 2.7 times, from \$90 to \$240 million and actually declined somewhat as a proportion of total exports (from 33 to 25 percent). Thus, as with East European exports to the West,¹⁸ EE export strength to OPEC is concentrated in basic goods—foods, raw materials, and semi-finished industrial products—with finished manufactures playing a subordinate role. EE exports contrast sharply with Western exports to OPEC, which (see table 4) are dominated by finished manufactures—chiefly machinery and transport equipment (\$23.7 billion—51 percent of the total).

^{16 17} Algeria, Indonesia, Iran, Kuwait, Libya, Nigeria, Saudi Arabia, and Venezuela (see above for a discussion of this group).

¹⁸ See Allen J. Lenz and Hedija H. Kravalls, "An Analysis of Recent and Potential Soviet and East European Exports to Fifteen Industrialized Western Countries," in *East European Economics Post-Helsinki*, Joint Economic Committee (Washington, D.C.; 1977), pp. 1057-1129.

TABLE 3.—COMPOSITION OF EAST EUROPEAN EXPORTS TO THE OPEC-8,¹ 1970-76

(Millions of U.S. dollars)

SITC	1970		1971		1972		1973		1974		1975		1976	
	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent
Total.....	221.2		255.7		270.1		406.4		613.3		967.3		987.5	
0 Food and live animals.....	45.3	20.5	54.1	21.2	66.8	24.7	103.8	25.5	167.7	27.3	267.2	27.6	238.8	24.2
1 Beverages and tobacco.....	Z	Z	0.1	Z	Z	Z	Z	Z	0.4	0.1	0.4	Z	0.1	Z
2 Crude materials, inedible, excluding fuel..	10.9	4.9	14.0	5.5	19.5	7.2	31.8	7.8	58.3	9.5	79.8	8.2	68.7	7.0
3 Mineral fuels, lubricants, etc.....	0.4	0.2	0.2	Z	2.1	0.8	5.4	1.3	1.4	0.2	6.0	0.6	10.8	1.1
4 Animal/vegetable oils and fats.....	0.2	0.1	Z	Z	0.1	Z	0.5	0.1	2.4	0.6	13.4	1.4	15.6	1.6
5 chemicals.....	14.5	6.6	8.6	3.4	9.8	3.6	16.5	4.1	72.2	17.8	128.3	13.3	54.7	5.5
6 Manufactured goods by chief material..	71.7	32.4	78.6	30.7	81.4	30.1	108.7	26.7	155.7	25.4	222.4	23.0	282.6	28.6
7 Machinery and transport equipment.....	57.5	26.0	74.4	29.1	64.4	23.8	99.2	24.4	107.8	17.6	189.2	19.6	241.8	24.5
8 Miscellaneous manufactured goods.....	19.2	8.7	23.7	9.3	24.5	9.1	38.3	9.4	45.5	11.2	53.2	5.5	64.5	6.5
9 Items not classified.....	0.5	0.2	0.1	Z	0.1	Z	0.1	Z	1.7	0.3	2.3	0.2	4.9	0.5
0-4 Primary products.....	56.8	25.7	68.4	26.8	88.5	32.8	141.5	34.8	230.2	37.5	366.8	37.9	334.0	33.8
5-6 Intermediate goods.....	86.2	39.0	87.2	34.1	91.2	33.8	125.2	30.8	227.9	37.2	350.7	36.2	337.3	34.2
7-8 Finished manufactures.....	76.7	34.7	98.1	38.4	88.9	32.9	137.5	33.8	153.2	25.0	242.4	25.0	306.3	31.0
Residual due to conversion to SITC*	-1.0	0.5	-1.9	0.7	-1.4	0.5	-2.1	0.5	-0.2	Z	-5.1	0.5	-5.0	

¹ Algeria, Indonesia, Iran, Kuwait, Libya, Nigeria, Saudia Arabia, and Venezuela.
 Source: OPEC Foreign Trade Handbooks.

*Caused by inaccuracies in concordance used to convert BTN to SITC commodity codes.
 Z—Negligible.

TABLE 4.—COMPOSITION OF OECD EXPORTS TO OPEC, 1975

[Millions of U.S. dollars]

	1975	
	Amount	Percent
Total.....	\$46,558.5	100.0
0 Food and live animals.....	3,338.5	7.2
1 Beverages and tobacco.....	375.4	.8
2 Crude materials, excluding fuel.....	748.8	1.6
3 Mineral fuels.....	482.8	1.0
4 Animal/vegetable oils and fats.....	293.9	.6
5 Chemicals.....	3,248.8	7.0
6 Manufactured goods by chief material.....	11,342.0	24.4
7 Machinery and transport equipment.....	23,677.8	50.9
8 Miscellaneous manufactured goods.....	2,343.4	5.0
9 Items not elsewhere specified.....	707.2	1.5
0-4 Primary products.....	5,239.4	11.3
5-6 Intermediate goods.....	14,590.8	31.3
7-8 Finished manufactured goods.....	26,021.2	55.9

Source: OECD "Trade by Commodities," vol. I, January-December 1975.

Referring again to table 3, we note that the largest one-digit East European export categories were Food and Live Animals (SITC 0), Manufactured Goods Classified by Chief Material (SITC 6), and Machinery and Transport Equipment (SITC 7). Of these, food and live animal exports posted the largest increase in 1973-75, quadrupling to \$266 million. Due to a severe drought through most of East Europe in 1976, food exports dropped sharply to under \$240 million. This drought was a major cause of the slow (4 percent) growth in East Europe's exports to the OPEC-8 in 1976 and, suggesting perhaps the vulnerability of East Europe's attempts to balance trade with OPEC to periodic crop failures.

2. LEADING TWO-DIGIT SITC PRODUCT CATEGORIES

Table 5, provides an even more detailed look at the composition of East Europe's exports to the OPEC-8, listing the fifteen leading two-digit SITC exports. Of the top fifteen products in 1976, seven were primary products, four were semi-finished goods and four were finished manufacturers.

Of the four intermediate goods exports, the dominant products were iron and steel and non-metallic mineral manufactures—glass, cement, asbestos and other building materials. Both contributed significantly to the post-1973 EE export drive.

In the food category, all four items—live animals, dairy products, meat, and sugar—were clustered in the \$50 to \$60 million range. Exports of meat products made the most impressive gains in 1974-75, jumping from \$3 million to \$49 million. After doubling in 1973, both dairy products and sugar rose steadily. As noted earlier, poor agricultural conditions stunted EE exports of all food products in 1976.

TABLE 5.—LEADING EAST EUROPEAN EXPORTS TO THE OPEC-8¹, 1970-76

[Millions of U.S. dollars]

1976 rank	SITC—Product	1970	1971	1972	1973	1974	1975	1976
1	71—Machinery, nonelectric	38.6	46.9	37.3	43.4	63.8	108.7	136.8
2	67—Iron and steel	37.6	39.0	29.4	39.5	53.8	77.9	92.1
3	66—Nonmetallic mineral manufactures	7.6	8.1	15.9	20.5	35.1	45.7	61.0
4	00—Live animals	8.6	16.3	19.5	28.1	30.2	57.0	59.5
5	73—Transport equipment	10.1	12.6	10.9	37.5	17.7	42.5	54.3
6	02—Dairy products and eggs	5.7	5.4	8.5	15.9	38.2	44.8	43.9
7	01—Meat and meat preparations	5.0	2.8	3.2	3.4	13.7	49.4	51.1
8	72—Machinery, electric	8.7	6.1	16.2	20.6	27.4	36.0	50.6
9	06—Sugar and honey	18.1	19.6	17.0	35.5	33.3	48.0	50.6
10	65—Textile yarn and fabrics	11.8	12.0	15.0	21.9	26.0	36.6	47.7
11	84—Clothing	9.9	12.0	11.0	18.9	23.7	26.3	43.8
12	69—Metal manufactures	7.5	8.7	9.8	14.0	15.9	32.3	41.0
13	24—Wood, lumber and cork	7.2	9.0	9.7	19.3	28.2	32.2	37.3
14	27—Crude fertilizers and materials	3.4	4.3	8.3	10.7	26.1	36.6	18.5
15	42—Fixed vegetable oils and fats	.2	Z	.1	.5	2.3	13.4	15.6
Subtotal top 15		180.0	202.8	211.8	329.6	435.4	687.4	813.8
Other EE exports		41.2	52.9	53.3	76.8	177.9	279.9	173.7
Total exports to OPEC-8		221.2	255.7	270.1	406.4	613.3	967.3	987.5
Share of top 15 (percent)		81.4	79.3	78.4	81.1	71.0	71.0	82.4

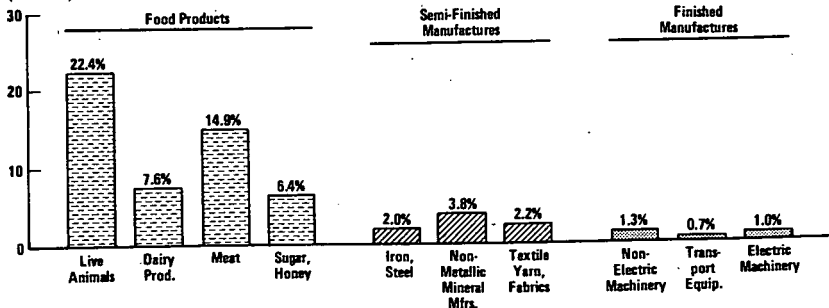
¹ Algeria, Indonesia, Iran, Kuwait, Libya, Nigeria, Saudi Arabia, and Venezuela.
Z—Negligible

Source: OPEC Foreign Trade Handbooks.

3. EAST EUROPEAN MARKET PENETRATION

As illustrated by figure 2, East Europe's only significant penetration of OPEC markets has been in food products, whereas EE still remains a relative outsider in the more competitive machinery and equipment markets. EE market shares for food ranged from 6 and 8 percent for dairy products and sugar to 15 and 22 percent for meat and live animals. By contrast, market shares for intermediate goods exports were only about 2 percent, and for the finished manufactures exports only 1 percent—including only 1.3 percent for non-electric machinery, EE's leading export to the OPEC-8 in 1976.

Figure 2.
Selected 1976 East European Market Shares in OPEC-8
(Percent)



In the individual OPEC-8 countries, EE market shares for most products do not differ greatly from the OPEC-8 averages. However in two of the most important markets—Iran and Libya—export penetration in food products has been considerably higher than the OPEC-8 averages would indicate. In 1976, for instance, Libya obtained 58 percent of the live animals imports, and 72 percent of its imports of meat and sugar from East Europe. In Iran, the comparable EE market shares were 34 percent for live animals, 16 percent for meat (down from 27 percent in 1975), and 24 percent in dairy products (again, down from a peak of 29 percent the preceding year). Since Iran and Libya together accounted for the overwhelming proportion of EE food exports to the OPEC-8,¹⁹ this suggests a significant potential constraint on future EE export growth to these countries. On the other hand, the successes achieved by East European foodstuffs in these two markets could indicate that the other OPEC countries remain ready potential markets for EE food exports on the outside chance that additional food supplies could be made available.

IV. EAST EUROPEAN COUNTRY TRADE WITH OPEC

The present section highlights individual East European country trade with OPEC. Reflecting differences in their energy situations, each East European country tends to place a varying degree of emphasis on trade with OPEC. This analysis, therefore, provides additional insights into individual country export strengths and weaknesses, and helps assess OPEC's potential role in meeting each country's future energy needs.

TABLE 6.—EASTERN EUROPEAN COUNTRY EXPORTS TO OPEC, 1970-78

[Millions of U.S. Dollars]

	1970	1971	1972	1973	1974	1975	1976	1977	1978 ¹
Total.....	281.4	349.0	395.2	534.1	854.1	1,264.1	1,329.6	1,788.1	1,920.2
Of which:									
Romania.....	70.1	86.2	91.6	139.5	221.1	435.0	392.4	479.6	638.7
Poland.....	46.5	53.8	53.3	90.1	193.6	264.6	301.5	447.3	431.6
Czechoslovakia.....	72.8	112.2	124.9	140.4	175.5	211.6	234.4	256.2	326.0
Hungary.....	40.0	37.7	42.6	56.7	87.2	113.2	165.0	332.7	232.9
Bulgaria.....	31.9	34.7	42.9	46.7	112.5	141.4	135.9	139.7	171.7
German Democratic Republic.....	20.0	24.4	40.0	60.7	64.2	98.3	100.5	132.6	119.4

¹ Partly estimated by IMF (see table 1, footnote 1).

Note: Columns may not add to totals due to rounding.

Source: OPEC Foreign Trade Handbooks and IMF, "Direction of Trade."

¹⁹ In 1976, Iran and Libya combined accounted for the following proportions of EE exports to the OPEC-8; 98 percent of live animals exports; 52 percent of dairy products exports, and 68 percent of sugar and honey exports.

TABLE 7.—*East European Export Growth to OPEC, 1974-78*

Average annual growth rate, 1974-78:	Percent
Romania	35.5
Poland	36.9
Czechoslovakia	18.4
Hungary	32.7
Bulgaria	29.6
GDR	14.5

Source: OPEC Foreign Trade Handbooks, and IMF *Direction of Foreign Trade*.

TABLE 8.—OPEC'S SHARE OF EAST EUROPEAN EXPORTS, SELECTED YEARS

[In percentages]

	1970	1973	1978
Romania	3.9	3.7	7.9
Poland	1.3	1.4	3.1
Czechoslovakia	1.9	2.3	2.7
Hungary	1.7	1.3	2.6
Bulgaria	1.6	1.4	2.4
German Democratic Republic	0.4	0.8	0.8

Source: OPEC Foreign Trade Handbooks and IMF *Direction of Trade* (for EE Exports to OPEC), and CIA (ER 79-10274, "Handbook of Economic Statistics, 1979" (for total EE exports). The above shares should be regarded as approximations, owing to inevitable "mirror-statistical" discrepancies between EE reporting on total exports (basis for CIA calculations) and OPEC reporting on imports from EE.

Some basic differences among the East European countries are apparent on the basis of tables 6 through 8. Table 6, which ranks the six countries according to their exports to OPEC in 1978, shows that since 1974 Romania has been by far the leading EE exporter, followed by Poland. In 1978, Romania and Poland together accounted for \$1.07 billion in exports to OPEC, 55 percent of the East European total. Czechoslovakia—which had been the largest exporter in the early 1970's—fell to third place by 1978 with exports of \$327 million, about \$100 million larger than those of fourth-ranked Hungary (\$233 million). Bulgaria and the GDR were the smallest exporters to OPEC in 1978 with exports of \$171 million and \$119 million respectively.

Table 7 provides the average annual rates of growth in exports to OPEC from 1974 through 1978 and shows how individual country exports have responded to the sharp rise in the cost of OPEC oil. The countries are ranked according to the size of their exports to OPEC in 1978. Not surprisingly, Romania and Poland, the two largest exporters, show the most rapid export growth rates to OPEC during 1974-78—averaging 36 and 37 percent per annum respectively.

Finally, table 8 lists the proportion of each East European country's total exports which have gone to OPEC in selected years, with the countries again ranked according to the level of 1978 exports to OPEC. Romania shipped the highest share of its exports to OPEC—nearly 8 percent in 1978—while GDR shipped the smallest—0.8 percent. Also shown in the table is the apparent diversion of resources by East Europe to OPEC following the OPEC price rises. In four of the six countries the share of exports going to OPEC increased sharply after 1973—doubling in Romania, Poland, and Hun-

gary. On the other hand, in Czechoslovakia and the GDR, whose exports to OPEC rose the slowest following the OPEC price rises, the share of total exports going to OPEC either increased marginally or not at all.

The following individual country analyses provide additional detail on each country's trade with OPEC in 1970-78. In each case we have also attempted a preliminary estimate of the country's 1980 trade balance with OPEC, taking into account the further sharp increases in the price of OPEC oil after 1978. The sections are arranged in order of the countries' merchandise exports to OPEC in 1978, except for Romania whose special energy and trading position is analyzed last.

A. Poland

In 1974 Poland became the second leading EE exporter to OPEC, more than doubling its exports over the preceding year's level. This leap in exports coincided closely with Poland's first imports of OPEC oil—imports destined to supply an expanding petrochemical industry. Table B-1 (appendix) shows that Poland's 1974 export drive to OPEC largely consisted of SITC categories 5 (Chemicals), 0 (Food and Live Animals), and 2 (Crude Materials). Of these only SITC 0 showed continuous growth in subsequent years, becoming over one-fourth of Poland's 1976 exports to the OPEC-8. While Polish manufactured goods exports have shown noticeable growth in recent years, the large and growing agricultural portion of Polish exports to the OPEC-8 underscores the importance of successful agricultural production for Poland's trade balance with OPEC.

TABLE 9.—POLISH TRADE WITH OPEC, 1970-78

[Millions of U.S. dollars]

	1970	1971	1972	1973	1974	1975	1976	1977	1978
Exports.....	46.5	53.8	53.3	90.1	193.6	267.6	301.5	447.3	431.6
Imports.....	18.6	19.7	15.9	43.5	111.8	229.3	360.8	374.2	391.1
Crude oil.....	0	0	0	14.1	68.1	195.7	296.4	341.0	360.1
Other.....	18.6	19.7	15.9	29.4	43.7	34.1	64.4	33.2	31.0
Balance.....	+27.9	+34.1	+37.4	+46.6	+81.8	+35.3	-59.3	+73.1	+40.5

¹ Partly estimated by IMF (see table 1, footnote 1).

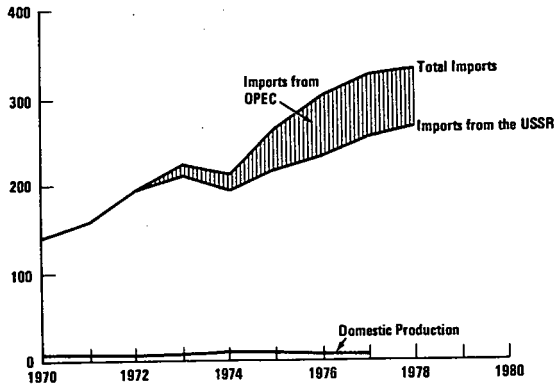
Source: OPEC Foreign Trade Handbooks and IMF "Direction of Trade."

The pattern of Poland's imports of OPEC oil differs considerably from that of most other East European countries (see figure 3). Instead of contracting after the large OPEC price increases, Polish crude oil imports from OPEC have increased each year. Poland's merchandise exports to OPEC were sufficient to cover its imports until 1976, when slumping agricultural shipments resulted in a \$59 million trade deficit with OPEC. Subsequent export recovery restored a positive balance in Polish-OPEC trade during 1977 and 1978. When compared with the overall volume of trade, however, this balance was slim indeed.

Figure 3.

Polish Crude Oil Production and Imports

(Thousand b/d)



The OPEC price increases of late 1979 will be especially burdensome for Poland. Even if imports of OPEC oil are held to the modest 5 percent increases recorded over the past 2 years (1977 and 1978), present crude oil prices of over \$28 per barrel would force Poland to boost 1980 exports to OPEC by almost \$450 million over 1978's record export performance to avoid a deficit in Polish-OPEC trade. If recent difficulties in agricultural production and slumping industrial output continue, Poland probably will not achieve such sizeable increases in exports to OPEC. Consequently, without stepped up Soviet oil deliveries to replace some of Poland's imports from OPEC, and without conservation or substitution successes, Poland faces very sizable trade deficits with OPEC over the next several years. Such deficits can only increase the strains on Poland's hard currency debt predicament.

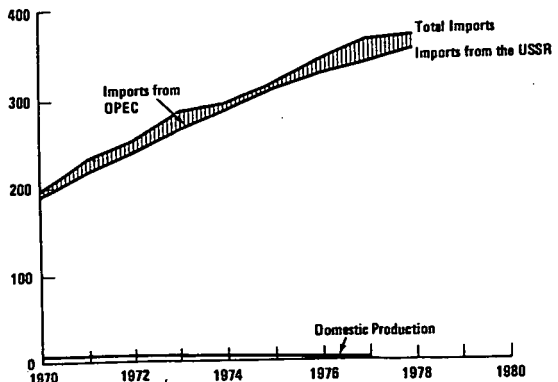
B. Czechoslovakia

Czechoslovakia receives well over 90 percent of its crude oil imports from the Soviet Union. Consequently, Czech reliance on OPEC oil—from 2 to 8 percent during 1970–78—was the least of any East European country (excluding Romania). As shown by figure 4, Prague sharply reduced the volume of its oil purchases from OPEC when confronted by steeply rising prices. In fact, since the dramatic OPEC price increases, Czechoslovak oil imports from OPEC have exceeded their 1973 volume only once (in 1977).

Figure 4.

Czechoslovak Production and Imports of Crude Oil

(Thousand b/d)



Czechoslovakia is the only East European country to enjoy a positive balance of trade with OPEC each year from 1970 to 1978, despite importing considerable amounts of OPEC's nonoil products (see table 10). The composition of Prague's exports to the OPEC-8 (see table B-2, appendix) have also shown consistency, with most exports falling in SITC categories 6 (Manufactured Goods by Chief Material), 7 (Machinery and Transport Equipment), and 0 (Food and Live Animals). Along with the GDR and Hungary, Czechoslovakia had the highest proportion of manufactured goods in its exports to the OPEC-8—40 percent in 1976, significant increase over previous years. The ability to boost exports of manufactured goods played a key role in maintaining export growth in 1976, offsetting the drought-induced drop in agricultural exports.

TABLE 10.—CZECHOSLOVAK TRADE WITH OPEC, 1970-78

[Millions of U.S. dollars]

	1970	1971	1972	1973	1974	1975	1976	1977	1978 ¹
Exports.....	72.8	112.2	124.9	140.4	175.5	211.6	234.4	256.2	326.0
Imports.....	24.4	27.6	36.9	55.6	59.7	68.4	147.5	173.1	124.7
Crude oil.....	3.2	8.3	7.5	28.0	30.0	27.1	65.8	126.9	81.6
Other.....	21.2	19.3	29.4	27.6	29.7	41.3	81.7	46.2	43.1
Balance.....	+48.4	+84.6	+88.0	+84.8	+115.8	+143.2	+86.9	+83.1	+201.3

¹ Partly estimated by IMF (see table 1, footnote 1).

Source: OPEC Foreign Trade Handbooks and IMF "Direction of Trade."

At present Prague's greatest energy concern probably centers on the continuance of generous Soviet oil supplies. If these continue, Czechoslovakia's merchandise exports to OPEC would probably suffice to cover its present level of oil imports from OPEC, despite recent price rises.²⁰ However, if a decline or slowdown in Soviet deliveries forces Czechoslovakia to buy an increasing proportion of its oil from OPEC, the current positive balance of trade with OPEC would come close to disappearing. For example, if Prague's total oil imports continue to grow at their present rate of 8 percent per year, and if the share of these imports supplied by the Soviet Union were to drop from the previous 95 percent to 88 percent (the average for East Europe as a whole, excluding Romania), Prague's oil bill from OPEC in 1980 would reach approximately \$450 million. This amount would just be covered by Czechoslovakia exports if they continue to grow at past rates (about 20 percent annually).

C. Hungary

Hungarian trade with OPEC remained relatively undeveloped until the first dramatic oil price increase (see table 11). In fact, until 1974 crude oil constituted less than half of Budapest's imports from OPEC. By 1978, however, crude oil imports had risen to comprise almost three-fourths of Budapest's imports from OPEC.

Although Hungary suffered a negative balance of trade with OPEC during the two years immediately following OPEC's first major price

²⁰ Czechoslovakia has imported an average of 16,000 b/d of crude oil from OPEC each year since 1973. These imports are likely to cost about \$170 million in 1980. Even without additional export growth, Czechoslovakia would be able to afford these imports in 1980, while retaining a sizable trade surplus with OPEC.

increase, it has managed to record positive balances in subsequent years. Budapest's strongest export performance with the OPEC-8 has come in SITC categories 6 (Manufactured Goods by Chief Material), 7 (Machinery and Transport Equipment), and 0 (Food and Live Animals), with category 7 showing the strongest and most consistent improvement (see table B-3, appendix).

The actual quantities of Hungarian oil imports from OPEC have not shown steady yearly growth, although an upward trend is noticeable (see figure 5). Since the first major OPEC price increase, Budapest has on the average imported about 22,000 b/d from OPEC. If imports of OPEC oil remain at this level or even increase at the average annual rate recorded since 1973 (about 8.5 percent), Budapest should be able to cover OPEC oil imports with its exports to OPEC in 1980.²¹ However, should Soviet oil supplies be severely curtailed or should a slowdown in the Hungarian economy prevent a continued expansion of exports to OPEC, Budapest would probably begin to incur a negative balance of trade with OPEC.

Figure 5.

Hungarian Crude Oil
Production and Imports
(Thousand b/d)

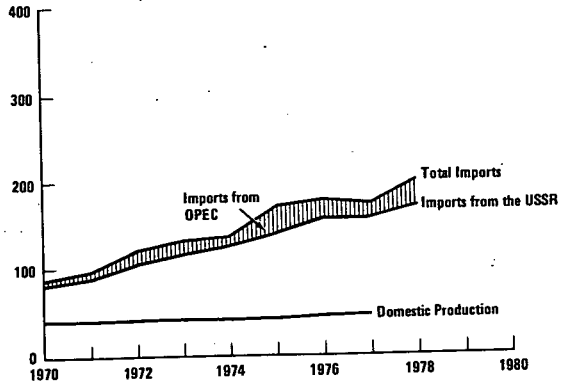


TABLE 11.—HUNGARIAN TRADE WITH OPEC, 1970-78
(Millions of U.S. dollars)

	1970	1971	1972	1973	1974	1975	1976	1977	1978 ¹
Exports.....	40.0	37.7	42.6	56.7	87.2	113.2	165.0	332.7	232.9
Imports.....	25.3	21.2	35.0	40.1	87.3	159.8	125.8	123.0	187.1
Crude oil.....	3.2	4.9	9.9	19.7	54.7	118.7	91.1	77.3	138.1
Other.....	22.1	16.3	25.1	20.4	32.6	41.1	34.7	45.7	49.0
Balance.....	+14.7	+16.5	+7.6	+16.6	-0.1	-46.6	+39.2	+209.7	+45.8

¹ Partly estimated by IMF, (see table 1, footnote 1).

Source: OPEC Foreign Trade Handbooks and IMF "Direction of Trade."

D. Bulgaria

Prior to the major OPEC price rise, almost one-fourth of Bulgarian oil imports came from OPEC. After the large OPEC price rise, Sofia

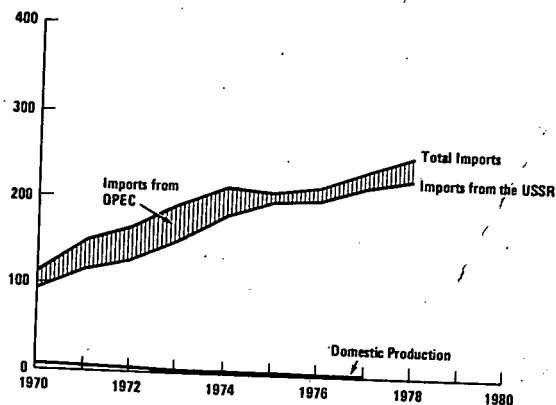
²¹ In 1980, imports of 22,000 b/d would probably cost close to \$232 million—precisely. The value of Budapest's total exports to OPEC in 1978. An annual 8.5 percent increase in imports of OPEC oil over 1978 levels would cost almost \$273 million. Assuming an average OPEC price of over \$28 per barrel.

reduced its OPEC oil imports sharply (to slightly above 5 percent of total oil imports in 1975) and began receiving substantially increased supplies of Soviet oil (see figure 6). Bulgaria is, however, the East European country most heavily dependent on oil as a primary energy source, and Sofia's imports of OPEC oil, while still below the levels recorded prior to the dramatic rise in OPEC oil prices, have increased steadily since 1975.

Figure 6.

Bulgarian Crude Oil Production and Imports

(Thousand b/d)



Almost as if in direct response to OPEC oil price increases, Bulgaria more than doubled its exports to OPEC in 1974, but due to a doubling of the value of OPEC oil imported, Bulgaria ran a small trade deficit with OPEC (see table 12). Since 1974, Bulgarian exports have grown at an average annual rate of about 12 percent. Food and Live Animals (SITC 0) have consistently been Sofia's most important exports to the OPEC-8, comprising from 42 to 65 percent of total exports during 1970 to 1976, the highest percentage for any East European country (see table B-4, appendix). Large increases in food exports, in fact, have been the primary factor enabling Bulgaria to keep its trade balance with OPEC from going deeply into deficit. Bulgarian exports of SITC categories 6 (Manufactured Goods by Chief Material) and 7 (Machinery and Transport Equipment) have exhibited consistent growth since the rise in OPEC prices, but as a portion of total exports, these categories have remained relatively constant.

TABLE 12.—BULGARIAN TRADE WITH OPEC, 1970-78

[Millions of U.S. dollars]

	1970	1971	1972	1973	1974	1975	1976	1977	1978 ¹
Exports.....	31.9	34.7	42.9	46.7	112.5	141.4	135.9	139.7	171.7
Imports.....	14.5	28.5	27.8	58.5	139.8	57.0	77.4	96.4	131.9
Crude oil.....	7.5	17.3	21.5	53.1	133.4	48.2	70.2	85.9	126.7
Other.....	7.0	11.2	6.2	5.4	6.4	8.8	7.2	10.5	5.2
Balance.....	+17.4	+6.2	+15.1	-11.8	-27.3	+84.4	+58.5	+43.3	+39.8

¹ Partly estimated by IMF (see table 1, footnote 1).

Source: OPEC Foreign Trade Handbooks and IMF "Direction of Trade."

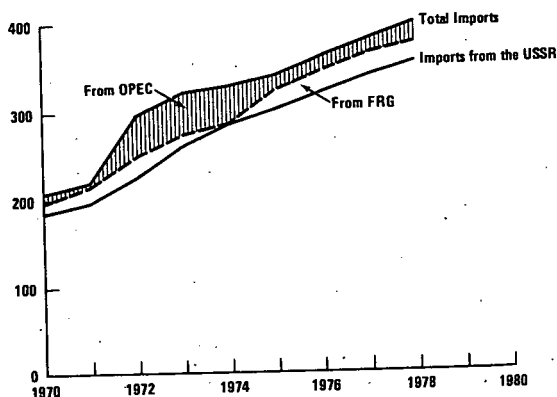
Even if Sofia is able to moderate the growth of imports of OPEC oil, the recent large rise in OPEC oil prices will significantly increase Bulgaria's oil bill. For example, even if the growth of imports of oil from OPEC could be reduced to the present rate of growth of oil imports from the Soviet Union (about 4 percent per annum since 1974), Bulgaria would still need to spend almost \$310 million for OPEC oil in 1980. Such a large oil bill would require Sofia to increase exports to OPEC over 30 percent annually to maintain a positive balance of trade—a rate of export growth substantially higher than the 12 percent growth of recent years.

E. German Democratic Republic

GDR imports of OPEC oil bulged between 1972 and 1974—exactly coinciding with the large OPEC price hike (see figure 7). This increase reflects a rising demand for the GDR petrochemical industry and expanded exports of refined petroleum products to the West (chiefly the FRG). Since GDR exports to OPEC actually declined in 1974, a large (\$142 million) trade deficit with OPEC resulted (see table 13). Subsequently the GDR cut back sharply the volume of imported oil from OPEC. Since 1975, imports of OPEC oil have averaged about 18,000 b/d—between 4 and 6 percent of total GDR crude oil imports.²²

Figure 7.

GDR Crude Oil Imports*
(Thousand b/d)



* GDR crude oil production currently averages only 1,000 b/d.

TABLE 13.—GDR TRADE WITH OPEC, 1970-78
[Millions of U.S. dollars]

	1970	1971	1972	1973	1974	1975	1976	1977	1978 ¹
Exports.....	20.0	24.4	40.0	60.7	64.2	98.3	100.5	132.6	119.4
Imports.....	10.4	5.9	29.7	74.7	201.0	81.6	85.1	96.2	139.0
Crude oil.....	4.8	2.1	27.7	63.0	189.3	72.5	66.7	73.8	113.3
Other.....	5.6	3.8	2.0	11.7	11.7	9.1	18.4	22.4	25.7
Balance.....	+9.6	+18.5	+10.3	+14.0	-136.8	+16.7	+15.4	+36.4	-19.6

¹ Partly estimated by IMF (see table 1, footnote 1).

Source: OPEC Foreign Trade Handbooks and IMF, "Direction of Trade."

²² In addition to direct purchases of OPEC oil, the GDR also imports sizable quantities of Middle Eastern crude oil—averaging 20–25,000 b/d since 1975—through middlemen in West Germany. As with other GDR imports of West German goods, payment is in the form of GDR exports to the FRG. Therefore, we have excluded these deliveries in computing the GDR's trade balance with OPEC.

Unlike the other East European countries, the GDR is mainly an exporter of finished manufactured goods to the OPEC-8, with Machinery and Transport Equipment (SITC 7) comprising over a third of the export total (see Table B-5, Appendix). Since finished manufactures are becoming the most important imports for the OPEC-8 (over half of all imports in 1976), OPEC seems to offer the GDR a ready market for greatly expanded trade. In further contrast to the other East European countries, the GDR exports relatively small amounts of SITC 0 (Food and Live Animals)—goods for which OPEC demand might be slackening.

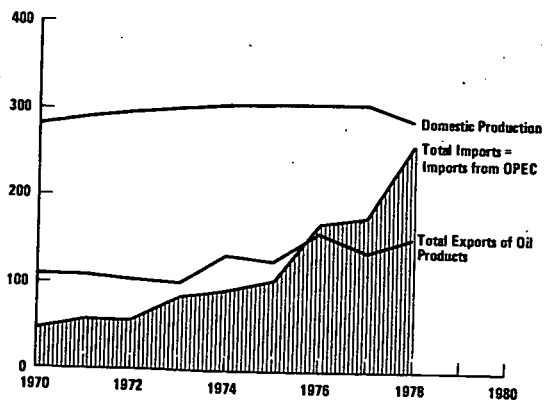
The recent large rise in OPEC prices will probably worsen the GDR's balance of trade with OPEC—already negative in 1978. Even if imports of OPEC oil increased only 10 percent per annum above the average level recorded between 1975 and 1978 (i.e. to about 22,000 b/d by 1980), the GDR would face a bill of over \$230 million in 1980. To cover this amount requires a doubling of 1978 GDR exports to OPEC—an unlikely prospect given the GDR's recent lackluster export performance on OPEC markets. Over the longer term, the GDR's export strength in finished manufactures might possibly bring trade with OPEC into balance—assuming, of course, either the possibility of expanding industrial output or redirecting export flows.

F. Romania

Romania is OPEC's most important East European trading partner. In 1976 Bucharest's total trade with OPEC broke the \$1 billion mark—a level still unreached by the other East European countries. Unlike the other EE countries, Romania has traditionally not imported Soviet oil and is itself a major oil producer. However, an expanding petrochemical industry, stagnating domestic oil production, and sizable exports of refined petroleum products²³ have forced Bucharest to purchase increasing amounts of OPEC oil (see figure 8). In fact, purchases of OPEC oil have increased so rapidly that in 1976 Bucharest became a net importer of oil. By 1980 Bucharest's imports could well exceed domestic oil production.

Figure 8.

Romanian Oil Production
and Trade
(Thousand b/d)



²³ Since 1960, Romania has consistently exported in excess of 100,000 b/d of oil products. In 1976, Romania became a net importer of oil, based on crude oil imports of 169,500 b/d and exports of 159,000 b/d of petroleum products. Since then, net oil imports have increased enormously, reaching 105,000 b/d in 1978.

After the large OPEC oil price hike in 1973-74, Bucharest's exports to OPEC increased dramatically but nonetheless failed to offset purchases of OPEC oil. By 1978 Romania's trade deficit with OPEC reached nearly \$600 million (see table 14). SITC categories 0 (Food and Live Animals), 6 (Manufactured Goods by Chief Material), and 7 (Machinery and Transport Equipment) have consistently dominated Romanian exports to the OPEC-8 (see table B-6, appendix). Bucharest's exports to the OPEC-8 of SITC categories 0 and 6 rose most sharply following the 1973-74 OPEC price increase—similar to the export trends in most of the other East-European countries. Exports of finished manufacturers, on the other hand, have not expanded as rapidly and thus have declined as a share of exports to the OPEC-8, although their dollar value is largest of any East European country.

TABLE 14.—ROMANIAN TRADE WITH OPEC, 1970-78

(Millions of U.S. dollars)

	1970	1971	1972	1973	1974	1975	1976	1977	1978 ¹
Romania:									
Exports.....	70.1	86.2	91.6	139.5	221.1	435.0	392.4	479.6	638.7
Imports.....	24.3	47.0	58.8	135.0	405.9	443.9	751.2	842.8	1,233.1
Crude oil..	18.4	28.4	32.3	102.8	373.7	409.4	728.2	831.5	1,221.1
Other.....	5.9	18.6	26.5	32.2	32.2	34.5	23.0	11.3	12.0
Balance	+45.8	39.2	32.8	+4.5	-184.8	-8.9	-358.8	-363.2	-594.4

¹ Partly estimated by IMF (see table 1, footnote 1).

OPEC's most recent price increase severely reduces Romania's chances of continuing past oil policies. With domestic production stagnating, Romania must increasingly rely on expensive OPEC oil to satisfy its own growing domestic needs and maintain hard currency exports of petroleum products, which are vital to continued trade with the West. If imports of OPEC oil continue to increase at past rates and if domestic oil production continues to decline, oil imports could cost Bucharest over \$3 billion in 1980, far in excess of potential exports to the OPEC countries. If Romania were enjoying large trade surpluses elsewhere in the world it could perhaps use these surpluses to offset increased oil costs. However, while trade is almost balanced with the Soviet Union and a moderate surplus exists for the non-OPEC LDC's, Romania has posted large deficits in recent trade with Industrial Western countries.²⁴ Consequently, Bucharest's trade deficits with OPEC loom as the most serious of the East European countries.

V. SUMMARY AND IMPLICATIONS

A. Summary

This paper has analyzed East European merchandise trade with OPEC for the 1970-78 period in order to assess its present and future role in solving East Europe's emerging energy problems. Military assistance programs, technical services, and other invisibles were ex-

²⁴ During 1978 and 1979, Romania had trade deficits of over \$700 million with the Industrialized West.

cluded from the analysis for lack of sufficient data. Moreover, merchandise trade was felt to encompass the bulk of East Europe's commercial relations with OPEC, thereby providing a sufficient basis for investigating past trade patterns and speculating on near term trade prospects. Both East European and OPEC foreign trade data were used.

Among the study's chief findings were the following:

At the start of the 1970's, Eastern Europe eagerly expanded imports of OPEC oil, then considered an inexpensive source of energy. The cost of these imports was easily covered by East Europe's exports to OPEC. The large OPEC price rise of 1973-74, however significantly worsened East Europe's terms of trade, requiring greatly expanded export efforts to OPEC; After an adjustment period, every East European country except Romania was able to cover its imports of OPEC oil by expanding merchandise exports to OPEC;

Agricultural products provided the bulk of East European export growth to OPEC after the first oil price hike, and continue to be East Europe's most successful export sector;

Finished manufactures exports, in comparison, grew more moderately during the 1970's, reflecting traditional East European export weakness as well as intensifying competition from other countries on major OPEC markets;

A small group of OPEC countries—Iran, Algeria, and Nigeria—accounted for most East European exports to OPEC. If additional EE export capacity exists therefore, the remaining OPEC members may prove ready markets for East European goods;

Overall, however, East Europe has captured only a very small—and declining—share of lucrative OPEC markets. The only appreciable EE market penetration has come in agricultural products, while in finished manufactures the EE share has steadily declined as a proportion of OPEC's growing import markets; and

Recent OPEC price rises to an average of over \$30 per barrel will severely affect all East European trade balances with OPEC. For some (Romania, Poland), huge deficits will be incurred in 1980. For others (Bulgaria, GDR), oil imports are unlikely to be matched by increased exports to OPEC. For still others (Czechoslovakia, Hungary), barring decreases in Soviet energy supplies, exports to OPEC may possibly cover imports of OPEC oil, but only by a relatively small margin.

We conclude, therefore, that during the 1970's trade with OPEC has proven a viable means for the East European countries to supplement their energy supplies without having to draw down scarce hard currency reserves. It is questionable, however, whether East Europe can continue to rely on this strategy. Two very preliminary projections of potential 1985 East European oil imports from OPEC (see appendix C) illustrate the problems now facing most East European countries. According to the first quite modest projection, East Europe (excluding Romania) would be paying almost \$3.4 billion more for OPEC oil in 1985 than in 1978. The second projection foresees

almost \$6.8 billion more in oil costs by 1985. If East European exports to OPEC grow at a rate close to a number of recently published plan figures for foreign trade expansion (around 10 percent per annum), trade deficits of \$600 million to \$4 billion would be incurred with OPEC by 1985, depending on which of the two projections obtain.

Given East Europe's persisting trade deficits and large accumulated debts with Western countries, their burgeoning trade deficits with the U.S.S.R., and the likelihood of a stagnation in trade with the LDC's (already overburdened with growing energy bills), East Europe is unlikely to find additional hard currency reserves with which to pay for imports of OPEC oil.

B. Implications

If, as our analysis suggests, East Europe is unable to rely on expanded imports of OPEC oil—paid for in merchandise exports to OPEC—to meet a portion of future energy needs, the implications of this situation for East Europe and the USSR would be quite severe. For Eastern Europe, the inability to obtain as much OPEC oil as needed would require an even greater emphasis on conservation and development of domestic energy supplies—chiefly coal—or, barring success in these areas, increased oil imports from the Soviet Union. However, many Western analysis are of the opinion that East Europe's energy conservation programs will likely play only a minor role in reducing demand for oil, while near term possibilities for substituting coal, natural gas, or atomic power for oil are quite limited. Furthermore, many Western analysts are predicting drops in the level of Soviet oil production during the early 1980's. If Soviet oil production falters, Moscow would find it difficult to replace a part of OPEC's present shipments to East Europe.

Even assuming the availability of additional Soviet oil for East Europe, Moscow's cost for replacing OPEC's present oil deliveries to East Europe would be sizable indeed. If Moscow were to shoulder the burden of covering East Europe's impending deficits with OPEC, it would have to forgo from \$600 million to \$4 billion of its hard currency earnings in 1985. (Moscow's hard currency oil sales in 1979 were \$9 billion, about half of total hard currency earnings.)

Generous supplies of Soviet oil would not end, however, East Europe's energy related financial problems. An increase in oil shipments from Moscow would simply push East Europe more deeply into debt with the Soviet Union. While principles of fraternal socialist relations may dictate favorable terms for East Europeans debtors, Moscow can also be expected to increase its demands for East European goods and possibly to insist more forcefully on greater socialist economic integration. Demands by Moscow for a greater share of East European exports would severely reduce the availability of East European goods for export to other foreign markets. Given East Europe's sizable debts owed the West, a reduction in their ability to export to the West will very likely lead to reductions in their imports from the West, with additional far reaching economic implications beyond the scope of the present paper.

APPENDIX A

TABLE A-1.—EAST EUROPEAN CRUDE OIL IMPORTS FROM NONCOMMUNIST COUNTRIES
[Barrels per day]

	1970	1971	1972	1973	1974	1975	1976	1977	1978 ¹
Total.....	92,400	122,870	175,820	226,240	206,780	216,340	306,880	326,840	432,440
Of which:									
Bulgaria.....	18,740	34,940	38,280	42,780	32,400	11,960	16,340	18,280	26,840
Czechoslovakia.....	7,920	16,740	13,280	22,600	7,280	6,720	15,320	27,000	17,300
German Democratic Republic ²	12,020	4,230	49,260	50,760	45,980	18,000	15,520	15,700	24,000
Hungary.....	7,940	9,800	17,540	15,840	13,820	29,480	21,200	16,440	29,260
Poland.....	0	0	0	11,400	16,540	48,480	69,000	72,540	76,300
Subtotal.....	46,620	65,710	118,360	143,380	116,020	114,640	137,380	149,960	173,700
Romania.....	45,820	57,160	57,460	82,860	90,760	101,700	169,500	176,880	258,740

¹ Estimated.² Excludes imports of crude oil from the Federal Republic of Germany.

Source: CIA, "Energy Supplies in Eastern Europe: A Statistical Compilation" (ER 79-10624). Figures for German Democratic Republic imports of crude oil from the Federal Republic of Germany were obtained from Federal Republic of Germany, "Warenverkehr mit der DDR," Reihe 6

TABLE A-2.—Average OPEC Crude Oil Prices

	Price per barrel
1970.....	\$1.10
1971.....	1.36
1972.....	1.54
1973.....	3.40
1974.....	11.28
1975.....	11.03
1976.....	11.77
1977.....	12.88
1978.....	12.93
1979.....	18.63
1980.....	30.87

Source: CIA *International Energy Statistical Review*.

APPENDIX B

TABLE B-1.—POLISH EXPORTS TO THE OPEC-8, 1970-76¹

[Dollar amounts in thousands]

SITC	1970		1971		1972		1973		1974		1975		1976	
	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent
Total to OPEC-8.....	\$30,440		\$31,152		\$32,910		\$68,814		\$152,114		\$216,167		\$244,395	
As share of exports to all OPEC countries.....		65.5		57.9		61.7		76.4		78.6		81.7		81.1
0 Food and live animals.....	4,422	14.5	5,184	16.6	3,197	12.8	14,924	21.7	28,383	18.7	51,655	23.9	66,452	27.2
1 Beverages and tobacco.....	9	Z	32	0.1	9	Z	3	Z	316	0.2	321	0.1	7	Z
2 Crude materials, inedible, excluding fuel.....	3,402	11.2	2,802	9.0	3,776	11.5	7,036	10.2	20,979	13.8	19,030	0.8	23,656	9.7
3 Mineral fuels, lubricants, etc.....	12	Z	0	0.0	1	Z	308	0.4	51	Z	2,731	1.3	9,464	3.9
4 Animal/vegetable oils and fats.....	175	0.6	0	0.0	0	0.0	0	0.0	2,177	1.4	13,179	6.1	11,880	4.9
5 Chemicals.....	2,523	8.3	2,834	9.1	3,335	10.1	8,456	12.3	46,400	30.5	50,670	23.4	14,039	5.8
6 Manufactured goods by chief material.....	8,990	29.5	9,762	31.3	1,075	15.3	20,631	30.0	29,410	19.3	40,720	18.8	58,516	24.0
7 Machinery and transport equipment.....	5,670	18.6	7,054	22.6	7,822	23.8	11,745	17.1	17,297	11.4	29,352	13.5	46,260	19.0
8 Miscellaneous manufactured goods.....	4,454	14.6	3,173	10.2	2,697	8.1	4,885	7.1	7,170	4.7	8,563	4.0	15,233	6.2
9 Items not classified.....	35	0.1	23	0.1	13	Z	15	Z	3	Z	3	Z	5	Z
0-1 Primary products.....	8,020	26.3	8,018	25.7	7,983	24.3	22,271	32.4	51,096	34.1	86,316	40.2	111,456	45.6
5-6 Intermediate goods.....	11,513	37.8	12,596	40.4	14,091	42.8	29,087	42.3	75,810	49.8	31,390	14.5	72,605	29.7
7-8 Finished manufactures.....	10,124	32.3	10,227	32.8	10,519	32.0	16,630	24.2	24,467	16.1	37,815	17.5	61,483	25.2
Residual due to conversion to SITC*.....	-748	2.5	-288	0.9	-304	0.9	-811	1.2	+72	Z	-43	Z	+1,114	0.5

¹ Algeria, Iran, Kuwait, Libya, Saudi Arabia, Nigeria, Venezuela, and Indonesia. Columns may not add to totals due to rounding.

*Caused by inaccuracies in concordance used to convert data from BTN to SITC commodity codes.

Z—Negligible.

Source: OPEC Country Foreign Trade Handbooks.

TABLE B-2.—CZECHOSLOVAK EXPORTS TO THE OPEC-8, 1970-76¹

[Dollar amounts in thousands]

SITC	1970		1971		1972		1973		1974		1975		1976	
	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent
Total to OPEC-8	\$55, 657		\$73, 463		\$72, 530		\$86, 148		\$109, 833		\$140, 974		\$158, 105	
As share of exports to all OPEC countries														
0 Food and live animals	11, 609	20.8	14, 590	19.9	13, 590	18.7	24, 790	28.8	28, 075	25.6	28, 755	66.6	18, 978	67.5
1 Beverages and tobacco	5	Z	8	Z	2	Z	0	0.0	1	Z	47	Z	19	Z
2 Crude materials, inedible, excluding fuel	829	1.5	1, 066	1.5	679	0.1	768	0.9	792	0.7	8, 332	6.0	6, 437	4.1
3 Mineral fuels, lubricants, etc.	217	0.4	8	Z	1, 244	1.7	997	1.2	23	Z	2, 767	2.0	45	Z
4 Animal/vegetable oils and fats	0	0.0	6	Z	0	0.0	0	0.0	0	Z	0	0.0	2	Z
5 Chemicals	887	1.6	1, 045	1.4	1, 362	1.9	1, 814	2.1	2, 422	2.2	3, 375	2.4	6, 491	4.1
6 Manufactured goods by chief material	21, 055	37.8	30, 229	41.1	28, 828	39.4	30, 454	35.4	40, 053	36.5	54, 572	38.7	63, 334	39.9
7 Machinery and transport equipment	16, 427	29.5	20, 813	28.3	17, 729	24.4	17, 806	20.7	28, 332	25.9	28, 494	20.2	46, 185	29.1
8 Miscellaneous manufactured goods	4, 455	8.0	5, 835	8.0	7, 253	10.0	7, 866	9.1	9, 770	9.0	12, 406	8.8	17, 125	10.8
9 Items not classified	215	0.4	56	0.1	31	Z	46	0.1	30	Z	254	0.2	163	0.1
0-4 Primary products	12, 660	22.7	15, 678	21.3	15, 515	21.4	26, 555	30.8	28, 891	26.3	39, 901	28.3	25, 481	16.1
5-6 Intermediate goods	21, 942	39.4	31, 274	42.6	30, 190	41.6	32, 268	37.5	42, 475	38.7	57, 947	41.1	69, 825	44.2
7-8 Finished manufactures	20, 882	37.5	26, 648	36.0	24, 992	34.4	25, 672	29.8	38, 102	34.7	40, 900	29.0	63, 310	40.0
Residual due to conversion to SITC*	+42	0.1	+163	0.2	-1, 812	2.5	-1, 553	1.8	-335	0.3	-1, 995	1.4	+674	0.4

¹ Algeria, Iran, Kuwait, Libya, Saudi Arabia, Nigeria, Venezuela, and Indonesia. Columns may not add to totals due to rounding.

*Caused by inaccuracies in concordance used to convert data from BTN to SITC commodity codes.

Z—Negligible.

Source: OPEC Country Foreign Trade Handbooks.

TABLE B-3.—HUNGARIAN EXPORTS TO THE OPEC-8, 1970-76¹

[Dollar amounts in thousands]

SITC	1970		1971		1972		1973		1974		1975		1976		
	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	
Total to OPEC-8	\$33,799		\$29,208		\$32,406		\$46,313		\$61,371		\$89,226		\$111,455		67.5
As share of exports to all OPEC countries ..		84.5		77.5		76.1		81.7		70.4		76.8		27,030	24.3
0 Food and live animals	7,150	21.2	3,845	13.2	3,728	11.5	4,634	10.0	10,607	17.3	21,198	23.8	27,030	24.3	
1 Beverages and tobacco	2	Z	6	Z	6	Z	13	Z	6	Z	2	Z	7	Z	
2 Crude materials, inedible, excluding fuel ..	23	0.1	161	0.6	332	1.0	926	2.0	1,472	2.4	234	0.3	1,375	1.2	
3 Mineral fuels, lubricants, etc	0	0.0	17	0.1	0	0.0	187	0.4	46	0.1	237	0.3	241	0.2	
4 Animal/vegetable oils and fats	19	0.1	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	
5 Chemicals	473	1.4	766	2.6	683	2.1	1,469	3.2	2,535	4.1	4,173	4.7	7,586	6.8	
6 Manufacturing goods by chief material ..	19,943	59.0	14,552	49.8	16,598	51.2	19,556	42.2	21,726	35.4	32,596	36.5	39,667	35.6	
7 Machinery and transport equipment	3,133	9.3	4,478	15.3	5,457	16.8	11,690	25.3	13,435	21.9	21,504	24.1	23,162	20.8	
8 Miscellaneous manufactured goods	2,630	7.8	4,811	16.5	5,313	16.4	8,257	17.8	10,976	17.9	9,825	11.0	11,440	10.3	
9 Items not classified	7	Z	8	Z	4	Z	11	Z	1	Z	2	Z	2	Z	
0-4 Primary products	7,194	21.3	4,029	13.8	4,066	12.5	5,760	12.4	12,131	19.8	21,685	24.3	28,653	25.7	
5-6 Intermediate goods	20,416	60.4	15,318	52.5	17,281	53.3	21,025	45.4	24,261	39.5	36,769	41.2	47,253	42.4	
7-8 Finished manufacturers	5,763	17.1	9,289	31.8	10,770	33.2	19,947	43.1	24,411	39.8	31,329	35.1	34,602	31.0	
Residual due to conversion to SITC	-419	1.2	-556	1.9	-285	0.9	+430	0.9	-567	0.9	+545	0.6	-945	0.8	

¹ Algeria, Iran, Kuwait, Libya, Saudi Arabia, Nigeria, Venezuela, and Indonesia. Columns may not add to totals due to rounding.

Z—Negligible.

Source: OPEC Country Foreign Trade Handbooks.

*Caused by inaccuracies in concordance used to convert data from BTN to SITC commodity codes.

TABLE B-4.—BULGARIAN EXPORTS TO THE OPEC-8, 1970-76

[Dollar amounts in thousands]

SITC	1970		1971		1972		1973		1974		1975		1976	
	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent
Total to OPEC-8.....	\$22, 153		\$24, 387		\$30, 649		\$35, 904		\$90, 205		\$100, 557		\$102, 440	
As share of exports to all OPEC countries.....		69.4		70.3		71.4		76.9		80.2		71.1		75.4
0 Food and live animals.....	10, 785	48.7	14, 448	59.2	19, 875	64.8	19, 431	54.1	58, 571	64.9	42, 234	42.0	43, 861	42.8
1 Beverages and tobacco.....	20	0.1	90	0.4	39	0.1	1	Z	8	Z	17	Z	18	Z
2 Crude materials, inedible, excluding fuel.....	91	0.4	1, 956	8.0	2, 719	8.9	2, 375	6.6	3, 475	3.9	8, 790	8.7	2, 246	2.2
3 Mineral fuels, lubricants, etc.....	0	0.0	0	0.0	0	0.0	0	0.0	2	Z	3	Z	0	0.0
4 Animal/vegetable oils and fats.....	23	1.0	22	0.1	123	0.4	36	0.1	128	0.1	3	Z	0	0.0
5 Chemicals.....	1, 039	4.7	960	3.9	1, 194	3.9	1, 150	3.2	6, 486	7.2	213	0.2	1, 100	1.1
6 Manufacturing goods by chief material.....	5, 441	24.6	3, 508	14.4	3, 662	11.9	7, 703	21.5	9, 212	10.2	23, 371	23.2	4, 324	4.2
7 Machinery and transport equipment.....	3, 989	18.0	2, 559	10.5	2, 450	8.0	3, 521	9.8	6, 808	7.5	11, 041	11.0	30, 735	30.0
8 Miscellaneous manufactured goods.....	549	2.5	1, 436	5.9	786	2.6	1, 295	3.7	2, 541	2.8	9, 776	9.7	13, 567	13.1
9 Items not classified.....	2	Z	2	Z	1	Z	65	0.2	1, 615	1.8	1, 885	1.9	2, 400	2.3
0-4 Primary products.....	10, 919	49.3	16, 516	67.7	22, 756	74.2	21, 843	60.8	63, 184	70.0	51, 347	51.1	47, 225	46.1
5-6 Intermediate goods.....	6, 480	29.3	4, 468	18.3	4, 856	15.8	8, 853	24.7	16, 698	18.5	34, 412	34.2	35, 059	34.2
7-8 Finished manufactures.....	4, 538	20.5	3, 995	16.4	3, 236	10.6	4, 816	13.4	9, 349	10.4	11, 661	11.6	15, 967	15.6
Residual due to conversion to SITC*.....	-214	1.0	+594	2.4	+200	0.7	-327	0.9	-357	0.4	-1, 214	1.2	+493	0.5

1 Algeria, Iran, Kuwait, Libya, Saudia Arabia, Nigeria, Venezuela, and Indonesia. Columns may not add to totals due to rounding.

* Caused by inaccuracies in concordance used to convert data from BTN to SITC commodity codes.

Z—Negligible.

Source: OPEC Country Foreign Trade Handbooks.

TABLE B-5.—GDR EXPORTS TO THE OPEC-8, 1970-76¹

[Dollar amounts in thousands]

SITC	1970		1971		1972		1973		1974		1975		1976	
	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent
Total to OPEC-8	\$11,223		\$13,460		\$15,392		\$38,598		\$27,839		\$61,281		\$47,702	
As share exports to all OPEC countries		56.1		55.2		38.5		63.6		43.4		62.3		47.5
0 Food and live animals	1,180	10.5	4,358	32.4	3,160	20.5	3,727	9.7	504	1.8	10,331	16.9	1,278	3.0
1 Beverages and tobacco	0	0.0	0	0.0	2	Z	0	0.0	0	0.0	0	0.0	3	Z
2 Crude materials, inedible, excluding fuel	50	0.4	34	0.3	30	0.2	557	1.4	505	1.8	2,009	3.5	1,958	4.1
3 Mineral fuels, lubricants, etc.	16	0.1	0	0.0	30	0.2	1	Z	1	Z	5	Z	34	0.1
4 Animal/vegetable oils and fats	0	0.0	0	0.0	0	0.0	466	1.2	23	0.1	5	Z	2,613	5.5
5 Chemicals	408	3.6	335	2.5	453	2.9	1,120	2.9	1,416	5.1	1,785	2.9	2,397	5.0
6 Manufactured goods by chief material	2,394	21.3	2,222	16.5	3,866	25.1	7,295	18.9	11,731	42.1	15,998	26.1	14,687	30.8
7 Machinery and transport equipment	6,005	53.5	4,882	36.3	5,445	35.4	23,520	60.9	10,622	38.2	24,885	40.6	17,098	35.8
8 Miscellaneous manufactured goods	1,092	9.7	1,256	9.3	1,624	10.6	1,963	5.1	2,890	10.4	5,521	9.0	5,573	11.7
9 Items not classified	1	Z	2	Z	10	0.1	2	Z	1	Z	Z	0.0	0	0.0
0-4 Primary products	1,246	11.1	4,392	32.6	3,222	20.9	4,654	12.1	1,033	3.7	12,349	20.2	3,273	6.9
5-6 Intermediate goods	2,802	25.0	2,557	19.0	4,319	28.0	8,415	21.8	13,147	47.2	17,783	29.0	5,010	10.5
7-8 Finished manufactures	7,097	63.2	6,138	45.6	7,069	45.9	25,483	66.0	13,512	48.5	30,406	49.6	37,358	78.3
Residual due to conversion to SITC*	-77	0.7	-371	2.8	-772	5.0	53	0.1	-146	0.5	-743	1.2	-2,059	4.3

¹ Algeria, Iran, Kuwait, Libya, Saudi Arabia, Nigeria, Venezuela, and Indonesia. Columns may not add to totals due to rounding.

*Caused by inaccuracies in concordance used to convert data from BTN to SITC commodity codes.

Z—Negligible.

Source: OPEC Country Foreign Trade Handbooks.

TABLE B-6.—ROMANIAN EXPORTS TO THE OPEC-8, 1970-76¹

[Dollar amounts in thousands]

SITC	1970		1971		1972		1973		1974		1975		1976	
	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent	Value	Percent
Total to OPEC-8	\$67,957		\$84,015		\$86,189		\$130,665		\$171,903		\$359,112		\$323,991	
As share of exports to all OPEC countries		96.9		97.5		94.1		93.7		77.7		82.6		82.6
0 Food and live animals	10,087	14.8	12,258	14.6	22,216	25.8	36,249	27.7	41,105	23.9	113,006	31.5	82,718	25.6
1 Beverages and tobacco	8	Z	1	Z	8	Z	9	Z	21	Z	49	Z	9	Z
2 Crude material, inedible, excluding fuel	6,482	9.5	8,020	9.5	11,013	12.8	20,155	15.4	31,119	18.1	41,448	11.5	32,097	9.9
3 Mineral fuels, lubricants, etc.	107	0.2	143	0.2	851	1.0	796	0.6	1,245	0.7	492	0.1	1,005	0.3
4 Animal/vegetable oils and fats	0	0.0	0	0.0	1	Z	0	0.0	35	Z	27	Z	34	Z
5 Chemicals	9,161	13.5	2,627	3.1	2,807	3.3	2,520	1.9	13,276	7.7	44,727	12.5	19,750	6.1
6 Manufactured goods and chief material	13,822	20.3	18,278	21.8	17,519	20.3	23,046	17.6	43,585	25.4	67,500	18.8	77,753	24.0
7 Machinery and transport equipment	22,276	32.8	34,655	41.2	25,499	29.6	32,714	25.0	32,331	18.8	75,318	21.0	95,490	29.5
8 Miscellaneous manufactured goods	5,979	8.8	8,114	9.7	6,793	7.9	14,064	10.8	12,031	7.0	14,956	4.2	14,809	4.6
9 Items not classified	2	Z	1	Z	4	Z	0	0.0	0	0.0	0	0.0	0	0.0
0-4 Primary products	16,684	24.5	20,422	24.3	34,089	39.5	57,209	43.8	73,525	42.8	155,022	43.2	115,863	35.8
5-6 Intermediate goods	22,983	33.8	20,899	24.9	20,326	23.6	25,566	19.6	56,861	33.1	112,227	31.2	97,503	30.1
7-8 Finished manufactures	28,255	41.6	42,769	50.9	32,292	37.5	46,778	35.8	44,362	25.8	90,274	25.1	110,299	34.1
Residual due to conversion to SITC*	-33	Z	+82	0.1	+522	0.6	-1,112	0.9	+2,845	1.7	-1,589	0.4	-326	0.1

¹ Algeria, Iran, Kuwait, Libya, Saudia Arabia, Nigeria, Venezuala, and Indonesia. Columns may not add due to totals.

*Caused by inaccuracies in concordance used to convert data from BTN to SITC commodity codes.
Z—Negligible.

Source: OPEC Country Foreign Trade Handbooks.

APPENDIX C

I. POSSIBLE TRENDS IN EAST EUROPEAN ²³ IMPORTS OF OPEC OIL

The following trends are intended to provide simple backgrounds for assessing the near term implications of Eastern Europe's trade with the OPEC countries. No attempt is made to assess the relative likelihood of these trends; yet it is hoped that the trends have been cast broad enough to provide boundaries within which actual future developments will take place.

1. Oil imports from OPEC grow only modestly at the past rate of growth of primary energy consumption in Eastern Europe (about 4 percent annually). This rate of growth is considerably lower than Eastern Europe's past rates of oil consumption (9.2 percent per annum from 1970-1977), total oil imports (9.6 percent per annum from 1970-1978), or oil imports from OPEC (16.6 percent per annum from 1970-78). Such a low growth in imports of OPEC oil could be likely if:

The Soviet Union takes on the burden of supplying any possible major increases in Eastern Europe's demand for oil; or

Eastern Europe's energy conservation programs are unusually successful; or
The substitution of coal and natural gas for oil succeeds in substantially easing domestic oil consumption; or

A somewhat moderate combination of the above factors.

2. Oil imports from OPEC continue to grow at the rate (12.9 percent per annum) after the first major OPEC price increase. This high rate of growth in imports of OPEC oil could be likely if:

The Soviet Union—perhaps due to domestic oil production shortfalls—does not continue to expand oil exports to Eastern Europe (8.9 percent per annum during 1970-77); or

East European energy conservation programs have little short run impact on domestic oil consumption; or

The substitution of coal and natural gas for oil proves too limited to reduce domestic oil consumption.

ALTERNATIVE TRENDS IN EAST EUROPEAN IMPORTS OF OPEC OIL

[In thousands of barrels per day]

	1979	1980	1981	1982	1983	1984	1985
Trend No. 1.....	201.4	209.3	217.6	226.2	235.1	224.4	254.1
Trend No. 2.....	218.7	246.9	278.7	314.7	355.3	401.1	452.9

If one assumes that OPEC oil for 1980 cost over \$28 per barrel and that the price of oil from 1980 to 1985 rises 10 percent annually, the above two trends generate the following hard currency costs for East Europe:

ALTERNATIVE TRENDS IN EAST EUROPEAN IMPORTS OF OPEC OIL

[In millions of dollars]

	1978	1979	1980	1981	1982	1983	1984	1985
Trend No. 1.....	914	1,370	2,206	2,522	2,884	3,297	3,771	4,312
Trend No. 2.....	914	1,487	2,602	3,230	4,013	4,983	6,188	7,685

²³ Excluding Romania.

EASTERN EUROPEAN AND SOVIET FUEL TRADE, 1970-85

By Jan Vaňous*

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I. INTRODUCTION

The aim of the paper is to reconstruct the fuel trade flows of the seven member countries of the Council for Mutual Economic Assistance (CMEA); namely, Bulgaria, Czechoslovakia, the GDR, Hungary, Poland, Romania, and the U.S.S.R. This reconstruction provides a comprehensive picture of the regional patterns of Eastern European and Soviet fuel trade from the financial side, as distinguished from the real side. The reconstructed fuel trade flows for the period 1970-78 (1979 for the U.S.S.R.) are presented in section II. Price developments in Eastern European and Soviet fuel trade are discussed in section III on the basis of the author's own calculation of fuel price indices for main partner trade regions. Particular atten-

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tion is paid to the pricing of Soviet exports of oil and oil products to individual CMEA countries and on the world market (Developed West). Section IV discusses the prospects for Soviet exports of oil and oil products as well as the prospects for Eastern European imports of crude oil from the U.S.S.R. and from the Middle East during 1980-85. In addition, we also attempt to point out some of the most important implications of the predicted developments on the patterns of Soviet and Eastern European foreign trade.

Data and projections presented in this paper can provide a basis for further analysis. For example, the information presented can be used to calculate the implicit Soviet subsidies to Eastern Europe which take the form of selling its crude oil and oil products at below world market prices (wmp's) and for the relatively overvalued (at official exchange rates) non-convertible rubles instead of the convertible dollars. To be sure, subsidy calculations of this kind must be interpreted in the broader context of Soviet-Eastern European economic, as well as political, relations.

The data presented can also be used to quantify the energy constraint on the growth rates of the Eastern European countries during the 1980's. The statistical information can also be useful for estimating the pressure on world energy supplies that will be exerted by the CMEA countries during the first half of the 1980's. Furthermore, our range of estimates regarding the amount of hard currency the Eastern European countries will need to purchase oil from the Middle East is a critically important variable to include in any projection of Eastern European imports from the Developed West, as well Eastern Europe's capacity to service her hard-currency debt.

II. FUEL TRADE FLOWS OF THE CMEA SEVEN, 1970-78

Tables 1 through 9 present a reconstruction of the fuel trade flows of the CMEA Seven with five major partner trade regions for the period 1970-78 (1979 for the U.S.S.R.). The commodity category "Fuels" is defined as SITC 3 or CTN 20+21+22+23; it includes coal, coke, briquettes, oil, oil products, gas (natural and manufactured), and electric energy. For individual Eastern European countries the five partner trade regions include: the CMEA Five (the rest of Eastern Europe except Albania and Yugoslavia), the U.S.S.R., the Other Centrally Planned Economies (OCPE's), the More Developed Countries (MDC's), and the Less Developed Countries (LDC's). The bloc of OCPE's includes Albania, China, Cuba, North Korea, Mongolia, Vietnam, and Yugoslavia. The MDC's or the Developed West cover North America, Western Europe (including Turkey), Japan, Australia, and New Zealand. The LDC's are the remaining countries of the world. The sum of each country's fuel trade with the CMEA Five, the U.S.S.R., and the OCPE's is called the Ruble Area total, while the sum of her trade with the MDC's and the LDC's is called the Dollar Area total. For each country, we report exports and imports of fuels in millions of current rubles for the Ruble Area and millions of current dollars for the Dollar Area, as well as her fuel trade balance or net exports. All data for years 1970 through 1977 were taken from Vaňous (1980b), while the data for year 1978 came mostly from the

official national statistical and foreign trade yearbooks. The 1978 and 1979 data presented in parentheses are preliminary estimates based on a combination of incomplete national trade data and mirror trade statistics of other CMEA countries.

In the case of the Ruble Area, its name does not imply that the ruble is the sole means of payment in fuel trade transactions. Generally, the bulk of each country's exports and imports of fuels to and from the CMEA Five and the U.S.S.R. is sold for or paid for in rubles. This trade is also conducted at special intra-CMEA prices, which are different from wmp's. However, some portion of this trade is known to be conducted in dollars at the current wmp's. Since with the exception of Hungary it is not possible to identify the portion of intra-CMEA fuel trade conducted in dollars, the reported total of each country's fuel trade with the CMEA Five and the U.S.S.R. is the sum of her ruble trade with these two regions and the dollar trade converted into rubles at the official, unrealistically low, dollar exchange rates. This causes an understatement of intra-CMEA fuel trade in the case of countries which demand or are required to use dollars as means of payment (particularly Hungary and Romania). In the case of the OCPE's, most CMEA countries use rubles as means of payment in trade transactions with Albania, North Korea, Mongolia, and Vietnam. Dollars are used in trade with Cuba and Yugoslavia, while both rubles and dollars are used in trade with China. Since the bulk of the CMEA fuel trade with the OCPE's involves Cuba and Yugoslavia, the OCPE's would be more appropriately included in the Dollar Area. However, because of the way aggregate trade statistics are reported in the official CMEA statistical sources (socialist vs. non-socialist countries) and the fact that the dollar trade with Cuba and Yugoslavia involves accounting rather than fully convertible dollars, the OCPE's are included in the Ruble Area total.¹ Thus the dollar trade in fuels with Cuba and Yugoslavia was converted into rubles at the official exchange rates.

In the case of the Dollar Area, all fuel trade transactions are conducted in dollars or other convertible currencies and at the wmp's. No attempt is made here to aggregate the Ruble and the Dollar Area total, either by converting the former into dollars or the latter into rubles. At the present time, in the absence of a reliable and economically rational dollar/ruble exchange rate, the use of the official Soviet or the implicit official Eastern European dollar/ruble exchange rates would amount to "adding up potatoes and oranges, pound for pound."² Hence, the use of two currencies as units of measurement in tables 1 through 9 is preferable because it allows the maximum cross-country comparability of statistical data.

Tables 1 through 6 require little comment. On the export side, the largest exporter of fuels is Poland, followed by Romania, the GDR, Czechoslovakia, Hungary, and Bulgaria. While Poland and

¹ The key implication of the use of accounting rather than fully convertible dollars is that any surpluses or deficits in bilateral trade cannot be freely used to offset deficits or surpluses in trade with the West. In addition, at least in the case of Cuba, the prices used in foreign trade transactions are different from world market prices (wmp's) as pointed out in Theriot and Matheson (1979), pp. 558-562. Thus, the most appropriate regional aggregation would be to include only Yugoslavia in the Dollar Area total.

² The problem of bringing intra-CMEA and East-West trade flows to a common denominator is discussed in greater detail in various (1980a), Appendix, also appearing in this volume.

Czechoslovakia still export a fair amount of fuels within CMEA, the remaining countries (notably Romania and Bulgaria) send the bulk of their fuel exports to the MDC's. With the exception of Romania, most of individual country imports of fuels come from the U.S.S.R. In 1978 the largest importers of fuels from the U.S.S.R were Czechoslovakia and the GDR, followed by Bulgaria, Poland, Hungary, and Romania. Romania imports most of her fuels (crude oil) from the Middle East and in 1978 she was still the only CMEA country not receiving any oil imports from the U.S.S.R.³ As far as the imports of oil from the Middle East are concerned, in 1978 Romania imported by far the largest quantity and was followed by the GDR, Poland, Bulgaria, Hungary, and Czechoslovakia. Only Poland and the GDR, appear to import significant amounts of fuels from Western Europe (Belgium, Netherlands, United Kingdom, and the FRG).

TABLE 1.—BULGARIAN TRADE IN FUELS (SITC 3)

Year	In millions of current rubles				In millions of current dollars		
	CMEA-5	U.S.S.R.	OCPE's	Ruble Area total	MDC's	LDC's	Dollar Area total
Exports:							
1970	2.9	0	0.2	3.1	5.1	0	5.1
1971	1.3	0	.3	1.6	3.2	0	3.2
1972	3.9	0	.9	4.8	3.1	0	3.1
1973	3.1	0	.4	3.5	8.4	0	8.4
1974	3.1	0	.5	3.6	12.0	4.8	16.8
1975	5.9	0	5.8	11.7	58.9	.6	59.5
1976	4.5	0	5.1	9.6	64.6	6.9	71.5
1977	7.7	0	4.5	12.2	98.5	10.2	108.7
1978	(10.8)	(0)	(5.4)	(16.2)	(153.4)	(13.2)	(166.6)
Imports:							
1970	5.6	166.5	5.1	177.2	24.3	9.5	33.8
1971	5.7	198.2	5.6	209.5	34.6	19.2	53.8
1972	11.2	210.2	6.4	227.8	13.3	29.6	42.9
1973	12.3	245.0	5.9	263.2	0	43.9	43.9
1974	29.9	291.7	7.2	328.8	8.9	131.9	140.8
1975	24.6	657.0	5.8	687.4	22.2	53.9	76.1
1976	19.4	747.6	5.9	772.9	27.0	74.5	101.5
1977	55.0	935.5	4.0	994.5	6.9	93.0	99.9
1978	(20.3)	(1,136.2)	(5.4)	(1,161.9)	(9.2)	(139.9)	(149.1)
Trade balance:							
1970	-2.7	-166.5	-4.9	-174.1	-19.2	-9.5	-28.7
1971	-4.4	-198.2	-5.3	-207.9	-31.4	-19.2	-50.6
1972	-7.3	-210.2	-5.5	-223.0	-10.2	-29.6	-39.8
1973	-9.2	-245.0	-5.5	-259.7	-8.4	-43.9	-35.5
1974	-26.8	-291.7	-6.7	-325.2	3.1	-127.1	-124.0
1975	-18.7	-657.0	0	-675.7	36.7	-53.3	-16.6
1976	-14.9	-747.6	-.8	-763.3	37.6	-67.6	-30.0
1977	-47.3	-935.5	.5	-982.3	91.6	-82.8	8.8
1978	(-9.5)	(-1,136.2)	(0)	(-1,145.7)	(144.2)	(-126.7)	(17.5)

Source: 1970-77: Jan Vanous, "Project CMEA-FORTRAM Data Bank of Foreign Trade Flows of the CMEA Countries, 1950-1977" (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978: Bulgarian Foreign Trade Yearbook and mirror trade statistics of other CMEA countries.

³ The 1979 U.S.S.R. Foreign Trade Yearbook indicates that Romania began to import oil from the U.S.S.R. in 1979.

TABLE 2.—CZECHOSLOVAK TRADE IN FUELS (SITC 3)

Year	In millions of current rubles				In millions of current dollars		
	CMEA-5	U.S.S.R.	OCPE's	Ruble Area total	MDC's	LDC's	Dollar Area total
Exports:							
1970	72.8	1.2	6.6	80.6	49.3	0	49.3
1971	74.0	.8	9.7	84.5	66.5	.9	67.4
1972	80.0	1.2	9.2	90.4	69.5	1.1	70.6
1973	82.2	5.6	11.2	99.0	92.4	.1	92.5
1974	85.4	11.4	17.4	114.2	126.6	.1	126.7
1975	133.2	15.6	29.2	178.0	189.8	1.8	191.6
1976	146.7	3.2	26.1	176.0	195.2	.2	195.4
1977	165.2	3.5	20.3	189.0	227.2	.1	227.3
1978	161.8	4.6	21.4	187.8	203.8	0	203.8
Imports:							
1970	73.0	221.9	4.8	299.7	10.3	0	10.3
1971	93.8	253.8	3.0	350.6	17.1	0	17.1
1972	92.6	282.1	2.9	377.6	11.2	0	11.2
1973	102.6	300.2	2.7	405.5	5.8	28.0	33.8
1974	104.2	335.9	0	440.1	26.5	19.1	45.6
1975	143.6	678.2	.1	821.9	10.8	23.5	34.3
1976	161.4	801.1	0	962.5	53.8	20.9	74.7
1977	159.5	979.5	0	1,139.0	71.5	69.4	140.9
1978	158.2	1,218.1	5.9	1,382.2	72.2	29.6	101.8
Trade balance:							
1970	-2	-220.7	1.8	-219.1	39.0	0	39.0
1971	-19.8	-253.0	6.7	-266.1	49.4	.9	50.3
1972	-12.6	-280.9	6.3	-287.2	58.3	1.1	59.4
1973	-20.4	-294.6	8.5	-306.5	86.6	-27.9	58.7
1974	-18.8	-324.5	17.4	-325.9	100.1	-19.0	81.1
1975	-10.4	-662.6	29.1	-643.9	179.0	-21.7	157.3
1976	-14.7	-797.9	26.1	-786.5	141.4	-20.7	120.7
1977	5.7	-976.0	20.3	-950.0	155.7	-69.3	86.4
1978	3.6	-1,213.5	15.5	-1,194.4	131.6	-29.6	102.0

Source: 1970-77: Jan Vanous, "Project CMEA-FORTRAM Data Bank of Foreign Trade Flows of the CMEA Countries, 1950-1977" (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978: Czechoslovak Foreign Trade Yearbook and Czechoslovak Statistical Yearbook.

TABLE 3.—GDR TRADE IN FUELS (SITC 3)

Year	In millions of current rubles				In millions of current dollars		
	CMEA-5	U.S.S.R.	OCPE's	Ruble Area Total	MDC's	LDC's	Dollar Area total
Exports:							
1970	36.5	9.0	2.8	48.3	61.5	0.2	61.7
1971	40.4	13.2	3.6	57.2	57.5	.4	57.9
1972	40.8	18.7	3.7	63.2	71.7	.5	72.2
1973	31.4	14.6	5.1	51.1	135.6	.5	136.1
1974	34.6	4.0	10.0	48.6	227.4	.5	227.9
1975	58.6	12.7	16.3	87.6	237.0	.5	237.5
1976	68.8	9.0	13.1	90.9	296.1	0	296.1
1977	66.8	26.6	10.5	103.9	325.6	0	325.6
1978	(72.5)	(18.0)	(12.2)	(102.7)	(372.7)	(0)	(372.7)
Imports:							
1970	88.7	198.2	2.1	289.0	46.8	11.2	58.0
1971	88.3	271.3	2.2	307.8	53.0	7.6	60.6
1972	109.2	243.1	2.1	354.4	89.2	11.7	100.9
1973	139.3	275.0	1.9	416.2	68.4	28.6	97.0
1974	114.7	398.2	3.2	516.1	53.7	187.7	241.4
1975	166.8	645.8	3.4	816.0	156.3	150.4	306.7
1976	166.1	808.8	2.3	977.2	201.3	159.6	360.9
1977	188.6	1,013.2	3.2	1,205.0	218.5	178.7	397.2
1978	(195.1)	(1,242.6)	(3.6)	(1,441.3)	(199.0)	(194.8)	(393.8)
Trade balance:							
1970	-52.2	-189.2	.7	-240.7	14.7	-11.0	3.7
1971	-47.9	-204.1	1.4	-250.6	4.5	-7.2	-2.7
1972	-68.4	-224.4	1.6	-291.2	-17.5	-11.2	-28.7
1973	-107.9	-260.4	3.2	-365.1	67.2	-28.1	39.1
1974	-80.1	-394.2	6.8	-467.5	173.7	-187.2	-13.5
1975	-108.2	-633.1	12.9	-728.4	80.7	-149.9	-69.2
1976	-97.3	-799.8	10.8	-886.3	94.8	-159.6	-64.8
1977	-121.8	-986.6	7.3	-1,101.1	107.1	-178.7	-71.6
1978	(-122.6)	(-1,224.6)	(8.6)	(-1,338.6)	(173.7)	(-194.8)	(-21.1)

Source: 1970-77: Jan Vanous, "Project CMEA-FORTRAM Data Bank of Foreign Trade Flows of the CMEA Countries, 1950-1977" (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978: East German Statistical Yearbook, mirror trade statistics of other CMEA countries, West German Statistical Yearbook.

TABLE 4.—HUNGARIAN TRADE IN FUELS (SITC 3)

Year	In millions of current rubles				In millions of current dollars		
	CMEA-5	U.S.S.R.	OCPE's	Ruble Area total	MDC's	LDC's	Dollar Area total
Exports:							
1970	7.7	2.9	1.9	12.5	15.8	0	15.8
1971	10.8	2.5	2.3	15.6	11.5	.1	11.6
1972	12.0	2.4	3.4	17.8	24.6	.1	24.7
1973	9.0	2.1	2.2	13.3	31.4	.4	31.8
1974	11.7	1.3	5.0	18.0	32.3	.2	32.5
1975	12.1	2.6	5.9	20.6	91.3	.1	91.4
1976	14.8	2.8	6.6	24.2	122.0	.5	122.5
1977	15.9	4.5	9.5	29.9	148.1	.8	148.9
1978	13.9	62.2	11.2	87.3	131.4	4.5	135.9
Imports:							
1970	54.3	130.0	1.4	185.7	12.3	2.9	15.2
1971	59.5	151.7	2.7	213.9	7.0	12.1	19.1
1972	58.8	168.4	1.9	229.1	5.9	16.5	22.4
1973	60.8	183.1	1.6	245.5	10.2	24.6	34.8
1974	58.0	210.4	4.3	272.7	18.0	66.0	84.0
1975	91.9	438.2	3.4	533.5	15.3	140.7	156.0
1976	100.4	524.1	2.8	627.3	60.0	95.9	155.9
1977	109.1	672.5	.2	781.8	56.1	79.3	135.4
1978	132.9	815.8	.4	949.1	36.9	136.5	173.4
Trade balance:							
1970	-46.6	-127.1	.5	-173.2	3.5	-2.9	.6
1971	-48.7	-149.2	-.4	-198.3	4.5	-12.0	-7.5
1972	-46.8	-166.0	1.5	-211.3	18.7	-16.4	2.3
1973	-51.8	-181.0	.6	-232.2	21.2	-24.2	-3.0
1974	-46.3	-209.1	.7	-254.7	14.3	-65.8	-51.5
1975	-79.8	-435.6	2.5	-512.9	76.0	-140.6	-64.6
1976	-85.6	-521.3	3.8	-603.1	62.5	-95.4	-32.9
1977	-93.2	-668.0	9.3	-751.9	92.8	-78.4	14.4
1978	-119.0	-753.6	10.8	-861.8	94.5	-132.0	-37.5

Source: 1970-77: Jan Vanous, "Project CMEA-FORTRAM Data Bank of Foreign Trade Flows of the CMEA Countries, 1950-1977" (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978: Hungarian Foreign Trade Yearbook and USSR Foreign Trade Yearbook.

Note: There are some differences between the reconstructed statistics and the officially reported Hungarian statistics. The official statistics record trade flows on the basis of country of origin/destination since 1971; the reconstructed statistics record trade on the basis of country of sale/purchase as was customary prior to 1971. For years 1976-78, intra-CMEA ruble and dollar trade is aggregated essentially on the basis of the official Soviet rather than the official Hungarian dollar/ruble exchange rate (the latter implies a substantial devaluation of the ruble vis-a-vis the dollar) in order to achieve consistency in the 1970-78 time series.

TABLE 5.—POLISH TRADE IN FUELS (SITC 3)

Year	In millions of current rubles				In millions of current dollars		
	CMEA-5	U.S.S.R.	OCPE's	Ruble Area total	MDC's	LDC's	Dollar Area total
Exports:							
1970	106.8	113.3	3.3	223.4	186.9	7.0	193.9
1971	116.9	140.9	3.8	261.6	241.1	9.9	251.0
1972	139.1	172.4	4.1	315.6	278.2	7.8	286.0
1973	180.3	158.9	6.7	345.9	337.2	11.7	348.9
1974	173.3	163.7	16.2	353.2	804.6	45.4	850.0
1975	249.8	361.7	25.6	637.1	1,127.9	82.2	1,210.1
1976	256.5	360.8	8.7	626.0	1,043.5	110.6	1,154.1
1977	265.2	357.4	15.3	637.9	1,042.8	117.1	1,159.9
1978	(285.7)	(385.2)	(14.3)	685.2	1,136.2	99.9	1,236.1
Imports:							
1970	30.4	164.3	3.6	198.3	9.5	0	9.5
1971	25.6	180.5	4.6	210.7	13.8	0	13.8
1972	28.4	209.6	4.9	242.9	14.1	0	14.1
1973	20.5	227.9	5.0	253.4	92.7	.7	93.4
1974	20.8	224.8	6.8	252.4	178.3	31.8	210.1
1975	40.1	554.6	5.2	599.9	291.5	54.8	346.3
1976	36.8	654.8	4.5	696.1	396.1	42.2	438.3
1977	34.7	879.3	6.2	920.2	403.7	65.7	469.4
1978	(41.2)	(1,107.7)	(8.1)	1,157.0	246.6	195.5	442.1
Trade balance:							
1970	76.4	-51.0	-.3	25.1	177.4	7.0	184.4
1971	91.3	-39.6	-.8	50.9	227.3	9.9	237.2
1972	110.7	-37.2	-.8	72.7	264.1	7.8	271.9
1973	159.8	-69.0	1.7	92.3	244.5	11.0	255.5
1974	162.5	-61.1	9.4	100.8	626.3	13.6	639.9
1975	209.7	-192.9	20.4	37.2	836.4	27.4	863.8
1976	219.7	-294.0	4.2	-70.1	647.4	68.4	715.8
1977	203.5	-521.9	9.1	-282.3	639.1	51.4	690.5
1978	(244.5)	(-722.5)	(6.2)	-471.8	889.6	-95.6	794.0

Source: 1970-77: Jan Vanous, "Project CMEA-FORTRAM Data Bank of Foreign Trade Flows of the CMEA Countries, 1950-1977" (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978: Polish Foreign Trade Yearbook and mirror trade statistics of other CMEA countries.

TABLE 6.—ROMANIAN TRADE IN FUELS (SITC 3)

Year	In millions of current rubles				In millions of current dollars		
	CMEA-5	U.S.S.R.	OCPE's	Ruble Area total	MDC's	LDC's	Dollar Area total
Exports:							
1970	45.1	19.2	10.0	74.3	70.2	2.4	72.6
1971	48.2	18.1	8.0	74.3	101.6	1.7	103.3
1972	49.9	17.7	7.0	74.6	96.0	1.1	97.1
1973	58.8	19.5	11.0	89.3	210.5	2.7	213.2
1974	60.2	17.9	20.0	98.1	451.4	5.3	456.7
1975	72.3	30.8	10.1	113.2	440.4	5.8	446.2
1976	88.8	32.1	7.4	128.3	628.1	8.2	636.3
1977	122.3	22.3	9.6	154.2	572.2	10.3	582.5
1978	(100.5)	(27.0)	(17.7)	(139.2)	(746.7)	(14.5)	(761.2)
Imports:							
1970	21.6	21.4	3.6	46.6	37.0	22.2	59.2
1971	20.2	28.2	7.0	55.4	32.4	26.7	59.1
1972	26.1	33.6	6.6	66.3	18.5	45.9	64.4
1973	30.9	39.9	9.1	79.9	44.2	89.6	133.8
1974	38.9	36.6	11.3	86.8	70.4	324.4	394.8
1975	61.4	66.6	15.6	143.6	76.4	372.8	449.2
1976	97.2	70.2	30.5	197.9	84.0	685.3	769.3
1977	97.6	86.0	27.8	211.4	78.5	701.0	779.5
1978	(99.4)	(71.6)	(31.5)	(202.5)	(118.1)	(1,053.3)	(1,171.4)
Trade balance:							
1970	23.5	-2.2	6.4	27.7	33.2	-19.8	13.4
1971	28.0	-10.1	1.0	18.9	69.2	-25.0	44.2
1972	23.8	-15.9	.4	8.3	77.5	-44.8	32.7
1973	27.9	-20.4	1.9	9.4	166.3	-86.9	79.4
1974	21.3	-18.7	8.7	11.3	381.0	-319.1	61.9
1975	10.9	-35.8	-5.5	-30.4	364.0	-367.0	-3.0
1976	-8.4	-38.1	-23.1	-69.6	544.1	-677.1	-133.0
1977	24.7	-63.7	-18.2	-57.2	493.7	-690.7	-197.0
1978	(1.1)	(-44.6)	(-19.8)	(-63.3)	(628.6)	-1,038.8	-410.2

Source: 1970-77: Jan Vanous, "Project CMEA-FORTRAM Data Bank of Foreign Trade Flows of the CMEA Countries, 1950-1977" (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978: Romanian Statistical Yearbook, mirror trade statistics of other CMEA countries, and "Romanian Foreign Trade Statistics," G.A.T.T. document L/4926, Geneva, Jan. 25, 1980.

TABLE 7.—CMEA SIX TRADE IN FUELS (SITC 3)

Year	In millions of current rubles				In millions of current dollars		
	CMEA-6	U.S.S.R.	OCPE's	Ruble Area total	MDC's	LDC's	Dollar Area total
Exports:							
1970	271.8	145.6	24.8	442.2	388.8	9.6	398.4
1971	291.6	175.5	27.7	494.8	481.4	13.0	494.4
1972	325.7	212.4	28.3	466.4	543.1	10.6	553.7
1973	364.8	200.7	36.6	602.1	815.5	15.4	830.9
1974	368.3	198.3	69.1	635.7	1,654.3	56.3	1,710.6
1975	531.9	423.4	92.9	1,048.2	2,145.3	91.0	2,236.3
1976	580.1	407.9	67.0	1,055.0	2,349.5	126.4	2,475.9
1977	643.1	414.3	69.7	1,127.1	2,414.4	138.5	2,552.9
1978	(645.2)	(497.0)	(76.2)	(1,218.4)	(2,744.2)	(132.1)	(2,876.3)
Imports:							
1970	273.6	902.3	20.6	1,196.5	140.2	45.8	186.0
1971	293.1	1,029.7	25.1	1,347.9	157.9	65.6	223.5
1972	326.3	1,147.0	24.8	1,498.1	152.2	103.7	255.9
1973	366.4	1,271.1	26.2	1,663.7	221.3	215.4	436.7
1974	366.5	1,497.6	32.8	1,896.9	355.8	760.9	1,116.7
1975	528.4	3,040.4	33.5	3,602.3	572.5	796.1	1,368.6
1976	581.3	3,606.6	46.0	4,233.9	822.2	1,078.4	1,900.6
1977	644.5	4,566.0	41.4	5,251.9	835.2	1,187.1	2,022.3
1978	(647.1)	(5,592.0)	(54.9)	(6,294.0)	(882.0)	(1,749.6)	(2,431.6)
Trade balance:							
1970	-1.8	-756.7	4.2	-754.3	248.6	-36.2	212.4
1971	-1.5	-854.2	2.6	-853.1	323.5	-52.6	270.9
1972	-6	-934.6	3.5	-931.7	390.9	-93.1	297.8
1973	-1.6	-1,070.4	10.4	-1,061.6	594.2	-200.0	394.2
1974	1.8	-1,299.3	36.3	-1,261.2	1,298.5	-704.6	593.9
1975	3.5	-2,617.0	59.4	-2,554.1	1,572.8	-705.1	867.7
1976	-1.2	-3,198.7	21.0	-3,178.9	1,527.3	-952.0	575.3
1977	-1.4	-4,151.7	28.3	-4,124.8	1,579.2	-1,048.6	530.6
1978	(-1.9)	(-5,095.0)	(21.3)	(-5,075.6)	(2,062.2)	(-1,617.5)	(444.7)

Source: 1970-77: Jan Vanous, "Project CMEA-FORTRAM Data Bank of Foreign Trade Flows of the CMEA Countries, 1950-1977" (Vancouver, B. C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978: Author's own calculation on the basis of tables 1 through 6.

Table 7 summarizes the picture of fuel trade of the CMEA Six. The shortage of hard currencies and much more rapid growth of prices in the West explain the sevenfold increase of fuel exports to the Dollar Area, while exports to the Ruble Area increased less than three times during the period 1970-78. However, the import statistics exhibit even more impressive growth rates. The Eastern European imports of fuels from the U.S.S.R. increased more than six times during 1970-78, while imports from the Dollar Area increased almost thirteen times (almost five times from the MDC's and about thirty-eight times from the LDC's, that is, from the Middle East).

The rapidly rising dependence of Eastern Europe on imported fuels is apparent from her fuel trade balances. In 1970 Eastern Europe had a fuel trade deficit with the U.S.S.R. of about 750 million rubles, which kept growing and reached the level of 1,300 million rubles in 1974. The 1975 revision of the intra-CMEA price formation formula, which resulted in an increase in Soviet fuel export prices to the CMEA Six of about 85 percent relative to the previous year, caused the Eastern European fuel trade deficit to double to 2,600 million rubles.⁴ Additional price increases during 1976-78 as well as increases in the quantity of fuel imports brought the level of this deficit to about 5,100 million rubles in 1978. Table 8 presented below indicates that the Eastern European fuel trade deficit with the U.S.S.R. reached about 6,500 million rubles in 1979 and is expected to grow to about 7,600 million rubles in 1980.

On the other hand, Eastern Europe has a considerable surplus in her fuel trade with the MDC's. This surplus grew from about 250 million dollars in 1970 to 600 million dollars in 1973, then jumped to 1,300 million dollars in 1974 due to the rapid growth of prices of exported fuels and continued to grow to the level of about 2,100 million dollars by 1978. However, the growing Eastern European surplus in her fuel trade with the MDC's is increasingly offset by a deficit in her fuel trade with the LDC's (the Middle Eastern OPEC countries). While in 1970 this deficit was less than 40 million dollars, it reached 200 million dollars in 1973 and jumped to 700 million dollars in 1974 as a result of near quadrupling of oil prices. By 1978 this deficit was about 1,600 million dollars. As a result of the rapidly rising fuel trade deficit with the LDC's, the Eastern European surplus in fuel trade with the Dollar Area, which grew from 200 million dollars in 1970 to almost 900 million dollars in 1975, began to decline after 1975. In 1978 this surplus was only about 450 million dollars and it can be expected that it will disappear entirely by 1980 (it may have disappeared already in 1979). However, it should be noted that the major cause of this trend is Romania whose small surplus in fuel trade with the Dollar Area between 1970 and 1974 turned into a deficit in 1975, growing rapidly to the level of about 400 million dollars by 1978.

⁴ According to the rather vague CMEA rules for price formation in effect until the end of 1974, intra-CMEA foreign trade prices (ftp's) were based on lagged averages of wmp's, periodically (every five years) revised and purged of various negative influences of the world capitalist market, such as monopoly influences, temporary speculative trends, short-term and cyclical influences, etc. From 1975 on, intra-CMEA ftp's are supposedly constructed on the basis of the lagged 5-year moving average of wmp's.

Tables 8 and 9 present the picture of Soviet fuel trade with its four main trade partner regions: the CMEA Six, the OCPE's, the MDC's, and the LDC's, as well as with individual Eastern European countries (based on Soviet foreign trade statistics). They, too, require little comment. With the exception of the Soviet fuel trade with the LDC's, the U.S.S.R. is a large net exporter of fuels with a surplus in 1979 of about 8,000 million rubles with the Ruble Area and 12,800 million dollars with the Dollar Area.⁵ During the period 1970-79, Soviet net exports of fuels to the CMEA Six and to the OCPE's increased eight-and-half times, and to the MDC's almost eighteen times. On the other hand, the negligible surplus in the Soviet fuel trade with the LDC's in 1970 changed into a steady deficit, averaging about 250 million dollars during 1971-78.

Since all the fuel trade data presented in tables 1 through 9 are in absolute ruble or dollar amounts, in order to present the picture of fuel trade in relative terms, in table 10 we report the share of fuels in exports of each Eastern European country and the U.S.S.R. to the MDC's, the share of fuels in each country's imports from the U.S.S.R., and finally the share of fuels in total imports from the Dollar Area, that is, the MDC's and the LDC's taken together. Table 10 shows that the share of fuels in total exports of all countries to the MDC's rose dramatically between 1970 and 1978. In 1978, 64 percent of Soviet export earnings in the MDC's were accounted for by fuels (69 percent in 1979), while the corresponding share for Poland and Romania was between 26 and 28 percent, and between 7 and 21 percent for the rest of Eastern Europe. With the exception of Romania, the share of fuels in total imports from the U.S.S.R. increased from 11-19 percent in 1970 to 31-41 percent in 1978 depending on the country. In contrast, the share of fuels in the Romanian imports from the U.S.S.R. in 1978 was less than 7 percent.

With the exception of Romania, for which the share of fuels in total imports from the Dollar Area was about 23 percent in 1978, this share amounted to between 3 and 11 percent for the remaining CMEA countries. However, with the exception of Bulgaria, the share of fuels in total imports from the Dollar Area shows a strong upward trend during 1970-78 and can be expected to increase rapidly from 1980 on.

⁵ On the basis of the U.S.S.R. trade returns for January-September 1980 published in the Supplement to the journal "U.S.S.R. Foreign Trade," No. 12/1980, the author would predict a dramatic increase in these surpluses in 1980. A 15 to 20 percent increase in export prices of fuels to the Ruble Area is likely to push the Soviet fuel surplus with this region to about 10 billion rubles. Rapid growth of oil prices in the West combined with a sharp increase in Soviet exports of natural gas to West Germany, France and Italy, and no growth in real imports of oil from the Middle East are likely to push the Soviet fuel trade surplus with the Dollar Area to about 19-20 billion dollars, i.e., an increase of 151-164 percent over its 1978 level.

TABLE 8.—U.S.S.R. TRADE IN FUELS (SITC 3)

Year	In millions of current rubles			In millions of current dollars		
	CMEA-6	OCPE's	Ruble Area total	MDC's	LDC's	Dollar Area total
Exports:						
1970	914.2	181.5	1,095.7	706.4	73.0	779.4
1971	1,050.7	206.2	1,256.9	984.3	97.3	1,081.6
1972	1,171.3	206.3	1,377.6	963.0	94.1	1,057.1
1973	1,310.2	294.0	1,604.2	1,849.3	92.5	1,941.8
1974	1,565.4	486.6	2,052.0	3,857.6	391.4	4,249.0
1974	3,126.2	665.6	3,791.8	4,737.0	467.7	5,204.7
1975	3,706.6	783.6	4,490.2	6,326.3	473.2	6,799.5
1977	4,675.8	1,016.3	5,692.1	7,466.0	635.2	8,101.1
1978	5,647.9	1,110.8	6,758.7	8,143.3	576.7	8,720.0
1979	6,950.2	1,556.0	8,506.2	(13,128.5)	(1,183.5)	14,312.0
Imports:						
1970	143.5	0	143.5	7.8	67.4	75.2
1971	174.1	0	174.1	9.5	134.1	143.6
1972	204.5	0	204.5	8.3	226.6	234.9
1973	210.5	1.4	211.9	14.7	415.2	429.9
1974	195.5	.3	195.8	22.0	590.2	612.2
1975	418.0	1.0	419.0	43.9	817.0	860.9
1976	407.1	.7	407.8	60.5	770.6	831.1
1977	411.4	.7	412.1	55.9	855.0	910.9
1978	497.0	.9	497.9	76.9	1,065.4	1,142.3
1979	470.6	.8	471.4	(362.7)	(1,112.0)	1,474.7
Trade balance:						
1970	770.7	181.5	952.2	698.6	5.6	704.2
1971	876.6	206.2	1,082.8	974.8	-36.8	938.0
1972	966.8	206.3	1,173.1	954.7	-132.5	822.2
1973	1,099.7	292.6	1,392.3	1,834.6	-322.7	1,511.9
1974	1,369.9	486.3	1,856.2	3,835.6	-198.8	3,636.8
1975	2,708.2	664.6	3,372.8	4,693.1	-349.3	4,343.8
1976	3,299.5	782.9	4,082.4	6,265.8	-297.4	5,968.4
1977	4,264.4	1,015.6	5,280.0	7,410.1	-219.8	7,190.3
1978	5,144.5	1,116.3	6,260.8	8,066.4	-488.7	7,577.7
1979	6,479.6	1,555.2	8,034.8	(12,765.8)	(71.5)	12,837.3

Source: 1970-77: Jan Vanous, "Project CMEA-FORTRAM Data Bank of Foreign Trade Flows of the CMEA Countries, 1950-1977" (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978-79: U.S.S.R. Foreign Trade Yearbooks.

TABLE 9.—U.S.S.R. TRADE IN FUELS (SITC 3) WITH THE CMEA-6

[In millions of current rubles]

Year	Bulgaria	Czecho-slovakia	GDR	Hungary	Poland	Romania	CMEA-6
Exports:							
1970	166.5	228.9	198.2	124.2	175.0	21.4	914.2
1971	198.3	261.7	217.2	145.7	199.6	28.2	1,050.7
1972	210.1	288.1	243.1	157.7	238.7	33.6	1,171.3
1973	245.0	314.4	275.0	177.7	258.2	39.9	1,310.2
1974	291.7	338.9	398.2	206.4	293.6	36.6	1,565.4
1975	657.0	683.1	645.9	435.6	638.0	66.6	3,126.2
1976	747.6	836.6	808.8	524.5	718.9	70.2	3,706.6
1977	935.2	1,022.0	1,013.2	673.0	946.4	86.0	4,675.8
1978	1,136.3	1,255.4	1,242.6	815.8	1,126.3	71.5	5,647.9
1979	1,361.1	1,534.4	1,445.2	1,112.8	1,350.8	145.9	6,950.2
Imports:							
1970	0	1.2	9.0	2.2	111.8	19.3	143.5
1971	0	.8	13.3	2.5	139.4	18.1	174.1
1972	0	1.2	18.7	2.4	167.9	14.3	204.5
1973	0	5.6	14.6	2.1	171.0	17.2	210.5
1974	0	11.4	4.1	1.3	163.7	15.0	195.5
1975	0	15.6	12.7	2.6	359.2	27.9	418.0
1976	0	3.2	9.0	2.8	360.4	31.7	407.1
1977	0	3.5	26.6	4.5	357.4	19.4	411.4
1978	(0)	(4.6)	(18.0)	(62.2)	(385.2)	(27.0)	497.0
1979	(0)	(4.9)	(19.2)	(27.2)	(390.4)	(28.9)	470.6
Trade balance:							
1970	166.5	227.7	189.2	122.0	63.2	2.1	770.7
1971	198.3	260.9	203.9	143.2	60.2	10.1	876.6
1972	210.1	286.9	224.4	155.3	70.8	19.3	966.8
1973	245.0	308.8	260.4	175.6	87.2	22.7	1,099.7
1974	291.7	327.5	394.1	205.1	129.9	21.6	1,369.9
1975	657.0	667.5	633.2	433.0	278.8	38.7	2,708.2
1976	747.6	833.4	799.8	521.7	358.5	38.5	3,299.5
1977	935.2	1,018.5	986.6	668.5	589.0	66.6	4,264.4
1978	(1,136.3)	(1,250.8)	(1,224.6)	(753.6)	(741.1)	(38.1)	5,144.5
1979	(1,361.1)	(1,529.5)	(1,426.0)	(1,085.6)	(960.4)	(117.0)	6,479.6

Source: 1970-77: Jan Vanous, "Project CMEA-FORTRAM Data Bank of Foreign Trade Flows of the CMEA Countries, 1950-1977" (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978-79: U.S.S.R. Foreign Trade Yearbook and mirror trade statistics of other CMEA countries.

TABLE 10.—SHARE OF FUELS IN TOTAL EXPORTS TO THE MDC's, TOTAL IMPORTS FROM THE U.S.S.R., AND TOTAL IMPORTS FROM THE DOLLAR AREA

Year	Bulgaria	Czechoslovakia	GDR	Hungary	Poland	Romania	U.S.S.R.
Exports to the MDC's:							
1970.....	1.8	6.4	6.1	2.4	18.6	11.9	29.5
1971.....	1.1	7.9	5.4	1.8	20.9	14.2	35.7
1972.....	.9	7.2	5.5	2.9	18.6	10.8	32.7
1973.....	1.9	7.0	7.9	2.3	15.3	14.5	36.3
1974.....	2.7	7.5	9.5	2.0	26.7	22.0	46.7
1975.....	13.5	11.5	10.5	6.4	34.8	23.8	55.7
1976.....	11.5	11.9	10.7	7.6	29.6	29.5	60.9
1977.....	16.2	12.0	13.2	8.3	27.2	26.7	62.4
1978.....	(21.0)	9.6	(14.3)	6.6	25.7	(28.1)	64.0
Imports from the U.S.S.R.:							
1970.....	19.4	20.4	11.3	17.4	13.4	4.8	-----
1971.....	19.9	20.8	12.7	16.6	14.1	6.5	-----
1972.....	18.9	22.0	14.2	18.6	15.9	7.0	-----
1973.....	19.4	22.4	14.8	19.1	15.9	7.7	-----
1974.....	20.7	22.4	18.3	19.7	12.8	6.5	-----
1975.....	32.2	33.3	21.4	27.5	23.3	9.7	-----
1976.....	32.9	35.2	25.5	30.1	24.8	8.8	-----
1977.....	35.1	36.6	26.6	32.9	27.7	8.6	-----
1978.....	(36.1)	40.9	(31.2)	(32.8)	32.3	(6.7)	-----
Imports from the Dollar Area:							
1970.....	7.8	.9	3.9	1.7	.8	6.6	1.8
1971.....	11.3	1.4	3.9	1.9	1.0	6.1	3.3
1972.....	8.3	.8	5.1	2.0	.7	5.1	4.1
1973.....	6.4	1.7	3.5	2.3	2.5	7.2	5.0
1974.....	10.9	1.7	6.3	3.3	3.6	12.6	5.4
1975.....	5.1	1.3	8.1	5.9	5.1	14.9	4.9
1976.....	7.9	2.6	6.5	5.9	5.9	23.1	4.6
1977.....	7.8	4.2	8.8	4.2	6.7	21.2	5.2
1978.....	(10.5)	2.9	(9.0)	(4.5)	6.0	(22.9)	5.7

Source: Author's own calculation on the basis of data cited in table 1 and national statistical and foreign trade yearbooks

III. PRICES OF EXPORTED AND IMPORTED FUELS

Since 1973 on the world market and since 1975 on the CMEA market prices of exported and imported fuels increased at rates unmatched by any other broad commodity category. In Table 11 we present Paasche export and import price (unit value) indices of fuels for the key fuel trade flows of the CMEA Seven. The export price indices were calculated by the author according to the formula:

$$PX_i = \frac{\sum_j X_{ij}}{\sum_j (X_{ij}/PX_{ij})}$$

where PX_i is the aggregate fuel export price index with region i , X_{ij} are exports of fuel j (coal, coke, oil and oil products, natural gas, and electric energy) to region i in current prices, and PX_{ij} is the price of exports of fuel j to region i . Import price indices were calculated in the same fashion.⁶

Rather than dealing separately with very similar price developments in individual Eastern European countries, they are combined together and we report separate price indices for fuel trade of the

⁶ In the case of the CMEA Six, information on export and import prices of different types of fuels was obtained mainly (though not exclusively) from the Polish and the Hungarian Foreign Trade Yearbooks. In the case of the U.S.S.R., export and import unit values could be calculated from the data published in the U.S.S.R. Foreign Trade Yearbooks for the period 1970-76, but had to be estimated from mirror data for years 1977 and 1978. While the exact commodity weights were available for the U.S.S.R. for the entire period 1970-78, for the CMEA Six these commodity weights (exports of particular fuels in current prices) were roughly estimated on the basis of partial information for individual countries.

CMEA Six and the U.S.S.R. Since the CMEA Six export relatively insignificant amounts of fuels to the OCPE's and to the LDC's and import only a very small amount of fuels from the OCPE's, we do not report these particular regional price indices. For the same reason, we do not report price indices for Soviet imports of fuels from the OCPE's and from the MDC's. All data presented in parentheses are preliminary estimates based on incomplete national data and/or mirror price or quantity statistics.

TABLE 11.—EXPORT AND IMPORT PRICE INDICES (PAASCHE) OF FUELS (SITC 3)

Year	Ruble price indices				Dollar export price indices			Dollar import price indices		
	Intra-CMEA-6 trade	CMEA-6 imports from U.S.S.R.	CMEA-6 Exports to U.S.S.R.	U.S.S.R. exports to OCPE's	CMEA-6 to MDC's	U.S.S.R. to MDC's	U.S.S.R. to LDC's	CMEA-6 from MDC's	CMEA-6 from LDC's	U.S.S.R. from LDC's
1070.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1971.....	100.2	101.6	98.3	109.1	140.1	129.7	121.8	122.0	108.2	111.5
1972.....	115.9	104.7	102.6	107.4	140.1	135.2	124.1	128.6	162.0	149.1
1973.....	120.6	105.8	101.2	129.5	186.0	234.6	153.4	210.0	227.8	208.1
1974.....	138.8	115.3	106.4	208.3	362.3	512.1	489.9	434.9	805.0	506.4
1975.....	232.1	212.1	224.1	257.8	464.2	542.7	537.7	406.7	799.4	578.6
1976.....	238.8	233.1	241.1	286.1	428.4	578.7	559.4	415.8	838.4	571.8
1977.....	252.8	(274.7)	244.5	NA	445.9	(631.3)	(631.3)	452.7	893.6	(609.4)
1978.....	(278.0)	(332.0)	(269.7)	NA	(525.0)	(636.9)	(636.9)	(528.0)	871.3	(594.2)

Source: Author's own calculation on the basis of unit values calculated from various issues of Foreign Trade Yearbooks of the CMEA countries, particularly those for the U.S.S.R., Poland, and Hungary

Among the ruble price indices, the most important is the index of the price of imports of fuels by the CMEA Six from the U.S.S.R. It indicates that in 1975 Soviet export prices of fuels to Eastern Europe increased by 84 percent relative to 1974 and by 1978 Soviet prices were about 232 percent above their level in 1970. However, during the period 1970-78, Soviet export prices of fuels to the MDC's and to the LDC's increased about 537 percent in dollar terms and 384 percent in ruble terms (at official exchange rates). This indicates the degree of the preferential trade treatment granted to the CMEA Six by the U.S.S.R. The indices for intra-CMEA Six trade and for exports from the CMEA Six to the U.S.S.R. indicate a somewhat slower growth in prices than the CMEA Six import price index from the U.S.S.R. because of the large share of coal and coke, the prices of which increased more slowly than that of Soviet oil. The U.S.S.R. export price index of fuels to the OCPE's shows a much faster growth than that for the CMEA Six but still not nearly as high as that for the MDC's and the LDC's.⁷

As far as the dollar export price indices are concerned, the index for exports from the CMEA Six to the MDC's exhibits a somewhat slower growth than the corresponding Soviet price index because of the relatively large share of coal and coke in Eastern European fuel exports, the prices of which have been rising more slowly than those for Soviet oil, oil products, and natural gas. In the case of the dollar import price indices, the index for fuel imports of the CMEA Six from the LDC's

⁷ This is due to the fact that the Soviet pricing of fuel exports to Yugoslavia follows the trend for the MDC's, while that for Cuba follows the trend for the CMEA Six. Thus, for example, in 1976 the unit value of Soviet exports of oil and oil products to Yugoslavia was 65.57 rubles/metric ton (compared to 69.59 for the MDC's), while the unit value for Cuba was a mere 32.72 rubles/metric (roughly the price charged to the GDR, which was the lowest of all CMEA countries). See Table 12 for comparison.

shows the most rapid growth because Eastern Europe imports only crude oil from the Middle East, while the U.S.S.R. also imports natural gas from Afghanistan and Iran, the price of which has not been rising nearly as fast as that of crude oil.⁸ Since Eastern Europe imports items such as coal (GDR imports from the Federal Republic), diesel fuel and other oil products, as well as some crude oil (from Belgium, Netherlands, and United Kingdom), the CMEA Six price index for imports of fuels from the MDC's has not been rising nearly as fast as that for imports from the LDC's.

More detailed information on Soviet export prices of crude oil and oil products (CTN 21 + 22) to individual Eastern European countries and to the MDC's is provided in table 12 below. The purpose of this table is to compare Soviet export prices to individual CMEA countries with the average prices charged to the MDC's. Again the data in parentheses for years 1977 and 1978 are preliminary estimates and the data for years 1979 and 1980 are the author's projections.⁹ Immediately, several interesting observations can be made.

To begin with, the U.S.S.R. charged substantially higher prices for its oil exports to Eastern Europe than to the MDC's in 1970 and probably also in preceding years. In 1971 and 1972 the ruble prices in the two markets were approximately identical, but since 1973 Soviet export prices to Eastern Europe are well below those charged to the MDC's.¹⁰ This is as expected, since between 1970 and 1974 Soviet export prices to Eastern Europe were stabilized by agreement and only a modest growth of prices could be achieved. In 1975 the USSR introduced a new intra-CMEA price formation formula in order to improve its terms of trade as the most important supplier of primary commodities within CMEA, in line with the developments on the world market. In 1975 intra-CMEA foreign trade prices of fuels (but not other goods) were supposed to be based on the lagged average of wmp's during the period 1972-74, in 1976 the base period was extended to cover the years 1972-75, and from 1977 on intra-CMEA fuel prices are supposedly constructed on the basis of the lagged five-year moving average of wmp's, converted into rubles at official exchange rates.¹¹ Since fuel prices have been rising steadily on the world market, Soviet export prices to the CMEA Six, being based on the lagged five-year average of wmp's, must lag behind them.

⁸ The USSR import price index for crude oil from the Middle East moves very closely with its Eastern European counterpart. In particular, its values were: 1970=100, 1971=119.1, 1972=179.1, 1973=236.4, 1974=912.3, 1975=882.0, 1976=864.9, 1977=921.8, 1978=898.8.

⁹ The reason for the preliminary nature of the estimates for years 1977 and 1978 is that the U.S.S.R. ceased publishing quantities of key commodities traded (fuels in particular) in its Foreign Trade Yearbook in 1977 and now reports only the value of contracts, thus making it impossible to calculate unit values. This was clearly done for two reasons. First, this makes it much more difficult for analysts in individual Eastern European countries to compare how well they fare relative to each other as far as Soviet prices of key exported and imported commodities are concerned, that is, to make the type of comparisons quantities of strategically important commodities exported and imported by the U.S.S.R. (oil and other fuels, non-ferrous metals, certain ores and minerals, metal alloys, certain chemicals, etc.). Moreover, trade in certain commodities was eliminated from the Foreign Trade Yearbooks entirely, further increasing the scope of commodities included in the so-called "unidentified residuals." Commodities affected include non-ferrous metals, rubber, and the most imported fuels, etc.

¹⁰ Moreover, the U.S.S.R. also accepts payment for its fuel exports in the overvalued (at official exchange rates) non-convertible rubles rather than in convertible dollars, further lowering its "effective" export prices to Eastern Europe relative to those obtainable in the West. E.g., information on the realistic ruble/dollar exchange rates obtainable for Hungary indicates that throughout the 1970's at official exchange rates the ruble was overvalued in relation to the dollar by 55 to 70 percent. Consequently, the "effective" Soviet export price of oil and oil products to Eastern Europe was below that charged to the MDC's already in 1970.

¹¹ See, e.g., Pěnkava (1975).

TABLE 12.—U.S.S.R. EXPORT PRICES OF CRUDE OIL AND OIL PRODUCTS (CTN 21+22) TO EASTERN EUROPE AND TO THE MDC'S

Year	In current rubles per metric ton						In current dollars/rubles per metric ton				
							MDC's		Hypothetical average CMEA price according to the price rule		
	Bulgaria	Czecho-slovakia	GDR	Hungary	Poland	Romania	Dollars	Rubles	Rubles		
									Dollars	Rule A	Rule B
1970	14.58	15.99	13.40	16.25	16.55	13.20	11.88				
1971	14.62	16.23	13.60	16.64	16.55	17.18	15.46				
1972	14.93	16.31	14.09	16.96	16.47	18.33	15.20				
1973	14.56	16.44	14.23	17.94	17.35	34.45	25.36				
1974	15.15	16.32	18.77	20.93	20.56	84.78	64.15				
1975	34.24	30.85	28.18	40.98	39.50	83.98	60.58	45.85	34.90	33.08	
1976	37.51	34.08	32.06	44.73	42.03	92.31	69.59	55.39	41.32	41.76	
1977	(45.61)	(41.36)	(39.23)	(55.08)	(51.37)	(100.70)	(74.20)	62.77	46.98	46.25	
1978	(55.97)	(48.79)	(48.10)	(66.06)	(62.27)	(101.60)	(69.43)	79.24	58.78	54.15	
1979 estimate	64.36	56.10	55.31	75.96	71.60	153.00	100.33	92.67	67.59	60.77	
1980 estimate	71.25	62.11	61.23	84.10	79.27	256.00	162.54	106.32	74.83	67.50	

Note: The price rule is described in the text immediately above. Under rule A, the hypothetical CMEA price is the average of lagged Soviet ruble prices (at official exchange rates relevant to particular years) to the MDC's. Under rule B, the hypothetical CMEA price is the average of lagged Soviet dollar prices, which is then converted into rubles by the official exchange rate applicable to the year for which the hypothetical CMEA price is calculated.

Source: 1970-76: Author's own calculation from U.S.S.R. Foreign Trade Yearbooks, 1977-78: Author's estimates based on value data from U.S.S.R. Foreign Trade Yearbook and quantity data (mostly for crude oil only) from Eastern European Foreign Trade and Statistical Yearbooks; for the MDC's, estimates are based on OECD unit value data and IMF commodity price statistics. 1979-80: For the CMEA-6, author's projection based on the rate of growth of prices predicted by rule A; for the MDC's, projection based on IMF commodity price statistics.

IV. SOVIET EXPORTS OF OIL AND OIL PRODUCTS AND EASTERN EUROPEAN IMPORTS OF CRUDE OIL: PROSPECTS FOR 1980-85

The key to the growth of the Eastern European imports of crude oil from the Middle East in the early 1980's will be Soviet fuel export policy with respect to Eastern Europe. Several other studies have dealt in considerable detail with the prospects for the Soviet fuel (oil) production and exports of fuels in the 1980's and almost all are characterized by an assumption that the Soviet oil production and exports of oil and oil products to Eastern Europe will reach their peak in 1979-80, followed by a gradual decline in the former and an unchanged level in the latter quantity at least during the first half of the 1980's.¹² If Soviet exports of oil and oil products to Eastern Europe and to the OCPE's (possibly excepting Yugoslavia) are taken more or less as a datum, what would be the implications for Soviet exports of these two commodities to the rest of the world? Can we reasonably conclude that the Soviet decisionmakers would accept these implications? The answer to the former question is summarized in table 13 below.

TABLE 13.—ACTUAL AND PROJECTED SOVIET PRODUCTION AND CONSUMPTION OF CRUDE OIL AND EXPORTS OF OIL AND OIL PRODUCTS (CTN 21+22) DURING 1970-85

[In million metric tons]

Year	Production			Consumption			Net exports			Exports to—												Imports from LDC's		
										CMEA-6			OCPE's			MDC's			LDC's					
1970	353.0			260.7			92.3			40.293			10.192			41.567			3.748			3.500		
1971	377.1			277.1			100.0			44.742			10.622			45.627			4.109			5.100		
1972	400.4			301.2			99.2			48.924			11.284			42.960			3.832			7.827		
1973	429.0			320.9			105.1			55.237			12.429			47.704			2.930			13.179		
1974	458.9			347.1			111.8			58.699			13.015			41.527			2.934			4.390		
1975	490.8			366.9			123.9			63.276			14.381			47.978			4.716			6.499		
1976	519.7			377.6			142.1			68.375			15.537			59.980			4.622			6.425		
1977	545.8			(391.6)			(154.2)			(72.805)			(16.550)			(65.659)			(5.742)			(6.556)		
1978	571.5			(414.8)			(156.7)			(76.502)			(17.380)			(66.509)			(5.013)			(8.709)		
	L ¹	M ²	H ³	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L ⁴	M ⁴	H ⁴			
1979	585	585	585	432	432	432	153	153	153	80	80	80	18	18	18	57	57	57	-2	-2	-2			
1980	595	598	600	449	449	449	146	149	151	80	81	82	17	18	18	53	53	53	-4	-3	-2			
1981	585	598	610	449	455	460	136	143	150	80	82	84	16	18	19	46	47	49	-6	-4	-2			
1982	565	593	620	449	460	472	116	133	148	80	83	86	15	18	19	29	37	45	-8	-5	-2			
1983	545	588	630	449	467	484	96	123	146	80	84	89	14	18	20	12	25	39	-10	-6	-2			
1984	525	582	640	449	472	496	76	110	144	80	85	91	13	18	20	0	14	35	-17	-7	-2			
1985	505	578	650	449	478	508	56	100	142	80	86	93	12	18	21	0	4	30	-36	-8	-2			

¹ Low.

² Medium.

³ High.

⁴ Net exports.

Sources:

Production: 1970-78: U.S.S.R. Statistical Yearbooks. 1979-85: Low—CIA (high) in CIA (1977), p. 1. Medium—average of low and high. High—Dienes high in Dienes (1978), p. 44.

Consumption: 1970-78: Production minus net exports. 1979-85: Low—4-percent growth in 1979, no growth after that. Medium—average of low and high. High—4-percent growth in 1979 and 1980, 2.5-percent growth after that.

Net exports, exports (to the 4 trade regions), and imports from the LDC's: 1970-76: U.S.S.R. Foreign Trade Yearbooks. 1977-78: Author's own estimate based on U.S.S.R. value data and mirror data estimates of prices or based entirely on mirror quantity estimates (mostly crude oil data).

Net exports: 1979-85: Production minus consumption.

Exports to the CMEA-6: 1979-85: Low—5-percent growth in 1979, no growth after that. Medium—1.25-percent growth from 1980 on. High—2.5-percent growth from 1980 on.

Exports to the OCPE's: 1979-85: Low—gradual elimination of exports to Yugoslavia, no growth in exports to other countries. Medium—no growth after 1980. High—2.5-percent growth from 1980 on.

Exports to the MDC's: 1979-85: Residual exports, i.e., net exports to all regions minus net exports to the CMEA-6, OCPE's, and LDC's.

Net exports to the LDC's: 1979-85: Low—growth by 2,000,000 tons per year until 1983; residual for years 1984 and 1985. Medium—growth by 1,000,000 tons per year. Low—no growth after 1979.

¹² E.g., Dienes (1979), pp. 225-228; Lee and Lecky (1979), pp. 583-584; Bond and Levine (1979), pp. 256-280, 284-285, and 270-277.

In table 13, we present actual data on the Soviet production and consumption of crude oil and the net exports of crude oil and oil products to the four main trade regions for the period 1970-85.¹³ For the period 1979-85, we also present three projections for each of the reported flows, namely a low (conservative) projection, a medium one, and a high one. It turns out that both under the low and the medium projections, the Soviet exports of oil and oil products to the MDC's begin to decline rapidly in 1982-83. By 1985, the low prediction is that imports of crude oil from the Middle East will be running between 36 and 40 million metric tons per year (0.7-0.8 mbd), depending on the Soviet export policy with respect to the LDC's, while the medium prediction would put these imports into the range of 8-12 million tons (0.15-0.25 mbd).

We can probably conclude from this that Soviet exports of oil and oil products to Eastern Europe at a rate of 80 to 86 million tons (1.6 to 1.7 mbd) per year are feasible up to 1985, unless the Soviet production of crude oil follows the low prediction. However, even if the Soviet production of crude oil follows the medium prediction, by 1985 the U.S.S.R. would have to forgo almost all oil exports to the West in order to continue exporting to Eastern Europe and to the OCPE's. This is a fairly strong assumption and there is some doubt that the Soviet decisionmakers would accept this outcome without trying to shift at least a portion of the burden of the consequent loss of hard-currency earnings in the MDC's on Eastern Europe. However, in view of the uncertainty with respect to the form in which a part of this burden would be shifted on Eastern Europe, in the remainder of this section of the paper we will assume that it would not take the form of a reduction in the quantity of Soviet exports of oil and oil products to Eastern Europe.¹⁴

Before analyzing the prospects for Eastern European imports of crude oil from the Middle East in the early 1980's, we should review the developments between 1970 and 1978, which are summarized in table 14 below. Table 14 shows clearly the dominant importance of the U.S.S.R. as a supplier of crude oil to all Eastern European countries except Romania. The Middle Eastern OPEC countries (Iraq, Libya, Iran, Algeria, Syria, and Kuwait) represent a rapidly increasing source of imports of crude oil, which can no longer be imported from the U.S.S.R. in desired quantities. Some oil is also imported from several Western European countries (Belgium, Netherlands, and United Kingdom), a good deal of which are undoubtedly re-exports

¹³ Negligible Soviet imports of oil products from Eastern Europe (particularly from Romania and in 1978 and 1979 also from Hungary) and from the MDC's are ignored in our calculations.

¹⁴ The way in which the U.S.S.R. could shift a portion of the burden of the loss of hard-currency earnings in the MDC's on Eastern Europe could take the following forms: (i) imposing a requirement that a certain portion of Soviet oil exports be paid for in convertible currencies; (ii) switching to the current world market price as a base for its export price of oil to Eastern Europe; (iii) instituting more realistic ruble/dollar exchange rates (as in the case of Hungary since 1976), thereby raising the "effective" price of Soviet oil; (iv) reducing the quantity of exported oil to Eastern Europe in order to increase its sales for hard currency in the Developed West; (v) insisting on a dramatic improvement in the quality of manufactured goods Eastern Europe exports to the U.S.S.R. as payment for her oil imports, thereby sharply increasing the domestic cost of earning 1 ruble in Eastern European exports to the U.S.S.R.; (vi) requiring that Eastern Europe increase her exports of food to the U.S.S.R., thereby reducing the Soviet hard-currency outlays for imported food in the West; and finally (vii) insisting on greater Eastern European financial, material, and labor participation in the development of new sources of fuels and raw materials as well as the required infrastructure, including pipelines, etc.

TABLE 14.—IMPORTS OF CRUDE OIL BY THE CMEA-7
(In million metric tons)

Year	Bulgaria	Czecho- slovakia	GDR	Hungary	Poland	Romania	CMEA-6	U.S.S.R.	CMEA-7
From the world:									
1970	5.696	9.798	10.334	4.349	7.011	2.291	39.479	3.500	42.979
1971	7.547	11.505	10.919	4.892	7.894	2.858	45.615	5.100	50.715
1972	8.279	12.571	14.858	6.065	9.703	2.872	54.348	7.827	62.175
1973	9.652	14.176	16.045	6.555	11.140	4.143	61.711	13.179	74.890
1974	10.629	14.655	16.434	6.817	10.582	4.538	63.655	4.390	68.045
1975	10.459	15.839	16.997	8.431	13.306	5.085	70.117	6.499	76.616
1976	10.839	17.082	18.036	8.785	15.095	8.475	78.312	6.425	84.737
1977	11.763	18.322	19.042	8.538	16.404	8.444	82.513	6.556	89.069
1978	12.644	18.577	19.925	9.960	16.615	12.937	90.658	8.709	99.367
From the U.S.S.R.:									
1970	4.759	9.402	9.233	3.952	7.011	-----	34.357	-----	-----
1971	5.800	10.668	9.754	4.402	7.894	-----	38.518	-----	-----
1972	6.366	11.907	11.213	5.188	9.703	-----	44.377	-----	-----
1973	7.513	13.046	13.025	5.763	10.570	-----	49.917	-----	-----
1974	9.009	14.291	14.135	6.126	9.755	-----	53.316	-----	-----
1975	9.861	15.503	15.097	6.957	10.882	-----	58.300	-----	-----
1976	10.022	16.316	16.012	7.725	11.645	-----	61.720	-----	-----
1977	10.849	16.972	17.007	7.716	12.777	-----	65.321	-----	-----
1978	11.302	17.712	17.760	8.497	13.368	-----	68.639	-----	-----
From the Middle East:									
1970	.937	-----	1.101	.218	-----	2.183	4.439	3.500	7.939
1971	1.438	-----	.688	.490	-----	2.428	5.044	5.100	10.144
1972	1.800	-----	.709	.877	-----	2.785	6.171	7.827	13.998
1973	2.139	1.130	1.265	.788	-----	3.959	9.281	13.179	22.460
1974	1.510	.211	2.299	.636	.247	4.357	9.260	4.390	13.650
1975	.598	.291	1.900	1.469	.478	4.882	9.618	6.499	16.117
1976	.817	.246	2.024	1.060	.346	8.136	12.629	6.425	19.052
1977	.914	.750	2.035	.822	.633	8.106	13.260	6.556	19.816
1978	1.342	.314	2.165	1.463	1.930	12.420	19.634	8.709	28.343
From the rest of the world:									
1970	-----	.396	-----	.179	-----	.108	.683	-----	-----
1971	.309	.837	.477	-----	-----	.430	2.053	-----	-----
1972	.113	.664	2.936	-----	-----	.087	3.800	-----	-----
1973	-----	-----	1.755	.004	.570	.184	2.513	-----	-----
1974	.110	.153	-----	.055	.580	.181	1.079	-----	-----
1975	-----	.045	-----	.005	1.946	.203	2.199	-----	-----
1976	-----	.520	-----	-----	3.104	.339	3.963	-----	-----
1977	-----	.600	-----	-----	2.994	.338	3.932	-----	-----
1978	-----	.551	-----	-----	1.317	.517	2.385	-----	-----

Note: In the case of Romania for the period 1974-78 and in the case of the U.S.S.R. for years 1977 and 1978, the quantity of imported crude oil was estimated by dividing the known value of crude oil imports by an estimate of the price of 1 ton of imported oil made by the author.

Source: Foreign Trade and Statistical Yearbooks of the CMEA countries.

originating in the Middle East. While in 1970 the U.S.S.R. supplied 87 percent of crude oil imported by the CMEA Six, its share declined to 76 percent by 1978. During the same period, the share of the Middle East increased from 11 percent to 22 percent. It should be stressed, however, that the rapidly rising importance of the Middle East as a source of crude oil for the CMEA Six is mostly due to the rapid growth of Romanian imports from this region, caused by the gradual depletion of Romanian oil fields and the fact that during the period 1970-78 Romania was the only CMEA country that did not import any Soviet oil or oil products. Already in 1970, Romania accounted for 48 percent of the CMEA Six imports of crude oil from the Middle East and by 1978 her share increased to 63 percent.

Alternative projections of imports of crude oil by the CMEA Six from all sources, from the U.S.S.R. and from the Middle East (including the rest of the world) are presented in table 15 below. The three alternative estimates are based on the assumption of high, low, and medium growth rates of crude oil imports by Eastern Europe.

TABLE 15.—PROJECTED IMPORTS OF CRUDE OIL BY THE CMEA-6 DURING 1979-85 AND THEIR COST

	1979	1980	1981	1982	1983	1984	1985
Imports from all sources (in million metric tons):							
High estimate (10-percent growth in 1979, 5-percent growth afterwards).....	99.7	104.7	109.9	115.4	121.2	127.3	133.6
Low estimate (5-percent growth in 1979, 2.5-percent growth afterwards).....	95.2	97.6	100.0	102.5	105.1	107.7	110.4
Imports from the U.S.S.R. (in million metric tons):							
High estimate (5-percent growth in 1979, 2.5-percent growth afterwards).....	72.1	73.9	75.7	77.6	79.6	81.5	83.6
Low estimate (5-percent growth in 1979, no growth afterwards).....	72.1	72.1	72.1	72.1	72.1	72.1	72.1
Imports from the Middle East (in million metric tons):							
High estimate (high for all sources minus low for the U.S.S.R.).....	27.6	32.6	37.8	43.3	49.1	55.2	61.5
Low estimate (low for all sources minus high for the U.S.S.R.).....	23.1	23.7	24.3	24.9	25.5	26.2	26.8
Medium estimate (average of high and low).....	25.4	28.2	31.0	34.1	37.3	40.7	44.2
Price of 1 metric ton of oil in current U.S. dollars:							
High estimate (20-percent growth after 1980).....	138	231	277	333	399	479	575
Low estimate (10-percent growth after 1980).....	138	231	254	280	307	338	372
Medium estimate (15-percent growth after 1980).....	138	231	265	305	351	404	465
Projected CMEA-6 oil import bill from the Middle East (in billion current U.S. dollars): (medium estimate of quantity times medium estimate of price).....	3.5	6.5	8.2	10.4	13.1	16.4	20.6
Burden of imported oil from the Middle East:							
Projected CMEA-6 exports to the Dollar Area (in billion current dollars).....	23.5	27.0	31.1	35.7	41.1	47.3	54.4
Cost of imported oil from the Middle East as a percentage of CMEA-6 exports to the Dollar Area.....	14.9	24.1	26.4	29.1	31.9	34.7	37.9

Source: Author's own calculation.

The projections indicate that by 1985 the CMEA Six may import anywhere between 26.8 and 61.5 million metric tons of oil annually (0.55-1.25 mbd) from the Middle East, 44.2 million tons (0.90 mbd) being the medium estimate. The projected CMEA Six oil import bill from the Middle East based on the medium estimate of the quantity of imported oil and the medium estimate of the rate of growth of prices would be around 20.6 billion current dollars in 1985, or approximately 38 percent of the total projected export revenue earned by the CMEA Six in the Dollar Area. Between 1979 and 1985 the oil bill is expected to increase about six times, while the share of the export revenue devoted to oil imports is expected to increase about two and a half times.

What are the likely consequences of the predicted trend in Soviet exports of oil and Eastern European imports of oil for the patterns of their foreign trade? In the case of the U.S.S.R., the two questions of the greatest interest are how the projected trend in Soviet oil exports would affect its imports from the CMEA Six and its trade behavior with the MDC's. Clearly, the expected rapid increase in prices of Soviet oil will greatly increase the Soviet export revenue earned in Eastern Europe, which will most probably be spent on imports of Eastern European machinery and industrial consumer goods. This is already apparent in the U.S.S.R. trade results for year 1978; in 1978 Soviet imports of Eastern European machinery and equipment increased by an unprecedented 40 percent relative to 1977 (about 35 percent in real terms).

The declining importance of oil and oil products in Soviet exports to the MDC's will put a great deal of pressure on the Soviet raw material industries and the natural gas industry to replace oil as a source of hard foreign exchange. Both under the medium prediction (at least through 1983) and the high prediction for oil exports

to the MDC's it is likely that a combination of increased exports of non-food raw materials and natural gas, and continued increases in prices of both oil and natural gas will allow a steady growth of Soviet imports from the MDC's, though perhaps at a slower rate than that observed during the 1970's. Under the low prediction for oil exports to the MDC's, Soviet imports of machinery and equipment from the MDC's will have to be reduced, followed by imports of non-essential raw materials, and finally grain. This would put a particular strain on the Soviet raw material industries, which would then be expected both to generate more export revenue and to replace some imports in order to reduce the hard-currency outlays, which may be required to pay the oil import bill from the Middle East. In addition, Soviet exports of arms to the LDC's (mostly to the Middle East) would also be likely to increase rapidly from their present level of about 4.5 to 5.0 billion dollars annually.¹⁵

The need to pay for the rapidly increasing oil import bill from the USSR and from the Middle East is likely to have a profound effect on the foreign trade patterns of Eastern European countries as well. On the import side, the outlays for Western machinery and equipment and non-essential raw materials may stagnate or even decline. In the case of non-food raw materials, the Eastern European ability to reduce imports of these commodities both from the MDC's and the LDC's will critically depend on the Soviet willingness to accelerate their export deliveries to Eastern Europe in order to relieve the pressure on Eastern European economies.

On the export side, Eastern Europe will have to rely on increased sales of her machinery and equipment and industrial consumer goods in the U.S.S.R., in the MDC's (in order to reduce her trade deficits there in view of the expectation of the rapidly rising deficits with the Middle Eastern LDC's), and in the LDC's as well. This will put an overwhelming strain on the capacity of the Eastern European machinery industry as well as on consumer goods industries and it may cause serious shortages of investment and consumer goods on the domestic market. While this is not the only possible scenario, it appears to be the most likely one.

The only thing we can assert with certainty at the present time is that as a result of the Eastern version of the energy crisis, hard times are ahead for the Eastern European economies during the 1980's. We are likely to observe intensified economic difficulties and attempts to change the structure of these economies, possibly even including fundamental revisions in the basic institutional design and in the system of incentives presently relied on in Eastern Europe.

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¹⁵ For a more detailed discussion of these and related problems, see Bond and Levine (1979) and Goldman (1979).

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AGRICULTURAL PERFORMANCE AND TRADE

THE EAST EUROPEAN FEED-LIVESTOCK ECONOMY, 1966-85: PERFORMANCE AND PROSPECTS

By Allen A. Terhaar and Thomas A. Vankai*

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INTRODUCTION

The East European (EE) economic programs designed to rapidly improve diets through increased animal product consumption during the last three plan periods have created a serious imbalance between livestock numbers and livestock product output on the one hand, and the ability of these countries to produce enough feedstuffs to maintain herds and production on the other. Despite the recognition that the growing dependency on imported feedstuffs has become a strategic and a financial burden, EE efforts to become self-sufficient have so far been ineffective.

This paper discusses the development of the feed-livestock economy in EE during 1966-80, and examines its likely direction during the upcoming 1981-85 plan period. It especially analyzes tendencies in the production and trade of grains, oilseeds, and livestock products during those periods.

It is no coincidence that grain, oilseeds, and livestock products are singled out for special attention within the feed-livestock economy.

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Over the past several years, EE has become a billion dollar market for U.S. grain, oilseeds, and oilseed meal to support its expanding livestock production. The United States also supplies livestock products such as cattle hides, tallow, and bull semen to EE, while serving as an increasingly important outlet for EE meat exports. Barring drastic unforeseen changes, the United States is likely to continue to be a major agricultural trading partner of EE in the 1980's.

When discussing the feed-livestock economy of EE, it is helpful to distinguish between the countries which are basically self-sufficient in grain production and those which rely heavily on imported grain. The distinction is best made along geographic lines with Bulgaria, Hungary, Romania, and Yugoslavia (the "southern countries") fitting the former description, while Czechoslovakia, the German Democratic Republic (GDR) and Poland, (the "northern countries") are of the latter type.

The agricultural portion of the 1981-85 plan in each EE country will likely continue to emphasize reducing the current feed-livestock imbalance by greatly stimulating grain, oilseed, and forage output, by decelerating the growth in livestock numbers, and by markedly improving feeding efficiencies. Nevertheless, the region should continue to be a strong market for world and U.S. feedstuffs even with moderately successful domestic agricultural performance during the upcoming plan period.

FOOD CONSUMPTION

The East European countries' long range goal is to provide their populations with sufficient food at an appropriate nutritional standard from domestic resources. Thus, in the sixties, after an initial period of neglect following World War II, agriculture's significance was recognized both as a provider of food for domestic consumers and as a source of hard currency earnings through exports. With the help of increased investments, agricultural research, and large-scale production methods, emphasis was put first on increasing grain output, then on livestock production in the seventies. The aims expressed by planners in all EE countries called for self-sufficiency in food production and consumption. Despite all past efforts, however, the region's food consumption and production is not yet balanced.

The situation is most critical in Poland. Workers' food riots in Poland in 1970 triggered economic policy changes with far-reaching implications in that country and for other EE countries. Following the Polish experience with consumers' resistance to retail price increases, the EE leadership decided that staple food prices must be kept constant irrespective of the cost of domestic production or prices paid for imported raw materials. This policy was designed to prove that the planned economic system is capable of (and its leadership cares about) increasing the living standard. This policy, however, gradually led to economic misallocations, large feed imports, and foreign indebtedness.

Within the Council for Mutual Economic Assistance (CMEA) the EE countries formed a working group in 1976 to coordinate agricultural and food industry growth plans. Their ultimate goal was to achieve regional self-sufficiency in grain, meat, egg, vegetable oil, sugar, vegetable and fruit production and to reach self-sufficiency in

tobacco and alcoholic beverages.¹ Despite this cooperative effort, the region's trade deficit in agricultural products approximated \$2.8 billion in 1978, and it is estimated to have been even larger in 1979.²

Per capita consumption of meat increased significantly in the region during 1965-70, and the growth rate accelerated further during 1970-75. Bulgaria and Poland, previously lagging countries, registered particularly large increases during 1970-75 on the order of 17 to 18 kilograms per capita. In recent years that rate of increase has slowed (table 1).

TABLE 1.—EAST EUROPEAN PER CAPITA MEAT CONSUMPTION, 1965-78 AND 1980 PLAN

Country	[In kilograms]				
	1965	1960	1975	1978	1980 plan
Bulgaria.....	39.6	41.4	58.0	61.1	70-75
Czechoslovakia.....	62.0	71.3	81.1	83.4	88
German Democratic Republic.....	58.7	66.0	77.8	86.2	(¹)
Hungary.....	51.6	58.0	68.5	71.2	76-78
Poland.....	49.2	52.6	70.3	70.6	75
Romania.....	26.6	30.0	45.7	² 51.9	71
Yugoslavia.....	29.4	35.5	48.3	51.5	(¹)

¹ Not available.

² 1977.

Sources: Statistical yearbooks; Revista Economica, Bucharest, Dec. 29, 1978; Durzhaven Vestnik, Sofia, Nov. 13, 1979; Progress and Outlook for East European Agriculture, USDA, FAER No. 153, September 1978.

The explanation for the rapid increase in per capita meat consumption was the government policy designed to increase supplies, the growth of wages (table 2) and an inadequate supply of consumer durables.

TABLE 2.—EAST EUROPEAN AVERAGE ANNUAL GROWTH RATE OF NOMINAL WAGES, 1966-77

Country	[Percentage increase]		
	1966-70	1971-75	1976-77
Bulgaria.....	5.4	3.9	1.8
Czechoslovakia.....	4.6	5.3	3.3
German Democratic Republic.....	3.2	3.1	3.3
Hungary.....	3.6	6.2	7.2
Poland.....	3.4	9.3	10.3
Romania.....	4.3	4.9	6.8
Yugoslavia.....	10.9	16.4	19.0

Source: Radio Free Europe, Aug. 31, 1978; Statistical Yearbook of Yugoslavia.

Other contributing factors were subsidized retail prices, the spread of institutional food catering in offices and factories, and urbanization. An influx of tourists also added to aggregate consumption.

As meat consumption increased, cereal and bread consumption declined. Consequently, grain use for food stabilized. The per capita decline in grain consumption for food has been offset approximately with the increased consumption caused by rising population; however,

¹ Ferenc Biro, CMEA Cooperation in Food Production Examined, Kozgazdasagi Szemle, #10, 1978, Budapest.

² Agricultural Situation, Review of 1979 and Outlook for 1980, Eastern Europe, Supplement 3 to WAS-21, USDA-ESCS, May 1980.

grain used for feed has grown constantly, accounting for over two-thirds of the total grain consumed in 1977-79.

Outlays for subsidies grew as meat consumption increased, causing a serious strain on state budgets. Retail price subsidies increased whenever EE governments raised prices paid to producers since retail prices were held constant. The disappearance of the spread between producer and retail prices led farmers to give up traditional home slaughtering and bread baking and, instead, to purchase subsidized processed food in government stores. In many cases farmers bought bread from government stores to feed their hogs while selling their grain at high state purchase prices.

Hungary increased food prices in 1976 by about one-third and recently in 1979 by an average of 20 percent. In 1979, Bulgaria also hiked up food prices by more than 30 percent. The Polish Government's attempts to raise retail prices by decree were rescinded in 1970 and again in 1976. Polish meat price increases in 1980 triggered strikes and leadership changes, and forced the Government to grant wage increases to workers for the higher prices. Poland for the last few years has maintained a two-tier meat market where about 8 percent of the meat is sold in so-called "commercial stores" at prices reflecting production costs. In regular shops, short supplies limit the consumption of low priced meat. The more market-oriented Yugoslavian economy was an exception to the pattern. Retail prices there were allowed to increase frequently to dampen consumption.

Meat consumption during 1976-80 in EE will be less than planned.³ Consumption in Czechoslovakia and the GDR exceeded 85 kilograms per capita—a high level even by western standards. Per capita consumption in Hungary and Poland had surpassed 70 kilograms by 1979. Only in Yugoslavia was consumption still below 60 kilograms.

GRAINS

East European production of wheat and coarse grain averaged 5.5 to 7.0 percent of the world's total during 1966-79. On a decreasing harvested area, the region's output of grain rose from 69 million metric tons in 1966 to a record 96 million in 1978—a gain of 39 percent during that period. In 1979 the output declined to 91 million tons. EE annually produces almost half as much grain as the Soviet Union on only a quarter of the area. Yet EE increasingly depends on grain imports to supply its needs. Net imports of grain averaged 4.6 million metric tons for 1966-70, 7.4 million for 1971-75, and surged to an estimated 12.2 million tons for the 1976-79 period. The result was that EE countries were 94 percent self-sufficient in grain production during 1966-70, but were only 88 percent self-sufficient during 1976-79.

Since 1966, grain consumption for nonfeed use (food, industrial, seed, and waste) remained relatively stable. The growing production and additional net imports were used by the burgeoning livestock sector. Grain used for feed rose from about 54 percent of total consumption in 1966 to between 65 and 68 percent in recent years. During 1966-78, overall feed grain use has grown more than 56 percent—much faster than the growth in domestic grain output for feed during the

³ Agricultural Situation, op. cit.

same period. Expansion of feed use at this rate could only be maintained by greatly increasing grain imports (table 3).

TABLE 3.—EAST EUROPEAN GRAIN SUPPLY AND UTILIZATION, 1966-79¹

Year	Area (thousand hectares)	Yield (metric tons per hectare)	Thousand metric tons				
			Production	Imports	Exports	Consumption	
						Total	Feed
1966-70 average.....	30,270	2.34	70,728	7,916	3,296	75,348	42,266
1971-75 average.....	29,497	2.94	86,646	10,884	3,488	94,042	60,825
1976.....	29,325	3.20	93,832	15,097	3,681	105,248	71,368
1977.....	29,232	3.19	93,139	13,028	3,118	103,049	69,383
1978.....	28,831	3.32	95,684	14,731	2,413	108,002	70,163
1979 ²	28,865	3.12	90,149	17,300	2,035	105,414	71,584
1976-79 average ²	29,063	3.21	93,201	15,039	2,812	105,428	70,624

¹ Apparent utilization, or utilization of grain excluding the influence of grain stocks. East European countries keep some stocks but do not release information concerning their stocks. For the purpose of this study it was assumed that stocks averaged zero over the period. The data do not include rice production or trade. The trade figures in this table differ somewhat from those in table 6 because they attempt to show grain supply and utilization during a July-June crop year, rather than a calendar year as is used in table 6.

² Estimate.

Sources: Country statistical yearbooks, country trade yearbooks, CMEA statistical yearbooks, U.S. Department of Agriculture attaché reports, and own estimates.

Production

Grain area equalled about 58 percent of arable land during 1976-79, almost unchanged from the 1966-70 average. A larger percentage of land is sown to grain in the southern than in the northern countries. For the region as a whole, 34 percent of the grain area is sown to wheat, 27 percent to corn, and 17 percent to barley. Similarly, wheat (38 percent), corn (32 percent), barley (17 percent), and rye (10 percent) are the major grains harvested in the region.⁴ Oats make up only about 4 percent of the crop, and its importance is decreasing. Rye was displaced by barley as the third most important grain in recent years, and its production continues to decrease.

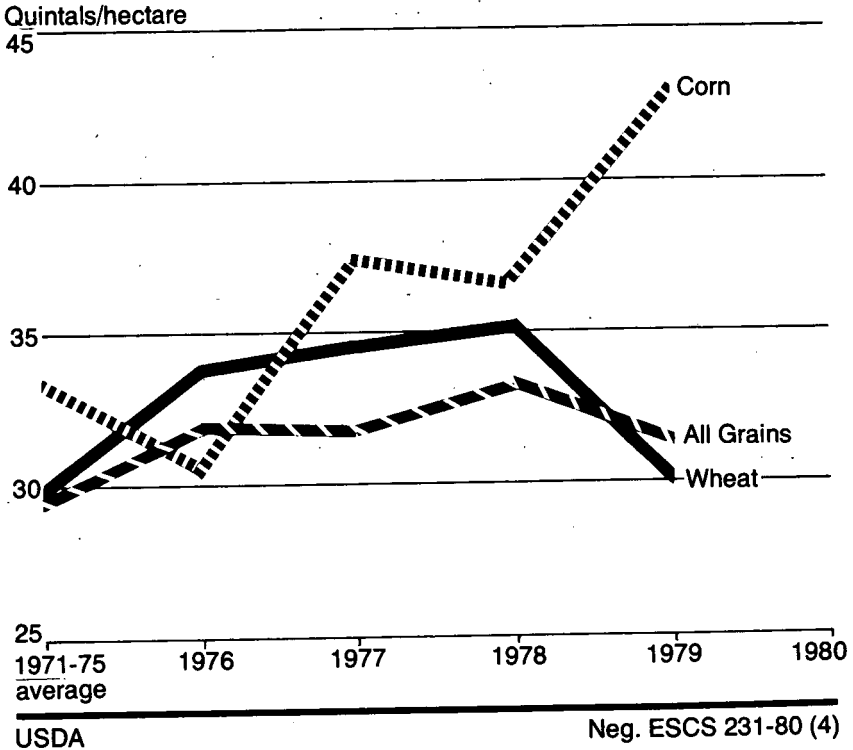
Wheat and barley production predominates in the north, while corn and wheat are the major grains in the south. Poland and the GDR raise virtually no corn for grain, and Czechoslovakia harvests only 0.5-0.9 million tons of corn annually. The importance of rye and oats in the northern countries is due almost exclusively to Poland, which alone produces 73 percent of total EE rye and 63 percent of its oats.

Average wheat yields in both the northern and the southern countries have improved substantially despite occasional poor harvests. The ability of the southern countries to maintain surplus grain production in spite of rapidly expanding livestock feed requirements while the north has become increasingly dependent on grain imports, has been due to their success in corn production. The north, dependent on barley and rye, has been far less successful in raising coarse grain yields than the countries where corn is the major coarse grain (table 4). Furthermore, barley and rye yields have commonly fluctuated in the same direction as wheat yields in a given year since these crops are mainly fall sown and dependent on many of the same climatic and cropping conditions. This fluctuation exacerbates the grain shortfall and can

⁴ Percentages are based on 1976-79 averages.

change a poor grain harvest into a disastrous one, (such as occurred in 1979 when the combined production of these three grains fell almost 19 percent). Corn, in contrast, has a different vegetative period from wheat, barley and rye, and often serves to offset rather than exacerbate fluctuations in the production of other grains.

Eastern Europe Grain Yields



In the northern countries corn production for grain has done very poorly because of the short growing season. The GDR has effectively terminated corn for grain production, less than 1 percent of Poland's grain is corn, and even Czechoslovakia has failed to significantly expand corn output during 1966-79. Meanwhile, the southern countries raised corn yields from the 1966-70 average of 27.6 quintals/hectare to the 1976-79 average of 38.5 quintals.⁵

The four southern countries raise over 95 percent of the region's corn. Among these countries, Romania is the largest corn producer with over 10 million tons annually. Greatly improved hybrids, heavier plant protection and fertilizer applications, and better cropping techniques have permitted corn production to expand rapidly in these

⁵ One quintal equals 100 kilograms.

countries on an almost constant area. Wheat is the second most important grain after corn in the southern countries, and is an important crop in both southern and northern EE as a livestock feed.

TABLE 4.—EAST EUROPEAN GRAIN PRODUCTION PROFILE, NORTHERN AND SOUTHERN COUNTRIES, 1966-79

Grain	Southern countries average			Northern countries average		
	1966-70	1971-75	1976-79	1966-70	1971-75	1976-79
Wheat:						
Area (1,000 ha).....	6,978	6,433	6,128	3,375	3,873	3,729
Yield (metric tons per hectare).....	2.16	2.80	3.22	2.71	3.30	3.53
Production (1,000 tons).....	15,104	17,990	19,738	9,135	12,762	13,150
Barley:						
Area (1,000 ha).....	1,406	1,440	1,667	2,084	2,732	3,180
Yield (metric tons per hectare).....	2.05	2.61	2.88	2.72	3.34	3.35
Production (1,000 tons).....	2,887	3,775	4,802	5,673	9,137	10,664
Corn:						
Area (1,000 ha).....	7,507	7,510	7,594	146	168	254
Yield (metric tons per hectare).....	2.76	3.32	3.84	3.36	4.04	3.62
Production (1,000 tons).....	20,727	24,968	29,192	490	678	919
Rye:						
Area (1,000 ha).....	404	270	202	5,121	4,178	3,807
Yield (metric tons per hectare).....	1.15	1.35	1.42	1.93	2.41	2.29
Production (1,000 tons).....	465	365	286	9,865	10,082	8,731
Other grain:¹						
Area (1,000 ha).....	602	478	351	2,642	2,416	2,152
Yield (metric tons per hectare).....	1.18	1.27	1.62	2.15	2.61	2.39
Production (1,000 tons).....	711	608	567	5,674	6,302	5,152
Total grain:						
Area (1,000 ha).....	16,897	16,131	15,942	13,368	13,367	13,122
Yield (metric tons per hectare).....	2.36	2.96	3.42	2.31	2.91	2.94
Production (1,000 tons).....	39,894	47,686	54,585	30,837	38,961	38,616

¹ Other grain includes buckwheat, millet, mixed grains, and sorghum. Data do not include rice.

Sources: Country statistical yearbooks, country trade yearbooks, CMEA statistical yearbooks, U.S. Department of Agriculture attache reports, and own estimates.

Fertilizer application is perhaps one of the most significant variables in explaining why the growth in grain output in the southern countries has outpaced that of the northern countries. While the south is still far behind the north in fertilizer use, applying only slightly more than one-half as much fertilizer per hectare of arable land during the 1976-78 period, the growth rate in application has been higher in the south during the last three plan periods (table 5).

TABLE 5.—EAST EUROPEAN FERTILIZER USE BY COUNTRY¹

Year	Southern countries					Northern countries			
	Bulgaria	Hungary	Romania	Yugo- slavia	Average	Czecho- slovakia	German Demo- cratic Republic	Poland	Average
1966-70.....	159	109	51	68	96.8	190	297	123	203.3
1971-75.....	157	218	85	86	136.5	272	355	208	278.3
1976-78.....	174	273	119	100	166.5	321	341	241	301.0

¹ Kilogram of active ingredient per hectare of arable land.

Sources: CMEA statistical yearbooks and the Statistical Yearbook of the Socialist Federal Republic of Yugoslavia.

The northern countries have a long tradition of heavy crop fertilization, ranking favorably with all but the heaviest West European fertilizer users. The Federal Republic of Germany applied 422; France 278; Italy 141; and Austria 238 kilograms of fertilizer in active in-

gradient per hectare of arable land in 1977, compared with northern EE's average of 301 kilograms during 1976-78. The growth rate of fertilizer use has noticeably slowed in the north during the last two plan periods, however, while use in the south has continued to grow rapidly. Though we are not able to determine the specific contribution of heavier fertilizer use to grain yields, it is likely that the rapid expansion of fertilizer application in the southern countries from a small basic application level has contributed more per additional kilogram of fertilizer applied due to a higher marginal return than in the northern countries.

Grain Trade

Though the region as a whole is a large net importer of grain, the situation differs considerably between countries. The northern countries were annual net importers of 11.8 million tons for 1976-79, while the southern countries were net importers of only 380,000 tons (table 6).

TABLE 6.—NORTHERN AND SOUTHERN COUNTRY GRAIN TRADE WITH MAJOR TRADING PARTNERS
(In thousand metric tons, except percent)

Calendar year	Total imports	United States	Canada	U.S.S.R.	U.S. share (percent)	Total exports	U.S.S.R.	U.S.S.R. share (percent)
Northern Countries:								
1966-70 average	6,449	723	280	3,631	11.2	481		
1971-75 average	8,298	2,282	258	3,213	27.5	648		
1976	13,385	6,588	1,065	473	49.2	654		
1977	9,733	3,546	1,088	1,192	36.4	385		
1978	11,600	4,176	983	0	36.0	372		
Southern countries:								
1966-70 average	1,395	459	12	156	32.9	2,811	46	1.6
1971-75 average	2,183	803	262	95	36.8	2,623	323	12.3
1976	3,158	912	232	2	28.9	4,245	879	20.7
1977	2,860	528	167	30	18.5	3,516	240	6.8
1978	2,087	979	122	0	46.9	3,152	473	15.0

Sources: USDA grain trade statistics for total imports and exports, and U.S. share. United Nations trade data were used for Canada. The USSR imports and exports were compiled from USSR international trade statistics and individual Eastern European Country trade publications.

Poland (6.8 million tons), the GDR (3.2 million tons) and Czechoslovakia (1.7 million tons) were the largest net importers, while Hungary (545,000) was a large net exporter of grain during 1976-79. Bulgaria is normally self-sufficient in grain production—only exporting and importing small amounts to offset yearly production fluctuations. Romania is normally self-sufficient or even a net grain exporter. Romania recently has become a large trader in grain, sometimes importing 2 million tons of grain while exporting a similar amount in the same year. Yugoslavia is normally a small net importer, except for years with large production shortfalls. In those years, net imports rose to between 0.6 and 1.2 million tons.

Obviously, the northern countries have cause for concern over their dependency on grain imports and its consequent drain on hard currency reserves. Yet it has not been an easy task to reverse the rising level of grain imports. The percentage of arable land sown to grain (58 percent) is already high in these countries and comparable to the level in the EC-9.⁶ As in other industrial countries, the EE coun-

⁶ The percentages represent averages over the 1976-78 period of arable land as defined by FAO.

tries are losing arable land to the demands of industrialization and urbanization.

Great progress has been made in plant breeding over the last three plan periods, but these improvements have also fallen short in boosting grain production to desired levels. Meanwhile, the demands for grain from the livestock sector continue to grow and EE countries are forced to import ever larger quantities of grain on the world market.

1976-80 Plan Fulfillment

East European grain output averaged 93.4 million tons annually in 1976-79, much below the minimum 106.4 million tons planned for 1976-80.⁷ With one more harvest to come in the plan period, it is evident that none of the EE countries will be able to fulfill their planned grain production target. Due to the nagging balance of payment situation, investments for 1980 have been scaled down, which will be detrimental to agricultural production growth during the final year of this plan period. A slowdown in the growth of chemicals and energy use is anticipated during 1980 because of heavy EE reliance on imported raw materials and energy, further reducing crop potential.

OILSEEDS AND OILSEED PRODUCTS

The importance of increasing oilseed production has been recognized in all East European countries. Sown area has been expanded and coordinated research for increasing yields has been implemented. Oilseeds are important raw materials for vegetable oil, industrial oil, and livestock feed. They are also a source of foreign exchange earnings for most EE countries. Scientists in the region believe that, with a sufficient protein ratio in mixed feed, up to 30 percent of concentrate feed per unit of livestock production could be saved. Oilseeds are considered the best sources for such protein.⁸ Rapeseed is the principal oilseed in the northern countries, while sunflowerseed and soybeans predominate in the southern countries. Flaxseed and other minor oilseeds have a limited role.

Production

The combined area of the three major oilseeds was 4 percent (2.1 million hectares) of the total arable land in the region in 1976-78. Of the total oilseed area, sunflowerseed occupied 53 percent, rapeseed 32 percent, and soybeans 15 percent. Of these three crops combined, EE's share was 3 percent of the total world area. This was somewhat above a tenth of the world's sunflower area, 7 percent of the rapeseed area, but a relatively insignificant part of the soybean area. With yields higher than the average worldwide, EE's share averaged 16 percent of the world's sunflower production and 18 percent of the world's rapeseed production in 1976-78. Regarding individual country contribution to the world total, Romania is the fourth ranking sunflower producer following the USSR, Argentina, and the United States. Poland is the

⁷ Thomas A. Vankal, *Progress and Outlook for East European Agriculture, 1976-80* USDA/ESCS/FAER No. 153, Washington, D.C., September 1978.

⁸ Emil Cakajda, *Czechoslovakia Foreign Trade*, Prague, September 1977.

world's fourth largest producer of rapeseed following Canada, India, and China.

Contrary to the potential of all EE countries to achieve self-sufficiency in grain supply and utilization, self-sufficiency in protein feed seems out of reach in the foreseeable future. Average annual production of oilseeds, however, trended upward in EE during 1966-79. The combined output of sunflowerseed, rapeseed, and soybeans increased 19 percent between 1966-70 and 1971-75, and 23 percent between 1971-75 and 1976-79 to an average 3.6 million tons (table 7).

TABLE 7.—EAST EUROPEAN OILSEED AND OILMEAL SUPPLY AND UTILIZATION, PLAN PERIODS, 1966-79
[In thousand metric tons, except area and yield]

Commodity and year	Oilseeds					Oilmeals		
	Area (thou- sand hectares)	Yield (tons per hectares)	Produc- tion	Imports	Exports	Produc- tion	Imports	Apparent Consump- tion
Rapeseed:								
1966-70.....	453	1.79	810	15	129	365	1	366
1971-75.....	533	1.90	1,015	7	57	509	2	511
1976-79 ¹	610	2.01	1,223	26	143	595	4	599
Soybeans:								
1966-70.....	57	1.02	58	120	7	131	595	726
1971-75.....	199	1.41	281	211	23	355	2,120	2,475
1976-79 ¹	343	1.39	476	414	5	281	3,340	3,621
Sunflowers:								
1966-70.....	1,056	1.50	1,585	182	211	534	32	526
1971-75.....	1,098	1.52	1,673	148	88	598	98	696
1976-79 ¹	1,145	1.70	1,950	144	44	550	95	645
Total:²								
1966-70.....	1,566	1.57	2,453	317	347	1,030	1,498	2,528
1971-75.....	1,830	1.62	2,969	366	168	1,462	2,990	4,452
1976-79.....	2,098	1.74	3,649	584	192	1,426	3,925	5,351

¹ For exports and imports 1976-78 averages are used.

² Includes all oilmeal imports (peanut meal, cottonseed meal, rapeseed meal, and soybean meal).

Source: Agricultural Situation of Eastern Europe, USDA/ESCS (various years).

Although sown area is centrally planned, conformance with the plans is not sought through direct commands. Instead, it is influenced by prices, contracts, and production quotas. Management decisions based on prices are more prevalent in Hungary, Poland, and Yugoslavia than in the rest of the countries. All EE governments are concerned to make oilseed production comparatively advantageous with other crops and significant funds have been allocated to research for higher yielding and more resistant oilseed varieties. Sunflower research is most advanced in Romania and Yugoslavia. New hybrid varieties of over 50-percent oil content are gradually replacing the older Soviet propagated seeds. Apparently the Soviet seeds did not adapt well to the new surroundings. Currently, however, the new varieties are not available in large enough quantities to cover the demand.

Research in rapeseed production is concentrated on developing varieties with reduced erucic acid content. The high acid content prevents the full use of rapeseed meal in animal diets since it is toxic in high concentration. Rapeseed production also has weather-related constraints. It must be sown in late August when soil moisture is often not adequate for germination, and is very susceptible to freezing. In

1978-79, for example, the harsh winter killed about 40 percent of the Polish crop and seriously damaged the rapeseed in other EE countries. Research in reducing erucic acid in rapeseed is producing some positive results, but the new varieties reportedly have lower yields.

Soybean growing is expanding slowly because of high production costs, low yields, and comparatively low domestic prices. Hungary scrapped its plan for increasing sown area from the present 25,000 hectares until higher yielding varieties are available. Bulgaria and Romania seem to have achieved acceptable results when soybeans are sown on irrigated land.

Trade in Oilseed and Products

While all countries in the region are traders of oilseeds and vegetable oil to some extent, they are all significant importers of oilmeals. Imports reached about 4 million tons annually since 1976. The growth in oilmeal imports is tied to the expanding mixed feed industry. In the countries deficient in both grains and protein feed, imports are influenced by the price relationships between grains and oilseeds.

Romania and Yugoslavia have increased their oilseed crushing capacity beyond the oilseed supply from domestic sources. Thus, these countries have recently shifted somewhat from oilmeal to soybean imports which they crush in their own plants. The crushing capacity in the GDR and Poland is directly geared to their domestic rapeseed production; therefore, they step up imports of other oilseeds in years of shortfalls in rapeseed production.

The GDR and Poland export rapeseed and rapeseed oil; domestic consumption for food and feed must be limited because of the high acid content of their rapeseed. Hungary exports sunflowerseed because of inadequate domestic processing facilities. It also exports sunflower oil. Romania and Poland are the region's leading vegetable oil exporters.

Vegetable oil imports must continue in the countries relying chiefly on rapeseed production since rapeseed oil must be blended with other oils. Despite dietary need to replace animal fat with vegetable oil, the per capita consumption of vegetable oil is growing slowly. Tradition and domestic availability favor consumption of animal fat. However, urbanization and a shift from butter to margarine have added stimulus to the use of vegetable oil in recent years.

The United States is almost the exclusive exporter of soybeans to the region. It is also an important supplier of soybean meal, but its role as a vegetable oil supplier has diminished. U.S. soybean exports of 600,000 tons to the region in 1978 and 740,000 tons in 1979 were destined principally for Poland, Romania, and Yugoslavia. U.S. soybean meal exports averaged more than 1 million tons annually since 1973 and all EE countries were recipients. Yugoslavia, the most significant importer of U.S. vegetable oil until 1975, has since achieved self-sufficiency, leaving Poland the only importer from the United States in 1978 and 1979. Current Polish imports from the United States average about 10,000 tons annually. The United States normally exports sunflowerseeds to Czechoslovakia, but in 1978/79 Bulgaria also became an importer because of a shortfall in its 1978 crop.

Soybean meal accounted for about 80 percent of the region's total meal imports in 1976-79. The United States maintained its share of 35 to 40 percent of the market. Brazil and some West European countries are the other important suppliers of soybean meal to EE.

1976-80 Plan Fulfillment

Oilseed production plans for 1976-80 were not quantified as succinctly as the grain production plans.⁹ Goals mentioned by high officials, aggregated by country, indicate an expectation of a 60-percent increase in output by 1980 as compared with the 1971-75 production. These plans were not achieved.

Hungary exceeded its sunflowerseed production target. Sunflowerseed production growth rate was high in Yugoslavia, too, though less than planned. The shortfall in rapeseed production was caused by unusually harsh winters in Poland, the dominant rapeseed producing country.

There have been several impediments to plan fulfillment. Competition from other crops, particularly grains, puts a constraint on the expansion of oilseeds on the gradually shrinking total arable land. Climate and soils are other limiting factors. Problems with plant diseases force management to adhere to proper rotation practices, meaning that some oilseeds cannot be sown in the same soil within several years.

THE LIVESTOCK SECTOR

The livestock sector was by far the most dynamic sector in East European agriculture during the last three plan periods. Using 1965 as the base year, it was estimated that the index value of animal product output grew at a rate almost twice as fast as that of crop output.¹⁰ Whereas the gross value of crop production has fluctuated during 1966-79, the gross value of animal product output has steadily risen. Only the 1975 and 1976 distress slaughtering of livestock herds in certain EE countries caused animal product output to stagnate before resuming its climb.

The motivation behind the rapid increase in livestock production was the governmental goal of raising the population's nutritional levels, and earning hard currencies through exports. The increase in per capita consumption of meat was considerable during this period and net meat exports increased as well, but the rapid development of the livestock sector put serious strains on EE economies. Ever larger imports of feed (most of it for hard currency) were necessary to maintain livestock herds and animal product output.

Disposable income increased even more rapidly than meat production. Consumer demand for meat and other animal products could not be fully satisfied, and an inflexible price system resulted in market scarcities, queues, and sometimes domestic disturbances. While retail prices of meat remained relatively stable for much of the period, government purchase prices paid to producers rose. Input costs for pro-

⁹ Vankai, *op. cit.*

¹⁰ Alton et al., occasional paper #56, 1979, Table 8, p. 14. The Alton calculations do not include Yugoslavia, which showed a similar growth tendency.

ducers grew, and EE governments picked up most of the additional bill. An ever-widening gap was created between actual costs of production and returns at the retail level. The gap was filled by a host of direct and indirect governmental subsidies to farms engaged in livestock production, to food processing enterprises, and to consumers.

The situation varied from country to country, but every country engaged in heavy subsidization. In the extreme case, the Polish government in 1978 was estimated to be subsidizing the food economy at a rate of 250.6 billion zloties (7.6 billion dollars) per year, accounting for about 25 percent of the total Polish national budget.¹¹ Direct retail subsidies on meat and meat products alone amounted to 57 billion zloties in 1978. These did not include numerous other subsidies on inputs into livestock production, such as those on feed, on capital investment in livestock facilities, and on processing of animal products.

Even in Hungary, with its more flexible price system and more cost-sensitive economy, planners ruled out the use of competitive prices in agriculture but retained competitive prices as a goal in industry.¹² Thus, in 1978 imported protein feedstuffs cost the country 1.6 billion forints (about \$42 million at the 1978 commercial exchange rate) more than agricultural enterprises paid for them.¹³

In 1980, farms are to be given a direct subsidy of 16,000 forints (444 dollars) for each new cow stall built. The government pays an additional 10 percent of the total construction cost, and feed and other inputs are heavily subsidized. In addition to the subsidies mentioned, the farms receive 15 percent more per liter of milk than the consumer pays at the store. The total subsidy, direct and indirect, for milk and milk products is estimated at around 50 percent.

Production

Livestock production is more intensive in the northern countries than in those in the south (table 8). The north has more animals per hectare of agricultural land, more meat production and consumption per capita, and greater animal product output per animal unit. In 1978, there was an average of 70 cattle and 123 hogs per 100 hectares of agricultural land in the northern countries, in contrast with an average of 37 cattle and 70 hogs per 100 hectares in the south.

The 1976-79 per capita production on a liveweight basis in the north averaged about 43.1 kilograms of beef and mutton, 67.4 kilograms of pork, and 13.6 kilograms of poultry meat, and 459 liters of milk (table 9). During the same time, per capita production in the south averaged 34.2 kilograms of beef and mutton, 51.4 kilograms of pork, and 20.4 kilograms of poultry meat, and 175 liters of milk.¹⁴

¹¹ Henryk Kisiel "Current Financial Policy Tasks of the Polish Peoples' Republic," *Finance*, #1, pp. 51-63, Warsaw, Jan. 1, 1979. The exchange rate used was 33 zloties=1 dollar.

¹² Bela Csikos-Nagy "The 1980 Price Adjustment" *Figyelo*, #25, June 20, 1979, pp. 1-4. For a detailed description of the Hungarian system of agricultural subsidies in effect as of January 1, 1980, see Lajos Kornyei "New Regulatory System in Agriculture" *Magyar Mezogazdasag* #49, 1979, pp. 23-26.

¹³ Budapest Homes Service, 0600 gmt, July 20, 1979.

¹⁴ For a consistent series, liveweight production figures were used here. Series which try to estimate actual meat production have problems in determining cutout rates, and whether to include fats, edible offals in this production figure. For the purpose of comparison over time, lightweight serves as well as or better than an estimated meat production figure.

TABLE 8.—EAST EUROPEAN LIVESTOCK NUMBERS BY CATEGORY, 1966-79

[In thousand head as of Jan. 1]

	Average 1966-70	Average 1971-75	1976	1977	1978	1979	1980 ¹	Average 1976-79
East European Total:								
Cattle.....	34,094	35,733	38,292	37,728	38,210	38,598	38,389	38,243
Cows.....	16,507	16,870	17,453	17,087	17,174	17,287	17,233	17,248
Hogs.....	47,807	60,456	66,022	63,706	69,304	70,310	71,439	68,155
Sheep.....	42,725	39,715	39,614	39,706	41,102	42,453	43,506	41,276
Poultry.....	317,751	380,290	414,598	425,324	437,291	448,728	455,010	436,190
Northern countries:								
Cattle.....	20,162	21,265	22,851	22,127	22,677	22,868	22,768	22,658
Cows.....	10,237	10,148	10,196	9,830	9,934	9,978	9,949	9,977
Hogs.....	28,545	35,189	39,831	34,877	39,858	40,443	40,629	39,128
Sheep.....	5,877	5,220	5,865	5,818	6,361	6,534	6,659	6,247
Poultry.....	154,606	176,127	187,047	171,786	174,740	180,893	183,977	179,689
Southern countries:								
Cattle.....	13,932	14,468	15,441	15,601	15,533	15,730	15,621	15,585
Cows.....	6,270	6,722	7,257	7,257	7,240	7,309	7,290	7,271
Hogs.....	19,262	25,267	26,191	28,829	29,446	29,867	30,804	29,027
Sheep.....	36,848	34,495	33,749	33,888	34,741	35,919	36,847	35,029
Poultry.....	163,145	204,163	227,551	253,538	262,551	267,835	271,033	256,502

¹ Estimate.

Source: Country statistical yearbooks, CMEA statistical yearbooks, and U.S. Department of Agriculture attache reports

TABLE 9.—LIVESTOCK PRODUCTION ON A LIVEWEIGHT BASIS, MILK AND EGGS, 1966-79

	Average 1966-70	Average 1971-75	1976	1977	1978	1979 ¹	Average 1976-79 ¹
Eastern Europe total:							
Beef and veal (thousand metric tons).....	3,545	3,942	4,673	4,553	4,576	4,662	4,616
Pork (thousand metric tons).....	5,550	7,154	7,532	7,790	8,358	8,377	8,014
Mutton (thousand metric tons).....	549	525	582	579	610	622	598
Poultry (thousand metric tons).....	1,016	1,602	2,024	2,255	2,395	2,530	2,301
Eggs (million pieces).....	23,835	29,729	33,550	35,293	35,950	36,642	35,359
Milk (thousand liters).....	36,230	38,656	41,073	42,372	43,355	43,496	42,574
Northern countries:							
Beef and veal (thousand metric tons).....	2,110	2,427	2,894	2,699	2,743	2,801	2,784
Pork (thousand metric tons).....	3,401	4,204	4,241	4,306	4,673	4,746	4,492
Mutton (thousand metric tons).....	79	70	81	84	95	97	89
Poultry (thousand metric tons).....	388	608	791	887	946	1,002	906
Eggs (million pieces).....	13,972	16,533	17,729	18,399	18,440	18,780	18,337
Milk (thousand liters).....	26,173	29,042	30,012	30,398	30,989	30,813	30,553
Southern countries:							
Beef and veal (thousand metric tons).....	1,435	1,515	1,779	1,854	1,833	1,861	1,832
Pork (thousand metric tons).....	2,149	2,949	3,289	3,484	3,685	3,631	3,522
Mutton (thousand metric tons).....	471	455	501	495	515	525	509
Poultry (thousand metric tons).....	628	994	1,233	1,368	1,449	1,528	1,394
Eggs (million pieces).....	9,863	13,196	15,821	16,894	17,510	17,862	17,022
Milk (thousand liters).....	10,057	9,614	11,061	11,974	12,366	12,683	12,021

¹ Estimate.

Sources: Country statistical yearbooks, CMEA statistical yearbooks, and own estimate.

The north-south profile of livestock production is gradually changing. While the expansion of livestock production in the northern countries meant seriously overreaching available domestic feed supplies, feed output in the south was better able to keep up with feed needs. Thus, starting from a smaller base, expansion of livestock and poultry numbers in the south outpaced that of the north. Cattle numbers grew at an almost equal rate in both areas, but in hog and poultry holdings the growth rate was much higher in the southern countries. Only in the minor category of sheep and goat numbers did the north outpace the south.

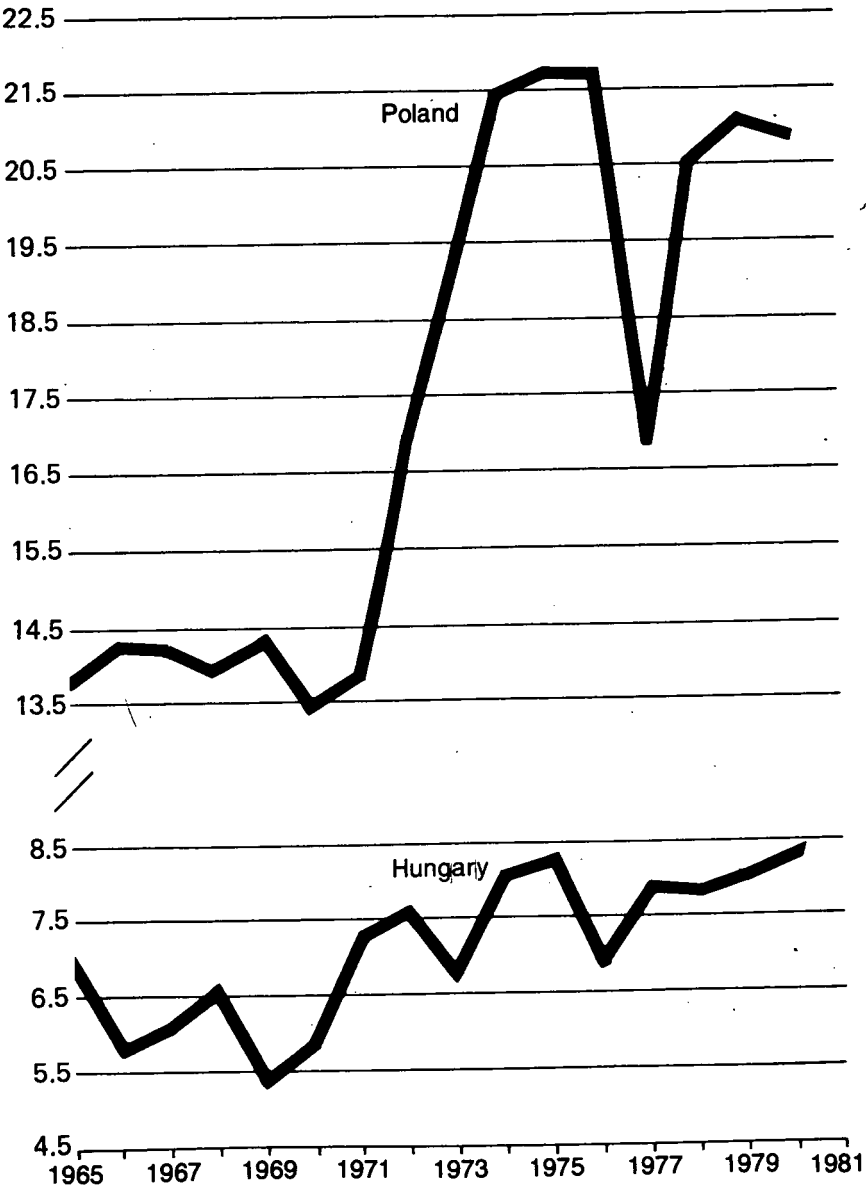
Growth in output of livestock products showed similar results. Output of beef and veal in the northern countries rose slightly more

rapidly than in the south due to better breeding and more intensive production. Pork output, on the other hand, grew more than twice as fast in the corn-surplus south as in the corn-deficit north. Poultry output had very high growth rates in both areas, while egg output grew more than twice as fast in the south.

As the largest and most important livestock category, hog inventories and pork production have also been the most volatile. When slaughtering-off occurs in EE countries, it normally affects hogs most seriously. The resulting hog cycle is similar to livestock cycles occurring in free market economies. The cycle varies by country, and it is present in both corn-growing and non-corn growing EE countries. The cycles are most apparent when private livestock holdings are largest (see graph on next page) :

Fluctuations in Hog Inventories in Hungary and Poland 1965-80

(Mil. head as of January 1)



Part of the explanation for this cycle in planned economies lies in a combination of factors including production and trade in feedstuffs, governmental decisions and programs, procurement prices, and size of input and retail price subsidies. Much of the explanation lies, however, in the unplanned portion of the agricultural economy, the private sector.

The private sector has always played an important, though gradually diminishing, role in EE livestock production. In countries with predominantly socialized agriculture, EE governments have set limits on the number of animals that a household can own. However, aside from these limits, there is little direct control over the level of livestock product output and marketing from the private sector. The households make those decisions on an individual basis. The private livestock producers need not conform to the economic plans which the socialized producers follow, nor can they expect much government support in the form of subsidies and easy access to concentrate feeds and other inputs. Especially when overall feed conditions are tight, the EE governments tend to give preferential treatment to the socialized farms in feed allocation. This policy often forces private producers to slaughter-off livestock which they cannot support from their own feed sources.

The private sector (private farms, state and collective farm workers' private plots, households) in the countries with predominantly socialized agriculture in 1966 held 32 percent of the cattle, 32 percent of the hogs, and 41 percent of the sheep (table 10). In 1979 they still held a significant share of total EE livestock, but a much smaller percentage of the total than in 1966.

TABLE 10. SOCIALIZED AND PRIVATE LIVESTOCK HOLDINGS IN EAST EUROPEAN COUNTRIES WITH PREDOMINANTLY SOCIALIZED AGRICULTURE, 1966 AND 1979¹

[In thousand head, except percent]

	1966			1979		
	Socialized	Private	Private share of total (percent)	Socialized	Private	Private share of total (percent)
Cattle ²	13,153	6,049	32	16,959	3,796	18
Cows ²	5,220	2,330	31	6,404	1,848	22
Hogs.....	19,662	9,119	32	32,600	8,855	21
Sheep.....	16,716	11,757	41	20,433	10,978	35

¹ Countries include Bulgaria, Hungary, the German Democratic Republic, Czechoslovakia, and Romania. Figures are for Jan. 1 of the years indicated.

² Figures include buffalo.

Source: CMEA statistical yearbooks.

As expected, in Poland and Yugoslavia, where private farms predominate, the private holding of livestock also predominates. The holding of animals and the output of animal products from this sector is not directly managed through administrative orders, but must be encouraged more emphatically through economic incentives much like in a capitalist economy. Incentives (or lack thereof) contribute to the

ebb and flow of livestock production in these two EE countries (table 11).

TABLE 11.—SOCIALIZED AND PRIVATE LIVESTOCK HOLDINGS IN POLAND AND YUGOSLAVIA, 1966 AND 1979
[In thousand head, except percent]

	1966			1979		
	Socialized	Private	Private share of total (percent)	Socialized	Private	Private share of total (percent)
Cattle ¹	1,777	13,284	88	3,677	14,223	79
Cows ¹	645	7,752	92	854	8,209	91
Hogs.....	1,895	17,590	90	6,734	22,121	77
Sheep.....	851	11,589	93	1,687	9,603	87

¹ Figures include bred heifers in Yugoslavia.

Sources: CMEA statistical yearbooks and the Statistical Yearbook of the Socialist Federal Republic of Yugoslavia.

A close and complex relationship has developed between socialized and private livestock production. Socialized farms often supply breeding stock and some fodder to private livestock producers. These producers, in turn, often market their products through the socialized farms. Although its share of total livestock production is decreasing, the effects of variations in private livestock production are increasingly felt in the marketplace.

Once the object of strict limitations, private animal husbandry is now being actively encouraged by most EE governments. Where the shift of production to the socialized sector has occurred, experience has shown that low cost production in the private sector was replaced by relatively high cost production on socialized farms. Small producers have little physical investment, tend the animals in their spare time, and use mostly locally grown fodder. Nevertheless the private producers are not likely to strongly respond to the government encouragement. The decline and aging of the rural work force, along with rising standards of living, have decreased the willingness of households to raise animals for more than their own needs.

The shift from private to socialized production continues. This movement has in itself been a major factor in exacerbating the region's feed deficit. Private livestock production predominantly uses local fodders (local grain, root crops, forages, and garbage) while the large-scale socialized production depends heavily on intensive use of grain, oilseed meals, and feed concentrates. Growth of socialized large-scale units has been accompanied by heavy subsidization of production in these units. Not surprisingly, the socialized farms have often been accused of improper feed rationing, poor feed efficiency, and outright wasting of the highly subsidized (often imported) grain and oilseed meals. The growing concern over the high cost of feed imports has on the one hand led to renewed interest in maintaining private livestock production, and on the other hand has forced a reexamination and recalculations of the costs of socialized livestock production.

Trade

In spite of domestic meat shortages, meat exports have been growing. Exports have usually been profitable in spite of the high cost of

imported feeds, and have served as an important hard currency earner. With an eye toward the western markets, these countries have concentrated on developing exports of specialized meat such as canned hams, pork shoulders, frozen poultry, and salamis in addition to their traditional exports of live animals and unprocessed meat. The competitive bid to enlarge their share of the American market for canned meats has led some EE exporters into direct competition with the EC and with each other.

Although Western Europe and the USSR remain the principal markets for East European livestock products, the United States has continued to grow as a secondary market—especially for processed meat (table 12).

TABLE 12.—U.S. IMPORTS OF MEAT FROM EASTERN EUROPE, QUANTITY AND VALUE, 1966-79

	Average 1966-70	Average 1971-75	1976	1977	1978	1979	Average 1976-79
Quantity (metric tons) . . .	32, 177	44, 964	64, 843	63, 398	75, 689	76, 643	70, 143
Value (thousands)	\$52, 711	\$101, 633	\$206, 195	\$192, 423	\$256, 275	\$253, 288	\$227, 045

Source: U.S. Census Bureau data.

Processed pork imports account for around 99 percent of U.S. meat imports from EE. Three countries—Poland, Hungary, and Yugoslavia—supplied close to 90 percent of the volume and value of these meat imports during 1976-79 (table 13). The United States, in turn, supplies EE with a variety of livestock products, including breeding stock, bull semen, tallow, powdered milk, and cattle hides. Cattle hides are, by far, the most significant in terms of value. EE countries import cattle hides to supply their leather industries. Such imports grew from a yearly average of \$11 million in the 1966-70 plan period to an average of \$84 million in 1976-79 (table 14). Three trading partners purchased the bulk of these cattle hides (table 15).

TABLE 13.—U.S. IMPORTS OF MEAT FROM THE TOP 3-EXPORTERS; QUANTITY, VALUE, AND SHARE OF TOTAL EAST EUROPEAN MEAT EXPORTS, 1976-79

	Total meat (metric tons)	Share (percent)	Value (thousands)	Share (percent)
Poland	38, 649	55. 1	\$129, 716	57. 1
Yugoslavia	16, 011	22. 8	51, 803	22. 8
Hungary	7, 511	10. 8	23, 229	10. 2

Source: U.S. Census Bureau data.

TABLE 14.—U.S. EXPORTS OF CATTLE HIDES TO EASTERN EUROPE, QUANTITY AND VALUE, 1966-79

	Average 1966-70	Average 1971-75	1976	1977	1978	1979	Average 1976-79
Quantity (thousand pieces)	1, 191	2, 968	3, 349	3, 387	3, 591	3, 444	3, 443
Value (thousands)	\$10, 903	\$40, 123	\$54, 139	\$65, 975	\$84, 294	\$130, 760	\$83, 792

Sources: Foreign Agricultural Trade of the United States, selected issues, and U.S. Department of Agriculture foreign agricultural trade data.

TABLE 15.—U.S. EXPORTS OF CATTLE HIDES TO THE TOP 3 IMPORTERS; QUANTITY, VALUE, AND SHARE OF TOTAL EAST EUROPEAN CATTLE HIDE IMPORTS, 1976-79

	Cattle hides (thousand pieces)	Share (percent)	Value (thousands)	Share (percent)
Romania.....	1,598	46.4	\$41,281	49.3
Czechoslovakia.....	653	19.0	16,668	19.9
Poland.....	423	12.3	10,883	13.0

Sources: Foreign Agricultural Trade of the United States, selected issues, and U.S. Department of Agriculture foreign agricultural trade data.

1976-80 Plan Fulfillment

Eastern Europe has come closer to fulfilling its 1976-80 plan target for livestock product output than its target for crop production. Most countries were very successful in stepping up their pork and poultry production. In 1979, total meat output already exceeded the 1980 target in Czechoslovakia, and almost equaled the 1980 targets in Bulgaria and Hungary.¹⁵ Meat output in Romania during the 1976-80 plan period has shown significant gains, but the plan target was set unrealistically high and probably will not be attained. Aggregate meat production in the region is expected to reach about 16.3 million tons liveweight by 1980 instead of the 17.3-17.6 million tons as planned.

THE 1981-85 OUTLOOK

The feed-livestock economy will remain a crucial element of agricultural plans during the 1981-85 plan period. So far, however, only Poland and Romania have made detailed plans available. All the EE countries are now in the process of formulating their plan goals. We can expect that the planners will be influenced by roughly the same general set of economic constraints, namely a slowdown in economic growth, sluggish hard-currency exports, continued high foreign indebtedness and debt-servicing, and rapidly rising energy costs. In the agricultural sector, planners are mainly concerned with the failure of crop output to keep pace with livestock production, the dependency on increasing feed imports, the high agricultural subsidies at both the farm and retail levels, the continued outflow of labor from agriculture and the resulting absorption of a high percentage of the agricultural investment fund for labor replacement.

Specific problems of the feed-livestock industry will figure prominently in the planners' decisions, especially those of improving feeding efficiency and bringing domestic production of feedstuffs more into line with domestic needs. In spite of these goals, EE should remain a heavy importer of grain and oilseeds. Strong efforts to decrease feed imports will be hindered by many of the same production constraints which caused the feed-livestock balance to get so far out of line during the previous two plan periods. Add to this the continued domestic pressure for improved living standards and better diets at low prices, and one can imagine the difficult task facing planners when formulating the 1981-85 plan.

¹⁵ Vankal, *op. cit.*

Consumption

The 1981-85 plans will see continued emphasis on improving diets through increased consumption of animal products. However, goals are likely to be reduced substantially below the rate of increase in consumption planned during the past two plan periods. Consumption goals for animal products should be more modest in the northern countries, where consumption is already high by world standards, than in the southern countries.

The expected lower per capita disposable income growth rate during the 1981-85 plan period, accompanied by low population growth, will take some pressure off the demand for animal products. Price increases at the retail level will also be necessary to help lower demand. So far, the southern countries have been quicker to raise food prices than their northern counterparts, but even they still heavily subsidize prices. Large subsidies on input prices to the feed-livestock industry and the increasing gap between costs of production and retail prices should force more frequent price adjustment in all EE countries during the upcoming plan period than in the last decade. Bulgaria and Hungary were successful in drastically raising retail prices for animal products in 1979 without serious domestic disturbances. However, the recent Polish experience may cause EE countries to hesitate to raise prices soon. Shortages and queues are likely to continue their role in rationing consumption since prices are not likely to be raised commensurate to general inflation and to real costs—making animal products still a relative bargain for the EE consumer.

Development of Grain Supply and Utilization

Increased grain production will be stressed in the 1981-85 plan more strongly than any other agricultural product. Emphasis will be particularly placed on obtaining higher yields and reducing waste in harvesting and feeding of grain. Grain production can be expected to maintain its secular increase through 1981-85, with more rapid and consistent growth likely in the south than in the north. This increase in grain production may narrow (but not close) the gap between domestic supply and demand during the next plan period. EE is likely to remain a market for grain throughout the 1981-85 plan period, though net imports are likely to be below levels of 1976-80.

An important constraint on increasing grain production during 1981-85 will be the limited ability of East European countries to increase grain area. There is little margin for bringing new land into production in EE, and small opportunity for shifting land from production of other crops to grain without endangering production levels of those other crops. Industrial, commercial, and housing uses will continue to claim thousands of hectares of EE farmland despite tightened control of such losses. Thus, total grain area will likely increase slightly during the first years of the 1981-85 plan in an effort to immediately reduce the grain import burden, but in the following years grain area is likely to resume the downward trend of the past 15 years.

Increased and more stable yields will be more important than expanded area in raising grain production. Improved plant varieties,

better cultivation and harvesting techniques, and increased fertilizer use will all contribute toward raising yields. Expanding use of irrigation should help to make yields less susceptible to climatic variation. However, these technological improvements are costly and require proper management. Rapidly rising costs for all agricultural inputs, especially energy and fertilizer, make it likely that EE countries will be reluctant to allocate sufficient funds to agricultural investment for a real surge in grain output—especially given the mounting demands of other sectors of the economies. The most notable increases in grain yields and production, therefore, are likely to come in the southern countries where technological development in agriculture is still at a comparatively low level. Proportionally greater increases in yields can be obtained per unit of additional fertilizer application, for example, in the south than in the north. Also, corn, the highest yielding grain, is grown almost exclusively in the south.

In general, grain use should increase more slowly during the upcoming plan period than during the previous two. Grain consumption for food should remain almost constant or even decline. Industrial use, seed, and waste combined will increase slightly. Grain requirements for feed will continue to grow, though not at the rate of previous years. Alternatives to grain in feed rations, such as protein meal, industrial wastes, potatoes, and forages will be used to the extent possible, but cannot be expected to make more than a small dent in feed grain demand.

Gains in feeding efficiency and success in substituting alternative feeds for grain in the socialized sector will be largely offset by reduced private plot animal husbandry. Consumption of grain for feed is likely to reach an estimated 69 percent of total grain consumed in 1985, compared to about 67 percent for 1976–79 and 65 percent for 1971–75. An “optimistic” scenario for grain supply and utilization in the region for 1985 compared to the 1976–79 average is shown in table 16. If the expected plan goals for raising yields and improving feeding efficiency can be met, net imports of grain could drop to about 10 million tons annually by 1985. These estimates are, of course, very preliminary and subject to numerous unpredictables. EE countries attempted to reduce grain imports during the 1976–80 plan, yet they continued to increase. There is little doubt, therefore, that EE will still be a large net importer of grain in 1985. The question really is, how large.

TABLE 16.—POSSIBLE EAST EUROPEAN GRAIN SUPPLY AND UTILIZATION, 1985

	Area of (thousand hectares)	Yield (metric tons per hectare)	Thousand metric tons			
			Production	Net imports	Total consumption	Feed
1976–79 average.....	29.1	3.21	93.2	12.2	105.4	70.6
1985.....	29.1	3.70	107.8	10.0	117.8	82.5

Sources: Table 3 and own estimates.

Development of Oilseed Supply and Utilization

Continued problems of protein deficiency and ration balancing in the EE livestock and poultry industries will encourage planners to put

secondary (after grains) emphasis on increased oilseed output. However, expansion of oilseed production will be limited by many of the same constraints which limit expansion of grain output. Unlike grain, net imports of oilseeds and oilseed meal can be expected to rise throughout 1981-85 as increased domestic production falls short of the demands for ration upgrading.

Again, the northern countries will be in a less favored position than the southern countries because of their dependency on one oilseed crop, rapeseed. Although rapeseed yields are likely to be quite high in a given year compared to yields of soybeans and sunflowers, the susceptibility of rapeseed to wintering conditions leave open the possibility for future fluctuations in production as great as in 1979 when the crop was only 50 percent of the previous year's total. Introduction of the low erucic acid rapeseed varieties will expand during the 1981-85 period, but will probably have more positive effect on the feed value of rapeseed meal than on rapeseed yields.

Soybeans should continue their steady rise in production due to a continued expansion of soybean area. The countries where soybean production will most likely expand are Bulgaria and Romania. Planners in these countries are seeking an improved balance between sunflowerseed and soybean production. Comparatively low yields and low purchase prices currently offered to farms for soybeans, if they continue, are likely to impede the expansion of soybean output during the next 5-year plan.

Sunflowers will undoubtedly continue to be the most important oilseed in the region. The EE countries are experienced in its production and use, and recent world-wide improvements in sunflower breeding and processing technology will probably be quickly adopted by these countries.

Future trade in oilseeds and oilseed meals will depend on the expansion of the livestock industry and on feed ration-balancing decisions. As with grains, factors such as foreign indebtedness, credit availability, and others will figure prominently in governmental decisions on levels of oilseed and meal imports. Demand is expected to remain strong, however, throughout the 1981-85 period.

Development of Livestock Production

The East European livestock sector will continue to generate demand for foreign feedstuffs during 1981-85. In the upcoming plan, policymakers will try to limit additional demand for imported feedstuffs and, if possible, to reverse the trend toward growing dependency. To accomplish this, planners will most likely propose measures such as increased use of domestically produced feeds, upgraded breeding, and improved feeding practices rather than cutting back on animal numbers or product output. Even with good harvests, the feed-livestock balance will be strained during the 1981-85 period.

There is likely to be a difference of approach in the high per capita meat producing northern countries and the still low meat producing southern countries. Two distinct directions are likely. In the north, emphasis will shift from the protein-intensive hog and poultry production to increased production of ruminants which can use locally pro-

duced forages and nonprotein nutrients such as urea-treated straw and industrial byproducts. Herd growth will be limited, and farms will be urged to concentrate on gains from better livestock management.

In the southern countries, a protein feed shortage is likely to persist but will not be as serious as in the north. Grain output is likely to at least keep pace with expansion of livestock output. Cattle, hog, and poultry numbers are all likely to show strong growth, with Bulgaria and Romania leading the expansion.

Several World Bank-sponsored agricultural development loans made to Yugoslavia and Romania in the last 3 years of the seventies will have an impact on livestock production in those two countries during the 1981-85 period and beyond. From 1977 to 1979, Romania took on World Bank loans totaling \$231 million to finance three livestock projects specializing in hog and poultry production and processing. One single project will have an aggregate breeding/fattening/processing capacity of over 1.5 million hogs per year. Yugoslavia has received several multipurpose World Bank loans for agricultural development. These loans include funds for investment in livestock production and processing in both the private and socialized sectors.¹⁶

In both the northern and the southern countries additional encouragement will be given to animal husbandry in the private sector. Poland and Yugoslavia, with their predominantly private livestock production, will continue to urge farmers to modernize and specialize their livestock operations. Government support in the form of credit, subsidies, and preferential access to machinery will be used to encourage private farmers in this direction.

In other EE countries, governments are likely to continue the policy trend from the 1976-80 plan which gave household units encouragement to pursue animal husbandry as well as greater access to inputs for this purpose. The additional government support, however, will probably not stop the shift away from household production toward large-scale socialized production. With rising living standards and educational levels, farm workers are becoming increasingly reluctant to use their spare time for raising livestock and the fodder to support it. In addition, the out-migration from agriculture in EE means fewer households to raise animals. The net effect is that a larger percentage of livestock products will be supplied by the high-cost, concentrate-fed intensive socialized sector in 1985 than in 1980.

Livestock breeding programs will continue to receive a high level of government support in the next plan period. In cattle raising, the gradual shift from dual purpose breeds (meat and milk) toward single purpose breeds will persist. Hard currency shortages are likely to force breeders to concentrate on developing the domestically available breeding stock and to expect fewer imports of breeding animals in the next plan period. This is likely to cause a reduction in the value of U.S. exports of beef and dairy breeding stock to EE which averaged over \$2.1 million from 1976-79 and reached \$5.5 million in 1977. U.S. exports of bull semen which amounted to \$1.1 million in 1979, will probably continue strong as EE countries upgrade their stock with imported semen rather than imported live animals.

¹⁶ See the relevant World Bank staff reports for agricultural loans to Romania and Yugoslavia approved during the 1977-80 period.

Poultry production is likely to reflect the swiftest advance as heavy investment in industrial scale poultry production in the last two plan periods reaches its full impact on production. Feed conversion and performance on these large-scale poultry units is the closest of any category of livestock production to Western European levels. All of the countries have been cooperating with the western industrial countries through breeding programs and imports of hybrid chicks and hatching eggs. The value of imports of U.S. poultry breeding stock in 1978 totaled \$406,000 and \$1 million in 1979. These imports can be expected to continue despite the development of high performance local breeds such as the Hungarian "Petra" hybrid.

Development of hog production during 1981-85 will mean a continued shift from private household production to industrial-scale pig rearing. The large units will probably emphasize bringing leaner animals to market sooner, destined for the export market. The small-scale producers will continue to favor the traditional fatter East European hogs.

Sheep numbers which showed a downward trend in the early seventies but reversed this trend in the 1976-80 plan period, can be expected to increase rapidly in the 1981-85 period. Domestic demand for wool, rising prices of synthetics, and strong export markets for mutton and sheep's milk cheese will spur the resurgence of sheep herding in Eastern Europe.

Trade in animal products during the 1981-85 period will likely reflect the priorities of the previous two plan periods—to minimize imports and exploit export potential. EE governments are likely to continue to be very reluctant importers of animal products, limiting imports to the coverage of serious shortages.

Live animal and animal product exports should continue to expand, though the growth rate will largely depend on import policies in Western Europe and economic developments in the United States. It is difficult to predict what impact, if any, such world events as the Greek accession to the EC, the U.S. suspension of most agricultural sales to the USSR, and the threatening economic recession in the West will have on EE livestock product markets. It is certain, nevertheless, that EE will be pushing to expand hard currency livestock product exports during the upcoming plan period. Yugoslavia, Romania, Hungary, and Poland, which in recent years have invested heavily in projects to produce livestock products for the western markets, want to see returns on their investment. Besides Western Europe and the United States, the Middle East will be a target for livestock export expansion. Beef, mutton, and poultry exports to the Middle Eastern countries are likely to grow rapidly during the 1981-85 period.

In economic terms, East Europeans will likely take a closer look than in the past at the real returns on their animal product exports. These countries will probably become more sensitive to international price relationships and their influence on the profitability of livestock production for export. This is particularly true given the persistent production inefficiencies and the increasing EE dependence on feed, energy, and technology imports to support their livestock production. One good recent example of this heightened sensitivity is the 1979

Hungarian decision to decrease egg production and exports because of their unprofitability under current domestic production costs. Such rethinking will probably not dramatically alter livestock production or export policies in the 1981-85 plan period, but it is likely to be increasingly pertinent for planners and policy makers as they shape the East European feed-livestock economy during the 1980's.

COMPARATIVE GROWTH, STRUCTURE, AND LEVELS OF AGRICULTURAL OUTPUT, INPUTS, AND PRODUCTIVITY IN EASTERN EUROPE, 1965-79

By Gregor Lazarcik*

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SUMMARY

Agriculture has a very important position in the national economies of Eastern Europe. As measured by its contribution to total GNP, it ranks second to industry in every country in this area.

In view of the rapidly rising demand for high protein food of animal origin, the East European governments have taken a series of important measures toward promoting efficiency and rapid growth, especially of livestock production. Since the mid-1960s, the most important measures for increasing agricultural performances were directed toward: (1) expansion of production of high yield varieties of feed grains and concentrates; (2) rapid increase in imports of feed for livestock; (3) higher allocation of inputs into agriculture, particularly fertilizers, machinery and equipment, improved feeding technology, higher yield livestock breeds, and advanced agricultural technology; (4) decentralization of organization and management of farm production units; and, most important, (5) a series of incentives to farmers in the form of higher prices for farm products, stimulation of personal motivation through higher profits, greater participation of farm workers in management of farms, major increases in fringe benefits, abstention from further forced collectivization of farming, and other incentives, all designed to promote more rational use of resources and achieve greater agricultural production and productivity.

During the last fifteen years, comparative agricultural performance has been uneven among the East European countries, and within particular countries, over different sub-periods. In the 1965-70 period, agricultural output (defined as the supply of products for direct consumption in kind by producers and for sales of the farm sector; more detailed definitions of output and input measures, used in this study are given in appendix B) grew at a slow rate of about 1.9 percent for the whole region; in the 1970-75 period, output grew at an average annual rate of 4.1 percent, or about double the rate of the preceding period. In the 1975-79 period, there was a slowdown in output growth to an average annual rate of 2.7 percent. In response to rapidly growing domestic demand for animal products, their output over the 1965-1979 period grew twice as fast as that of crops. The rate of growth of output in Eastern Europe was highest in Romania, Hungary, and Yugoslavia, followed in descending order by Czechoslovakia, Poland, the German Democratic Republic, and Bulgaria.

Hungary, Poland, Romania, and Yugoslavia, as a group with predominantly decentralized agriculture, showed superior growth performance in all production measures (i.e. output of crops, output of animal products, gross product, and net product of agriculture) to that of the group of countries with centralized agriculture (Bulgaria, Czechoslovakia, and the German Democratic Republic). The countries with decentralized agriculture exceeded the performance measures of the countries with centralized agriculture between 1965 and 1977-79 as follows: in crop output by 14.5 percent, in animal output by 11.3 percent, in net product by 14 percent, in output per unit of land by 14 percent, and in net product per unit of land by 17.1 percent.

Since the countries with centralized agriculture had allocated larger quantities of non-agricultural inputs to agricultural production but

had smaller increases in output, and gross and net product (both defined as value added) than those with decentralized agriculture, they evidently used their non-agricultural inputs less efficiently than the group of countries with decentralized agriculture.

An international comparison of agricultural outputs in the 1976-1979 period shows that Eastern Europe as a whole accounted for about 39 percent as much as the United States. In terms of per capita levels of agricultural output, as measures of self-sufficiency, the United States ranks by far the highest, followed in descending order by Hungary, Bulgaria, the German Democratic Republic, Romania, Poland, Czechoslovakia, the U.S.S.R., Yugoslavia, and Western Europe.

The future performance of East European agriculture will depend largely on personal incentives to farmers for more rational use of productive resources. More immediately, the cost and availability of energy supplies to East European agriculture will be an important factor affecting progress in production and productivity.

I. INTRODUCTION

In the last fifteen years, the agricultural sectors in the East European countries have made significant though uneven progress. A series of economic reforms designed to increase incentives and efficiency, during the second half of the 1960's, resulted in an accelerated increase in the real income of the population. Increasing real incomes, in turn, brought rapidly rising demand for more and better quality foods of animal origin in the 1970's. In some of the East European countries, the domestic food supply did not keep pace with the growing demand.

In order better to satisfy the rising demand for high protein foods, the East European countries have taken a series of important decisions with regard to agriculture over the course of the last decade. The results of these may be outlined as follows: (1) imports of feed grain, oilcake, fish meal and other high protein feed for livestock have increased sharply since the second half of the 1960's;¹ (2) a continuing expansion of domestic production of high yield varieties of feed grain, concentrates, and roughages has been implemented in varying degrees of intensity in all East European countries; (3) a larger flow of inputs in the form of fertilizers, increased mechanization, improved feeding technology, higher yield livestock breeds, better crop varieties may be observed in several EE countries, and the general improvement of agricultural technology has been receiving greater attention; and (4) as part of broader economic reforms, a series of incentives to increase farmers' productivity have been continued in the form of higher prices for agricultural products, stimulation of personal interest through profits, greater participation of individual farm workers in management of farms, substantial increases in fringe benefits, and other personal incentives designed to encourage rational use of resources and improve agricultural productivity.

In Poland and Yugoslavia, meanwhile, the ownership and management of farms continues overwhelmingly in private hands, organized

¹ See U.S. Department of Agriculture, Economics, Statistics, and Cooperatives Service, *The Agricultural Situation: Eastern Europe, 1979*, pp. 15-21, and *Progress and Outlook for East European Agriculture, 1976-80*, by Thomas A. Vankal, 1978, pp. 13, 18, 23, 28, 35, 43, and 49. See also A. Terhaar and T. Vankal contribution to present volume.

in many small private family farm units. Only 22 and 16 percent of the agricultural land in Poland and Yugoslavia, respectively, is in state and collective farms.² Their governments have actively supported private farming, providing a variety of incentives to stimulate the expansion of farm output. Such policies, for example, in Yugoslavia and to a degree in Poland during recent years, consisted of: (1) government increases in prices paid to farmers for their products; (2) expansion of agricultural credits to private farmers on favorable terms; (3) increasing imports of feed-stuffs and protein meal, sold to private farmers to enhance output of meat and dairy products; (4) increasing mechanization of agriculture; (5) greatly expanding the use of fertilizers by private farmers; (6) encouraging specialization and interfarm cooperation in the use of machinery; (7) stepping up government agricultural research to increase farm productivity; and (8) above all, abstaining from further forced collectivization of agriculture.

In Hungary, the New Economic Policy, put into effect in agriculture after 1961-62 recollectivization, has provided a series of incentives to collective and individual farmers. To a significant degree, there has also been a decentralization of management of collective farms. In livestock, vegetables, and vineyard production, the decentralized quasi-private organization of management, and private ownership accompanied by strong material incentives distinctly predominate. Even in the crop production sectors where the state and collective farms predominate, the incentive system for workers organized into production teams forms a distinctly decentralized arrangement.

Romania, in general, has been operating under a heavily centralized planned economic system. In agriculture, however, a good part of activity has been concentrated in private sectors. Indeed, the government, through various programs of financial and technical assistance, has actively supported and encouraged expansion of production on private farms. Although more than four-fifths of the farmland is socialized and centrally managed, the large part of livestock, fruit, and vegetable production is concentrated in private, fully decentralized units. At an agricultural congress held in April 1977, private farmers were heavily represented, and President Ceausescu granted them favorable taxation and full pensions. Thus an important part of Romanian agriculture is operating under an incentive and decentralized system.

Basically, two agricultural patterns emerge and continue to co-exist in Eastern Europe, the one consisting of the countries with predominantly centralized agricultures—Bulgaria, Czechoslovakia, and the Democratic Republic of Germany—and the other consisting of the countries with predominantly decentralized agriculture—Hungary, Poland, Romania, and Yugoslavia. Since in all cases, agriculture functions in the context of a Communist country under a more or less centrally planned economic system (Yugoslavia, and to a certain degree Hungary, have undergone significant decentralization) there is a basis for taking a comparative approach between the two types of

² See Poland, Główny urząd statystyczny, *Rocznik statystyczny*, 1979, Warsaw, 1979, p. 218, and Yugoslavia, Savezni zavod za statistiku, *Statistički godišnjak SFRJ*, 1979, Belgrade, 1979, p. 222.

agricultural systems in Eastern Europe: centralized versus decentralized.

In the following pages, the recent agricultural performance of Eastern Europe will be analyzed by country and by groups of countries (centralized versus decentralized agricultural systems). Some comparisons will also be made with the U.S.S.R., the Federal Republic of Germany, and the United States, in an attempt better to appraise the performance of recent years.

The aim of this basically statistical study is to present the measures and assess the changes in levels of agricultural development in the East European countries since 1965. Aspects to be covered are: (1) changes in the relative importance of agriculture in the national economy of each country; (2) changes in the growth and structure of basic output and input measures; (3) trends and levels of output per capita; (4) changes in productivity of land and labor in agriculture; (5) progress in agricultural technology and growth of investment; (6) comparisons of output between Eastern Europe, Western Europe, U.S.S.R., and the United States; and (7) the outlook for the next few years.

II. PLACE OF AGRICULTURE IN THE EAST EUROPEAN ECONOMIES

Agriculture has an important position in the national economies of Eastern Europe. Until the mid-1960's, agriculture was the largest economic sector in several of the East European countries, measured in terms of its share in total employment and its share in the gross national product. Both its employment and GNP shares, however, have been declining steadily in all countries in the whole postwar period.

In 1965, Bulgaria, Romania, and Yugoslavia had still close to one-half or more of their labor force in agriculture (Table 1). Poland with more than one-third and Hungary with over one-quarter of their labor forces in agriculture were considered still semi-agricultural countries. Czechoslovakia and the German Democratic Republic (hereafter, GDR), meanwhile, each had less than one-fifth of their labor forces in agriculture. They were already reasonably well industrialized countries.

It should be noted that agricultural measures developed in this study may differ somewhat from those used in Thad P. Alton's contribution to this volume because of different pricing. Our indexes here are based on FAO East European and Soviet Union wheat-based price relatives for 1961-1965, while the agricultural GNP measures used in Alton's contribution are based on domestic prices of the respective East European countries. The quality of basic primary data used in our calculations is considered best for Hungary, Czechoslovakia, and the GDR, fairly good for Poland, Yugoslavia, and Bulgaria, and worst for Romania.

In terms of agriculture's contribution to GNP, excepting the GDR, the shares were lower than for employment because the productivity per active person in agriculture was lower than that in non-agricultural sectors. Eastern Europe as a whole and the U.S.S.R. exhibited strongly agricultural characteristics when compared to the United States, which had less than seven percent of the labor force in agriculture and 3.5 percent of GNP originating in agriculture in 1965.

TABLE 1.—AGRICULTURE'S SHARE IN PERCENT OF TOTAL LABOR FORCE AND GROSS NATIONAL PRODUCT

	Labor force		Gross National Product	
	1965	1979 ¹	1965	1979 ¹
Bulgaria.....	44.9	24.5	35.2	19.9
Czechoslovakia.....	19.5	12.6	17.6	13.6
German Democratic Republic.....	14.0	10.2	15.6	10.6
Hungary.....	27.2	19.2	25.2	18.1
Poland.....	38.1	29.9	29.0	15.6
Romania.....	57.4	32.5	41.4	24.5
Yugoslavia.....	49.7	34.0	25.5	20.0
Eastern Europe.....	37.2	24.8	25.3	16.9
U.S.S.R.....	35.4	23.3	22.0	15.5
United States.....	6.9	3.1	3.5	2.9

¹ Preliminary.

Sources: Eastern European countries: Labor force: Agricultural employment is in terms of yearly averages or mid-year data of economically active persons in agriculture taken from statistical yearbooks of the respective countries. GNP: Calculated from Thad P. Alton, present volume. The shares were adjusted for forestry. Data for 1979 were estimated from 1978 and the plan fulfillment reports for 1979 reported by the statistical offices of the respective countries. U.S.S.R.: Labor force: M. Feshbach and S. Rapawy, "Soviet Population and Manpower Trends and Policies," Joint Economic Committee, Congress of the United States. "Soviet Economy in a New Perspective," 1976, p. 132; GNP: Calculated from Herbert Block, "Soviet Economic Performance in a Global Context," Joint Economic Committee, Congress of the United States. "Soviet Economy in a Time of Change," 1979, pp. 135-137, and the plan fulfillment report for 1979 reported by the Central Statistical Office in Moscow, January 1980. United States: "Statistical Abstract of the United States, 1976," U.S. Department of Commerce, 1976, pp. 356, 365, and 395, and "Survey of Current Business," 1980, No. 1, pp. 8-11 and 12.

Because of rapid industrialization, the share of agricultural employment, and, to a lesser degree, of agriculture's contribution to GNP has continued to fall over the last fifteen years in all East European countries, as in the U.S.S.R. By 1979, in all the East European countries except Yugoslavia, the share of agricultural labor had declined to below one-third of the total. In Czechoslovakia, only 12.6 percent and in the GDR, 10.2 percent of total employment remains in agriculture. The share of agriculture's contribution to the total GNP decreased substantially in Bulgaria, Poland, and Romania, while in the remaining countries the decreases were smaller from 1965 to 1979. It is interesting to note that in 1979 the GNP share of agriculture was somewhat larger than that of employment in the total for Czechoslovakia and the German Democratic Republic. This suggests that the farmers' incomes in these countries are higher (because of subsidies) than in non-agricultural employment.³ In all countries, agriculture is still the second-largest sector after industry. The trend of decline in agriculture's share in the total GNP in Eastern Europe has been similar to that in the U.S.S.R. Both Eastern Europe as a whole and the U.S.S.R. have a little less than one-fourth of their labor force in agriculture and generate 16.9 and 15.5 percent of GNP in agriculture, respectively. Compared with the United States, the relative importance of agriculture is five to six times larger in the East European and the Soviet economies.

III. RECENT GROWTH AND STRUCTURE OF OUTPUT AND INPUTS

A. Performance of Centralized Versus Decentralized Agriculture

The various measures of output and expenses for Eastern Europe as a whole and for two groups of countries—one with predominantly

³ In Czechoslovakia, for example, the average agricultural labor income was 6 percent higher than the average nonagricultural labor income in 1979. (Calculated from *Statistická ročenka 1976*, pp. 108, 122, 148-151, 340, and 342, and *ibid.*, 1979, pp. 195, 267, and 270.)

centralized agriculture, the other with predominantly decentralized agriculture—are given in tables 2 and 3 for the 1965–1979 period.⁴ All measures presented in this study are independent estimates comparable with Western agricultural measures. The data show the following results:

(1) The overall performance of countries with decentralized agriculture, which was distinctly superior to that of countries with centralized agriculture in the earlier postwar period, has continued to be superior up to the present, albeit to a more moderate degree. Between 1965 and 1979, the former group surpassed the latter by a substantial margin in total output, crop output, animal output, and gross and net product of agriculture.

(2) Within agricultural output, both groups of countries achieved higher rates of growth in animal products than in output of crops. The countries with centralized agriculture experienced slightly higher average annual rates of growth⁵ of animal products in the 1965–70 period than the other group. However, for 1971–79, the rates of increase were higher for the countries with decentralized agriculture (table 2).

(3) Inputs into agriculture from other sectors continued to increase sharply due to rapid mechanization and better technology on farms. Both groups of countries more than doubled current operating expenses and depreciation from 1965 to 1979. During the 1965–75 period, the average annual rate of growth in expenses was higher than in the 1975–79 period for the decentralized agricultures, which had stepped up their mechanization in the earlier period and then substantially slowed down in 1975–79.

(4) Because of rapidly increasing expenses and depreciation, the gross and net products grew at much slower rates than output for both groups. Both groups of countries had similar annual rates of increase in the 1971–75 period, while in the 1965–70 period there was a slight decline. The countries with decentralized agriculture, however, experienced high rates of growth in their gross and net products in the 1975–79 period, while the countries with centralized agriculture experienced a decline.

B. Performance in Individual Countries

From 1965 to 1979, the greatest increase in agricultural output was achieved by Romania with an increase of 77 percent, followed by Hungary and Yugoslavia with 67 and 59 percent, respectively. Bulgaria and the GDR had the lowest increases in output, 34 and 35 percent, respectively, while Poland⁶ and Czechoslovakia are in the middle with

⁴ Measures of performance for earlier postwar years are given in G. Lazarcik, *Compendium 1974*, pp. 328–329.

⁵ All average annual rates of growth in this study are calculated as the rates given by least squares fitting of the growth equation $I_t = I_0(1+r)^t$ to the indexes.

⁶ Poland is the only country in Eastern Europe that computes agricultural output measures (*produkcja końcowa* and *produkcja towarowa*; the former includes the latter plus consumption in kind of their own production by farmers). The official Polish measure (*produkcja końcowa*) may differ in some years from our output measure given in Table 2, especially in crop output. For example, in 1971 our measure of crop output shows a decrease by 8 percent while the official data show a 4 percent increase (see *RS 1976*, p. 229); in 1975 our measure shows a 10 percent increase and the official one an 8 percent decrease (see *RS 1976*, p. 229). However, an evidently revised Polish official measure given in *RSE 1978*, p. 162, shows only a 3 percent decrease in 1975. For other years the differences in crop output between our measure and the official measure are small, and there is reasonable agreement in animal output for both measures over time. Dif-

TABLE 2.—GROWTH OF AGRICULTURAL OUTPUT

	Indexes, 1965=100															Average annual rates of growth		
	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ¹	1965-70	1970-75	1975-79 ¹
Bulgaria:																		
Output.....	100	109.4	112.1	109.9	108.9	110.6	113.3	118.0	116.7	116.1	120.0	126.6	119.1	125.6	134.4	1.4	1.4	2.2
Crops.....	100	114.8	112.0	108.2	109.2	106.0	104.6	113.1	110.7	101.3	99.8	109.7	94.6	101.8	109.5	.3	-1.2	1.1
Animal products.....	100	101.3	112.2	112.5	108.5	117.5	126.3	125.2	125.6	138.8	150.4	151.9	155.7	161.2	171.5	2.9	4.4	3.3
Czechoslovakia:																		
Output.....	100	119.3	110.6	113.1	113.4	121.2	120.2	126.5	128.3	137.3	140.5	137.8	148.9	151.5	148.0	2.4	3.3	2.0
Crops.....	100	121.3	115.9	117.9	111.3	117.8	102.8	110.2	116.1	123.5	132.3	119.6	141.6	140.1	127.2	1.7	3.4	.8
Animal products.....	100	104.0	108.3	111.0	114.3	122.8	127.9	133.7	139.2	143.4	144.2	145.8	152.1	156.6	157.2	3.9	3.4	2.5
German Democratic Republic:																		
Output.....	100	106.3	109.1	109.7	107.4	110.1	111.6	118.4	121.0	128.0	130.6	129.7	134.0	133.9	135.0	1.5	3.7	1.0
Crops.....	100	107.9	112.7	109.9	96.3	105.1	102.3	110.0	106.3	110.8	113.1	111.9	125.7	120.6	121.8	-5	1.6	2.3
Animal products.....	100	105.6	107.4	112.2	112.4	112.3	115.8	122.2	127.5	135.7	138.4	137.6	137.7	139.8	140.9	2.3	4.6	.5
Hungary:																		
Output.....	100	107.4	115.4	117.6	127.3	113.0	129.0	134.8	143.2	149.5	146.1	144.0	166.8	169.0	168.7	3.3	5.2	4.6
Crops.....	100	110.7	125.8	124.6	148.4	104.5	124.9	137.8	153.8	145.9	145.0	137.5	167.9	164.0	159.1	3.2	6.5	3.7
Animal products.....	100	104.8	107.2	111.9	110.4	119.8	132.3	132.4	134.8	152.4	147.0	149.2	165.9	172.9	176.4	3.2	4.3	5.3
Poland:																		
Output.....	100	107.5	109.8	109.9	109.4	108.2	109.7	117.6	126.4	130.4	129.2	126.5	130.1	137.3	137.1	1.3	4.3	2.0
Crops.....	100	108.1	110.6	112.3	105.0	109.3	100.6	104.2	108.9	102.2	112.1	122.4	111.7	115.9	111.5	1.1	-6	-7
Animal products.....	100	107.1	109.4	108.5	111.9	107.2	114.8	125.2	136.4	146.5	139.1	128.9	140.7	149.6	151.7	1.4	6.2	3.3
Romania:																		
Output.....	100	114.8	119.8	116.5	117.8	108.0	124.0	136.1	144.6	140.7	147.7	170.0	168.8	171.1	176.8	1.2	5.9	3.7
Crops.....	100	116.6	118.3	116.1	119.1	95.0	114.3	121.6	127.5	119.9	123.6	147.4	141.2	138.6	143.3	-6	4.4	2.4
Animal products.....	100	112.5	121.6	117.0	116.2	123.9	135.5	153.7	165.3	165.9	176.9	197.5	202.3	210.7	217.4	3.3	7.3	4.9
Yugoslavia:																		
Output.....	100	115.1	117.5	112.7	124.3	115.8	124.3	122.9	132.8	143.1	134.3	147.4	155.0	151.1	158.6	2.7	3.6	3.6
Crops.....	100	128.1	126.7	118.9	141.0	113.9	127.7	123.9	136.7	140.9	124.1	144.3	147.5	135.7	143.6	2.5	2.4	2.3
Animal products.....	100	102.0	108.1	106.4	107.4	117.8	120.8	122.0	128.8	145.4	144.7	150.5	162.5	166.7	173.9	2.8	4.8	4.8
Countries with centralized agriculture:²																		
Output.....	100	108.0	110.3	110.8	109.6	113.7	114.7	120.8	123.4	127.9	131.0	131.4	134.9	137.3	138.9	2.0	3.1	1.6
Crops.....	100	114.0	113.2	109.1	105.2	108.6	103.3	111.3	110.5	110.2	112.6	113.0	117.4	118.1	118.3	.4	.7	1.4
Animal products.....	100	104.3	108.5	111.9	112.4	118.8	121.7	126.7	131.3	138.8	142.4	142.8	145.6	149.1	151.6	3.2	3.9	1.7
Countries with decentralized agriculture:³																		
Output.....	100	110.5	114.4	113.0	117.0	110.5	118.7	125.3	134.2	138.2	136.8	142.6	149.1	152.2	154.8	1.9	4.7	3.2
Crops.....	100	115.3	118.7	116.8	123.8	106.1	114.3	118.6	127.2	122.6	123.1	136.3	136.5	134.0	134.7	1.4	3.0	1.6
Animal products.....	100	106.7	110.9	110.1	110.1	114.0	122.2	130.6	139.7	150.3	147.8	147.7	159.1	166.8	170.8	2.1	5.8	4.2
Total, Eastern Europe:																		
Output.....	100	109.7	113.0	112.3	114.5	111.6	117.3	123.7	130.4	134.6	134.8	138.8	144.2	147.1	149.3	1.9	4.1	2.7
Crops.....	100	114.9	117.0	114.4	118.0	106.9	110.9	116.3	122.0	118.7	119.8	129.0	130.5	129.0	129.6	1.1	2.4	1.6
Animal products.....	100	105.8	110.0	110.7	110.9	115.0	122.0	129.2	136.6	146.2	145.8	145.9	154.1	160.3	163.7	2.4	5.2	3.3

¹ Preliminary.² Bulgaria, Czechoslovakia, German Democratic Republic.³ Hungary, Poland, Romania, and Yugoslavia.

Sources: See appendix A. Indexes were calculated from physical quantities weighted by FAO Eastern European and Soviet Union wheat-based price relatives for 1961-65.

TABLE 3.—GROWTH OF OPERATING EXPENSES INCLUDING DEPRECIATION, GROSS PRODUCT, AND NET PRODUCT OF AGRICULTURE

	Indexes, 1965=100																	Average annual rates of growth		
	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ¹	1965-70	1970-75	1975-79 ¹		
Bulgaria:																				
Expenses.....	100	114.8	122.3	140.7	137.9	141.8	159.5	153.3	146.5	169.9	153.5	166.5	193.7	209.5	236.7	7.2				
Gross product.....	100	107.1	108.2	100.1	100.1	101.8	99.9	108.5	109.7	101.6	113.0	118.3	98.8	102.8	105.9	-1.5	1.6	11.6		
Net product.....	100	107.4	108.3	98.5	98.1	99.1	96.1	104.8	105.6	96.2	107.6	111.8	91.4	94.4	96.3	-1.2	1.7	-2.7		
Czechoslovakia:																				
Expenses.....	100	104.5	102.8	102.0	108.6	133.2	128.6	137.8	145.3	152.6	160.6	163.3	169.8	181.8	183.4	4.5	4.4	3.8		
Gross product.....	100	112.5	117.0	122.1	117.6	108.2	111.6	115.3	119.3	122.8	122.2	114.8	131.2	124.7	116.8	1.6	2.7	3.8		
Net product.....	100	114.9	119.8	126.0	118.9	107.3	110.4	113.4	116.7	119.5	117.2	108.0	124.4	116.3	106.7	1.5	2.0	-1.1		
German Democratic Republic:																				
Expenses.....	100	106.8	107.5	110.6	114.7	134.7	150.1	155.7	159.0	166.6	181.4	207.5	194.2	197.4	203.0	5.1	5.3	1.8		
Gross product.....	100	106.2	109.9	109.8	105.9	102.2	98.8	107.6	109.9	117.3	116.1	105.2	117.2	116.4	116.4	.3	3.4	1.8		
Net product.....	100	106.1	109.7	109.2	104.2	99.9	94.9	102.1	104.4	111.2	108.5	95.8	107.8	106.2	105.4	-2.2	2.6	1.1		
Hungary:																				
Expenses.....	100	98.0	107.1	124.0	131.6	147.9	177.7	189.3	195.7	229.1	220.0	243.8	283.0	298.9	307.5	8.8	8.4	9.1		
Gross product.....	100	109.9	117.8	114.9	125.5	101.5	112.4	116.1	126.3	123.7	123.4	114.7	131.3	129.2	127.7	1.3	3.9	1.9		
Net product.....	100	111.2	118.8	114.9	125.5	98.8	109.2	112.6	121.8	117.1	116.0	103.3	119.4	115.6	112.1	.8	3.2	.4		
Poland:																				
Expenses.....	100	93.7	103.7	107.2	155.5	144.1	129.1	142.5	163.6	182.4	220.0	196.6	210.5	218.2	221.8	10.1	9.9	1.2		
Gross product.....	100	112.8	112.3	110.9	92.9	96.1	104.2	109.8	113.8	112.6	102.3	103.5	103.5	110.9	110.0	-2.2	1.7	2.2		
Net product.....	100	113.1	112.3	111.0	90.7	93.7	101.8	107.5	111.3	109.3	97.5	98.2	97.6	104.6	102.8	-2.8	1.3	1.7		
Romania:																				
Expenses.....	100	111.5	123.4	133.4	144.7	149.4	173.0	196.6	239.1	235.2	260.1	267.8	274.4	271.8	282.9	8.5	11.8	1.8		
Gross product.....	100	114.7	117.2	110.3	109.2	96.0	110.7	118.7	114.0	110.8	111.1	146.2	137.1	142.0	146.3	-1.2	2.0	5.8		
Net product.....	100	116.1	118.3	109.5	106.7	90.9	103.7	111.1	105.5	101.6	101.2	129.6	125.1	129.5	132.9	-2.3	1.3	5.6		
Yugoslavia:																				
Expenses.....	100	116.9	110.7	100.8	112.7	112.1	122.9	134.5	147.9	182.1	143.7	176.1	181.6	205.5	215.8	1.1	7.5	10.2		
Gross product.....	100	114.8	118.7	114.9	126.5	116.5	124.8	121.0	130.1	136.3	132.8	142.5	150.5	141.8	148.9	3.0	2.9	2.3		
Net product.....	100	114.8	118.7	114.9	126.5	116.5	124.5	120.8	130.0	136.0	132.6	142.1	150.1	141.2	148.2	3.0	2.9	2.2		
Countries with centralized agriculture:																				
Expenses.....	100	107.2	108.1	112.3	116.2	135.3	142.0	147.1	150.5	160.8	166.7	179.8	183.0	192.5	200.3	5.3	4.2	4.5		
Gross product.....	100	108.1	111.3	110.3	107.3	103.7	102.3	109.8	112.3	114.4	116.8	111.2	115.7	114.8	113.6	.4	2.8	-1.2		
Net product.....	100	108.4	111.6	109.9	105.8	101.1	98.8	105.5	107.5	108.7	110.2	103.2	106.8	105.1	103.1	-1.1	2.1	-1.1		
Countries with decentralized agriculture:																				
Expenses.....	100	101.3	109.7	115.5	143.7	142.2	147.2	162.4	185.0	203.0	220.3	219.1	234.8	243.5	250.4	8.5	9.8	3.7		
Gross product.....	100	103.2	115.6	112.3	108.8	101.4	111.4	115.1	119.4	119.2	114.1	121.6	125.3	127.2	129.0	-2.2	2.4	2.9		
Net product.....	100	103.8	116.0	112.2	107.5	99.2	108.6	112.1	116.1	115.1	109.2	115.4	118.6	119.7	120.7	-1.7	2.0	2.4		
Total, Eastern Europe:																				
Expenses.....	100	103.8	109.0	114.1	132.0	139.3	145.0	155.9	170.3	185.1	197.5	202.4	212.7	221.8	229.1	7.2	7.6	4.0		
Gross product.....	100	111.5	114.2	111.6	108.3	102.1	108.5	113.4	117.1	117.6	115.0	118.3	122.2	123.2	124.1	2.0	2.5	1.9		
Net product.....	100	112.1	114.6	111.5	107.0	99.8	105.5	110.0	113.4	113.1	109.5	111.6	114.9	115.2	115.3	.5	2.0	1.4		

¹ 1979 figures are preliminary.

Source: See appendix A.

37 and 48 percent, respectively. Over the period as a whole, the output of animal products grew at a higher annual rate than output of crops in all countries except Hungary for 1970-75 and the GDR for 1975-79. However, in the 1970-75 period the output of animal products grew faster than in 1975-79 in most countries. In the last ten years, all the East European countries have put heavy emphasis on rapid increases in meat, eggs, and milk output in order to improve the quality of national diets.

The most spectacular rises in inputs from other sectors occurred in Hungary and Romania, with about three-fold increases, followed by Bulgaria, Poland, Yugoslavia, and the GDR with more than two-fold increases, and Czechoslovakia with only an 83 percent increase, from 1965 to 1979.

Since inputs are subtracted from output to get the gross and net products of agriculture, the higher cost increases in relation to increases in output are reflected in more sluggish rates of growth in gross and net product. In fact, the growth rates of gross and net product of agriculture were negative in Bulgaria and Czechoslovakia for the 1975-79 period. Romania, Yugoslavia, and to a lesser degree, Poland, however, performed quite well from 1975 to 1979. There was a better performance in the 1970-75 period for both gross and net products in most countries. The interrelationship of total output, inputs, and gross and net product, which can be readily followed country by country in Tables 2 and 3, seems to reveal a less efficient use of inputs in Bulgaria and Czechoslovakia in the 1975-79 period. In contrast, the incentives given to Hungarian farmers through a sharecropping system in the regions with specialized agriculture and favorable treatment of Yugoslav and Romanian private farmers brought favorable results in these countries during most of the period covered.

C. Changes in Structure of Output and Inputs

It may be useful to review the structural changes of East European agriculture over time. Such changes are shown in Table 4 in terms of percentages of output and may be summarized as follows: Since the share of animal products increased in all countries during the period, the efficiency of the transformation of intermediate products into animal products probably increased; but increased imports of feed in recent years⁷ also contributed to the relatively rapidly

ferences between our output measure and the official one are most probably attributable to: (a) Differences in concepts of output: the official crop output (*produkcja koncowa*) includes sales of grain to fodder mixers which is returned to farms for feeding. Our measure does not include these sales in output since they are intermediate product according to the FAO and ECE definition of output. (b) Differences in method of calculation: The official crop output includes changes in crop inventories, while in our measure of crop output no inventory changes are taken into account: the whole production from a given year is allocated to final uses in that year. (c) Differences in weights: the official measure was calculated in 1971 producer prices while our measure of crop output is calculated in 1970 producer prices. (d) Revision in feed balances: Our measure of crop output was substantially revised on the basis of newer data on balances for four major grains and potatoes as published in *RSR 1978*: these revisions apparently were not taken into account in the general statistical yearbooks. *RS 1976* and *RS 1977*. The considerations in (a) to (d) above should very largely explain the differences between our measure and the official one. Our measure of total output is in close agreement with the FAO measure of total output; see FAO, *Production Yearbook 1978*, p. 78. Our concept of output is essentially the same as the FAO and ECE concept; see Appendix B.

⁷U.S. Dept. of Agriculture, *Agricultural Situation: Eastern Europe, 1979*, pp. 7-9, and *The Feed-Livestock Economy of Eastern Europe: Prospects to 1980*, ERS Foreign Agricultural Economic Report No. 90, 1973, p. 99. See also Terhaar and Vankal contribution to this volume.

expanding output of animal products compared to that of crops. The share of animal products in total output in 1975-79 was from 57 to 72 percent in the more industrialized countries: Czechoslovakia, the GDR, Hungary and Poland, while in the developing countries of Southern Europe (Bulgaria, Yugoslavia and Romania), it was around one half, between 51 and 54 percent. In all the countries over time, the share of expenses and depreciation increased compared to the 1966-70 shares; correspondingly, the share of gross and net product declined.

The East European countries with centralized agriculture are almost as dependent on inputs from other sectors as Northwestern Europe. However, these greatly increased outside resources have brought no more favorable results for centralized agriculture in Eastern Europe than they have for privately operated agriculture in Western Europe.

TABLE 4.—PERCENTAGE DISTRIBUTION OF OUTPUT, EXPENSES AND DEPRECIATION, GROSS PRODUCT, AND NET PRODUCT IN AGRICULTURE

[Output of agriculture=100]

Area and period	Output of agriculture			Expenses and depreciation	Gross product	Net product
	Total	Crops	Animal products			
Bulgaria:						
1966-70	100	60	40	32	74	68
1971-75	100	54	46	36	72	64
1976-79	100	49	51	43	67	57
Czechoslovakia:						
1966-70	100	32	68	52	61	48
1971-75	100	27	73	59	54	41
1976-79	100	28	72	64	50	36
German Democratic Republic:						
1966-70	100	30	70	32	76	68
1971-75	100	28	72	40	70	60
1976-79	100	28	72	46	66	54
Hungary:						
1966-70	100	47	53	30	77	70
1971-75	100	45	55	42	67	58
1976-79	100	43	57	51	60	49
Poland:						
1966-70	100	36	64	32	74	68
1971-75	100	31	69	39	68	61
1976-79	100	32	68	46	62	54
Romania:						
1966-70	100	54	46	33	77	66
1971-75	100	48	52	47	66	53
1976-79	100	46	54	47	67	53
Yugoslavia:						
1966-70	100	54	46	15	89	85
1971-75	100	50	50	17	87	83
1976-79	100	47	53	20	84	80
Countries with centralized agriculture:						
1966-70	100	38	62	39	70	61
1971-75	100	34	66	46	65	54
1976-79	100	33	67	51	61	49
Countries with decentralized agriculture:						
1966-70	100	46	54	28	78	72
1971-75	100	41	59	37	71	63
1976-79	100	40	60	42	68	58
Total, Eastern Europe:						
1966-70	100	43	57	32	76	68
1971-75	100	39	61	40	69	60
1976-79	100	38	62	45	65	55

Sources: Output was calculated from physical quantities weighted by FAO East European and Soviet Union wheat-based price relatives for 1961-65. All other items were calculated from output and percentage distribution of these items given in national currencies (see appendix A).

D. Contribution of Individual Countries to the Total Output and Inputs of Eastern Europe

The relative importance of each country as a supplier of agricultural output is shown in Table 5. Bulgaria, the smallest country, supplied only about 7.6 percent of the agricultural output of Eastern Europe in 1976-79, and her importance as a supplier decreased from 1966-70 to 1976-79. In ascending order of importance came Czechoslovakia (10.9 percent), Hungary (11.7 percent), Yugoslavia, Romania, and the GDR (13.9 to 16.3 percent), and Poland, the largest supplier, accounting for 25.8 percent of the total output. The importance of Bulgaria, the GDR, and Poland has declined. The share of crops increased for Hungary and Romania from 1966-70 to 1976-79. The share of animal output increased for Hungary, Yugoslavia, and Romania and decreased for Czechoslovakia, the GDR, and Poland.

The share in total expenses increased for Hungary and Romania over time. The share of expenses for the countries with centralized agriculture declined from 1966-70 to 1976-79.

In terms of gross and net product, the share in the total for Eastern Europe of Bulgaria, Czechoslovakia, the GDR, and Poland decreased from 1966-70 to 1976-79. At the same time, the corresponding share of Yugoslavia and Romania increased. Hungary remained roughly the same.

IV. PER CAPITA TRENDS AND LEVELS OF OUTPUT

A. Per Capita Output

Trends in per capita output express better than absolute figures the quantitative improvement in the supply of agricultural products and changes in levels of self-sufficiency in domestically produced food. Tables 6 to 8 show the trends from 1965 to 1979 in agricultural output measures in relation to population for individual countries, groups of countries, and for Eastern Europe as a whole.

In general, the per capita trends are similar to the total performance measures except that the rates of change are slowed down by increases in population (Table 6). Because of rapid population growth in Poland, Romania, and Yugoslavia, the average annual rate of growth in agricultural output per capita for the decentralized group of countries slowed down appreciably from 1965 to 1979, while for the countries with centralized agriculture the overall rate of growth per capita slowed down to a lesser degree.

The behavior of output per capita for individual countries is summarized in Table 6. From 1965 to 1979 Hungary, Romania and Yugoslavia experienced the highest growth of per capita output, 60.2, 52.5, and 39.1 percent, respectively, followed by Czechoslovakia and the German Democratic Republic with over 37 percent growth for each, while Bulgaria and Poland had more modest increases of 24.9 and 22.6 percent, respectively. Bulgarian per capita annual rates were low because her population also grew rapidly, as did that of Poland, Romania, and Yugoslavia. In all countries, per capita output of animal products increased at a higher annual rate than that of crops, in line with the effort to improve protein content in national diets, particularly in the last ten years.

TABLE 5.—PERCENTAGE CONTRIBUTION OF INDIVIDUAL COUNTRIES TO OUTPUT, EXPENSES AND DEPRECIATION GROSS PRODUCT, AND NET PRODUCT IN AGRICULTURE
[Eastern Europe=100]

Country	Agricultural output			Crop output			Animal output			Expenses and depreciation			Gross product			Net product		
	1966-70	1971-75	1976-79	1966-70	1971-75	1976-79	1966-70	1971-75	1976-79	1966-70	1971-75	1976-79	1966-70	1971-75	1976-79	1966-70	1971-75	1976-79
Bulgaria.....	8.5	7.9	7.6	11.9	11.1	9.9	6.0	5.9	6.2	8.6	7.2	7.3	8.3	8.2	7.7	8.5	8.3	7.8
Czechoslovakia.....	10.9	11.0	10.9	8.0	7.8	8.0	13.1	13.1	12.6	17.8	16.4	15.6	8.7	8.5	8.3	7.6	7.4	7.1
German Democratic Republic.....	14.6	14.3	13.9	10.2	10.2	10.2	17.9	16.9	16.1	14.7	14.6	14.2	14.7	14.5	14.0	14.5	14.2	13.6
Hungary.....	10.8	11.4	11.7	11.8	13.2	13.3	10.0	10.3	10.7	10.3	12.0	13.2	10.9	11.0	10.8	11.0	11.0	10.4
Poland.....	27.4	27.0	25.8	23.2	21.8	21.6	30.5	30.2	28.4	27.4	26.6	26.5	26.9	26.6	24.6	27.3	27.4	25.2
Romania.....	14.1	14.8	16.3	17.6	18.4	19.6	11.5	12.6	14.2	14.9	17.4	17.0	14.3	14.2	16.6	13.8	13.1	15.7
Yugoslavia.....	13.8	13.5	13.9	17.3	17.5	17.3	11.1	11.0	11.9	6.3	5.8	6.1	16.2	17.0	18.0	17.3	18.6	20.2
Countries with centralized agriculture.....	34.0	33.3	32.3	30.0	29.1	28.1	37.0	35.9	34.9	41.2	39.2	37.1	31.7	31.2	30.0	30.6	23.9	28.4
Countries with decentralized agriculture.....	66.0	66.7	67.7	70.0	70.9	71.9	63.0	64.1	65.1	58.8	61.8	62.9	68.3	68.8	70.0	69.4	70.1	71.6
Total, Eastern Europe.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Sources: Output was calculated from physical quantities weighted by Eastern European and Soviet Union wheat-based price relatives for 1961-65 period. Expenses and depreciation, gross and net product were calculated from output and percentage distribution of these items given in national currencies (see appendix A).

TABLE 6.—PER CAPITA GROWTH OF AGRICULTURAL OUTPUT

	Indexes, 1965=100															Average annual rates of growth		
	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ¹	1965-70	1970-75	1975-79 ¹
Bulgaria:																		
Output.....	100	108.6	110.7	107.6	105.9	106.9	108.8	112.8	111.0	109.7	112.9	118.5	110.9	116.8	124.9	0.7	0.8	1.9
Crops.....	100	114.0	110.6	106.0	106.2	102.4	100.5	108.1	105.3	95.7	93.9	102.7	88.1	94.7	101.8	-4	-1.7	.8
Animal products.....	100	100.6	110.8	110.2	105.4	113.5	121.3	119.7	119.5	130.7	141.5	142.2	145.0	150.0	159.4	2.2	3.9	3.0
Czechoslovakia:																		
Output.....	100	108.5	109.5	111.5	111.4	119.8	118.2	123.8	124.8	132.4	134.4	130.7	140.2	141.7	137.5	2.9	2.7	1.3
Crops.....	100	120.5	114.8	116.3	109.3	116.4	101.1	107.8	112.9	119.1	126.6	113.5	133.3	131.1	118.2	1.4	2.8	.1
Animal products.....	100	103.3	107.2	109.5	112.3	121.3	125.8	130.8	135.4	138.3	138.0	138.3	143.2	146.5	146.1	3.6	2.8	1.7
German Democratic Republic:																		
Output.....	100	106.1	108.7	109.3	107.1	109.9	111.4	118.3	121.2	128.8	131.9	131.5	136.0	136.1	137.2	1.5	4.0	1.1
Crops.....	100	107.7	112.2	103.5	96.0	104.9	102.1	109.9	106.5	111.5	114.2	113.5	127.6	122.6	123.8	-5	1.9	2.4
Animal products.....	100	105.4	107.0	111.8	112.1	112.1	115.6	122.1	127.8	136.5	139.8	139.6	139.8	142.1	143.2	2.3	4.8	.7
Hungary:																		
Output.....	100	107.1	114.6	116.3	125.4	110.9	126.2	131.5	139.3	144.7	140.6	137.9	159.0	160.5	160.2	2.9	4.8	4.2
Crops.....	100	110.4	124.9	123.2	146.2	102.6	122.2	134.4	149.6	141.2	139.6	131.7	160.1	155.7	151.1	2.8	6.1	3.3
Animal products.....	100	104.5	106.5	110.7	108.8	117.6	129.5	129.2	131.1	147.5	141.5	142.9	158.2	164.2	167.5	2.8	3.9	4.9
Poland:																		
Output.....	100	106.9	108.3	107.1	105.8	104.7	105.3	112.0	119.4	121.9	119.6	115.9	118.1	123.7	122.6	.5	3.4	1.2
Crops.....	100	107.5	109.1	109.5	101.5	105.8	96.5	99.2	102.8	95.5	103.8	112.2	101.4	104.4	99.7	.3	-3	-1.5
Animal products.....	100	106.5	107.9	105.8	108.2	103.8	110.2	119.2	128.8	136.9	128.8	118.1	127.7	134.8	135.7	.6	5.3	2.4
Romania:																		
Output.....	100	114.1	118.1	112.5	112.0	101.5	115.2	125.3	132.1	127.3	132.2	150.8	148.3	148.9	152.5	-1	4.9	2.8
Crops.....	100	115.9	116.7	112.1	113.2	89.3	106.4	112.0	116.4	108.5	110.7	130.8	124.1	120.6	123.6	-1.9	3.4	1.4
Animal products.....	100	111.8	119.9	112.9	110.5	116.4	125.9	141.5	151.0	150.1	158.4	175.2	177.8	183.4	187.6	1.9	6.3	3.9
Yugoslavia:																		
Output.....	100	113.8	115.1	109.3	119.5	110.5	117.4	115.0	123.2	131.4	122.2	132.8	138.4	133.7	139.1	1.7	2.6	2.7
Crops.....	100	126.7	124.1	115.3	135.6	108.7	120.6	115.9	128.8	129.4	112.9	130.0	131.7	120.1	126.0	1.6	1.4	1.4
Animal products.....	100	100.9	105.9	103.2	103.3	112.4	114.1	114.1	119.5	133.5	131.7	135.6	145.1	147.5	152.5	1.8	3.8	3.8
Countries with centralized agriculture:																		
Output.....	100	107.8	109.8	109.9	108.4	112.6	113.2	119.0	121.3	125.3	128.1	128.1	131.0	133.2	134.3	1.8	2.8	1.3
Crops.....	100	113.8	112.6	108.2	104.1	107.5	102.0	109.7	108.7	107.9	110.1	110.1	114.0	114.5	114.4	.2	.8	1.2
Animal products.....	100	104.1	108.0	111.0	111.2	115.6	120.1	124.8	129.1	135.9	139.2	139.2	141.4	144.6	146.6	2.8	3.9	1.4
Countries with decentralized agriculture:																		
Output.....	100	109.7	112.7	109.9	112.8	106.0	112.9	118.2	125.7	128.2	125.7	129.9	134.6	136.3	137.6	1.0	3.8	2.3
Crops.....	100	114.5	116.9	113.6	119.4	101.8	108.8	110.9	119.1	113.7	113.1	124.1	123.2	120.0	119.7	.5	2.1	.8
Animal products.....	100	106.0	109.3	107.1	106.2	109.4	116.3	123.2	130.8	139.4	135.8	134.5	143.6	149.3	151.8	1.2	4.9	3.3
Total, Eastern Europe:																		
Output.....	100	109.0	111.5	109.9	111.3	108.0	112.8	118.3	124.0	127.0	126.3	129.1	133.1	135.1	136.2	1.2	3.4	2.0
Crops.....	100	114.2	115.5	111.9	114.7	103.5	106.6	111.2	115.0	112.0	112.3	120.0	124.6	118.5	118.2	.5	1.7	.9
Animal products.....	100	105.2	108.6	108.3	107.8	111.3	117.3	123.5	129.8	137.9	136.6	135.7	142.3	147.2	149.4	1.7	4.6	2.6

¹ Preliminary.

Sources: Data in table 2 divided by population data taken from statistical yearbooks of respective countries (see appendix A).

The trend in per capita inputs exhibited an ascending pattern similar to that of total inputs in all the countries under study. Gross and net product per capita, however, were declining in the first period in most countries, but they were increasing in the second and the third period in all countries except Bulgaria and Czechoslovakia from 1975 to 1979 (Table 7). It should be noted that in the German Democratic Republic the population has been declining since 1967, which favorably affected the per capita measures.⁸

B. Per Capita Levels of Output

Table 8 shows per capita comparisons of levels of output, and gross and net product in agriculture in relation to the East European level, for individual countries and groups of countries in selected periods. These findings show that the per capita level of agricultural output was lower in Czechoslovakia, Poland, Romania, and Yugoslavia than the average level for Eastern Europe, while Bulgaria, Hungary, and the German Democratic Republic were significantly above that level.

From 1966-70 to 1976-79, however, the levels of per capita agricultural output declined in Bulgaria and Poland in relation to Eastern Europe as a whole. Hungary improved its relative position greatly, followed by the German Democratic Republic and Romania. Hungary has been and is the highest per capita producer of agricultural output, followed by Bulgaria and the German Democratic Republic, while Yugoslavia has been the lowest. Again, Bulgaria and Hungary ranked highest in per capita output of crops, while the German Democratic Republic, Hungary, Poland, and Czechoslovakia excelled in per capita output of animal products. The lowest per capita levels of output of crops occurred in the German Democratic Republic, Czechoslovakia, and Poland, while Yugoslavia and Romania rank lowest in per capita output of animal products. The German Democratic Republic and Czechoslovakia have been large importers of grain in recent years. The levels of gross and net product per capita follow roughly the output pattern for individual countries. Hungary, Bulgaria, the German Democratic Republic, and Yugoslavia rank above the average, while Czechoslovakia, Poland, and Romania are below the average level of Eastern Europe as a whole.

The combined measures for country groups reveal that the relative levels of per capita output of animal products in the countries with centralized agriculture are higher, while these levels are lower in the countries with decentralized agriculture. The relative level of output and gross and net product, however, had a tendency to increase for the countries with decentralized agriculture on a per capita basis, in relation to Eastern Europe as a whole. The relative levels of crop output and gross and net product per capita are higher in decentralized than in centralized agriculture.

⁸ Germany (Democratic Republic). Staatliche Zentralverwaltung für Statistik. *Statistisches Jahrbuch der Deutschen Demokratischen Republik, 1979*, Berlin, 1979, p. 1.

TABLE 7.—PER CAPITA GROWTH OF GROSS AND NET PRODUCT IN AGRICULTURE

	Indexes, 1965=100														Average annual rates of growth			
	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ¹	1965-70	1970-75	1975-79 ¹
Bulgaria:																		
Gross product.....	100	106.4	106.8	98.0	97.4	98.4	95.7	103.7	104.4	96.0	106.3	110.8	92.0	95.6	98.4	-1.2	1.2	-3.0
Net product.....	100	106.7	106.9	96.5	95.4	95.7	92.3	100.2	100.5	90.9	101.2	104.7	85.1	87.8	89.5	-1.9	.7	-4.1
Czechoslovakia:																		
Gross product.....	100	111.7	115.8	120.4	115.5	106.9	109.7	112.8	116.0	118.4	116.9	108.9	123.5	116.7	108.6	1.4	2.0	-1.8
Net product.....	100	114.1	118.6	124.3	116.8	106.0	108.6	111.0	113.5	115.2	112.2	102.5	117.1	108.8	99.2	1.2	1.4	-1.8
German Democratic Republic:																		
Gross product.....	100	106.0	109.5	109.4	105.6	102.0	98.6	107.5	110.1	118.0	117.3	106.7	119.0	118.3	118.3	.2	3.7	1.2
Net product.....	100	105.9	109.3	108.8	103.9	99.1	94.7	102.0	104.6	111.9	109.6	97.2	109.4	107.9	107.1	-3.3	3.0	.6
Hungary:																		
Gross product.....	100	109.6	117.0	113.6	123.6	99.6	110.0	113.3	122.9	119.7	118.8	109.9	125.2	122.7	121.3	.9	3.5	1.5
Net product.....	100	110.9	118.0	113.6	123.6	97.0	106.8	109.9	118.5	113.3	111.6	98.9	113.8	109.8	106.5	.4	2.8	.1
Poland:																		
Gross product.....	100	112.1	110.7	108.1	89.8	93.0	100.0	104.6	107.5	105.2	94.7	94.9	93.9	99.8	98.4	-3.0	.8	1.3
Net product.....	100	112.4	110.7	108.2	87.7	90.7	97.7	102.4	105.1	102.1	90.3	90.0	88.6	94.2	92.0	-3.5	.4	.8
Romania:																		
Gross product.....	100	114.0	115.6	106.5	103.8	90.2	102.9	109.3	104.1	100.3	99.5	124.4	120.5	123.6	126.2	-2.5	1.0	4.8
Net product.....	100	115.4	116.7	105.7	101.4	85.4	96.4	102.3	96.3	91.9	90.6	115.0	109.9	112.7	114.7	-3.6	.3	4.6
Yugoslavia:																		
Gross product.....	100	113.6	116.3	111.4	121.6	111.2	117.8	113.2	120.7	125.2	120.8	128.4	134.4	125.5	130.6	2.0	1.9	1.3
Net product.....	100	113.6	116.3	111.4	121.6	111.2	117.6	113.0	120.6	124.9	120.6	128.0	134.0	125.0	130.0	2.0	1.9	1.3
Countries with centralized agriculture:																		
Gross product.....	100	107.9	110.7	109.4	106.1	102.7	101.0	108.2	110.4	112.0	114.2	108.4	112.3	111.3	109.9	.2	2.5	-5
Net product.....	100	108.2	111.0	109.0	104.6	100.1	97.5	103.9	105.7	106.5	107.7	100.6	103.7	101.9	99.7	-3	1.9	-1.4
Countries with decentralized agriculture:																		
Gross product.....	100	112.4	113.9	109.2	104.9	97.3	106.0	108.6	111.8	110.6	104.9	110.7	113.1	113.9	114.7	-1.1	1.5	2.1
Net product.....	100	113.0	114.3	109.1	103.7	95.2	103.3	105.8	108.7	106.8	100.4	105.1	107.0	107.2	107.3	-1.6	1.1	1.5
Total, Eastern Europe:																		
Gross product.....	100	110.8	112.7	109.2	105.2	98.8	104.3	108.4	111.3	110.9	107.8	110.0	112.8	113.1	113.2	-.7	1.9	1.3
Net product.....	100	111.4	113.1	109.1	104.0	96.6	101.4	105.2	107.8	106.7	102.6	103.8	106.1	105.8	105.2	-1.2	1.4	.7

¹ Preliminary.

Sources: Data in table 3 divided by population data taken from statistical yearbooks of respective countries (see appendix A).

TABLE 8.—PER CAPITA COMPARISONS OF LEVELS OF OUTPUT, AND GROSS AND NET PRODUCT IN AGRICULTURE

[Eastern Europe=100]

	Agricultural output			Crop output			Animal output			Gross product			Net product		
	1966-70	1971-75	1976-79 ¹	1966-70	1971-75	1976-79 ¹	1966-70	1971-75	1976-79 ¹	1966-70	1971-75	1976-79 ¹	1966-70	1971-75	1976-79 ¹
Bulgaria.....	124.0	115.3	111.6	172.9	161.9	145.7	87.3	85.8	90.9	121.6	120.1	113.7	123.2	121.7	114.6
Czechoslovakia.....	92.6	95.1	93.6	68.0	67.0	68.5	111.1	112.8	108.8	74.0	73.7	71.0	64.9	63.9	60.7
German Democratic Republic.....	104.1	106.3	107.2	72.6	75.6	79.2	127.8	125.7	124.2	104.7	107.2	108.6	103.8	105.0	105.3
Hungary.....	128.3	137.7	142.1	140.4	159.3	162.2	119.2	124.1	129.9	129.4	132.8	131.4	131.2	133.1	126.8
Poland.....	103.6	101.6	96.3	87.9	82.2	80.6	115.4	113.8	105.7	101.7	100.3	91.6	103.5	103.1	94.1
Romania.....	87.4	89.5	97.0	109.3	111.1	117.1	71.0	75.9	84.8	88.8	85.6	99.2	85.2	79.2	93.4
Yugoslavia.....	83.8	81.2	82.7	105.5	105.0	102.9	67.5	66.2	70.4	98.8	101.8	106.7	105.2	111.4	120.1
Countries with centralized agriculture.....	104.2	104.1	103.1	92.0	91.0	89.6	113.3	112.4	111.3	97.2	97.8	95.7	93.9	93.6	90.7
Countries with decentralized agriculture.....	98.0	98.1	98.6	103.8	104.2	104.7	93.6	94.2	94.9	101.3	101.0	101.9	103.0	103.0	104.2
Total, Eastern Europe.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹ Preliminary.

Sources: Calculated from physical quantities weighted by FAO Eastern European and Soviet Union wheat-based price relatives for 1961-65 period divided by population data (see appendix A).

V. PRODUCTIVITY OF LAND AND LIVESTOCK

A. Agricultural Land and Land Per Farm Worker

In most East European countries, the area of agricultural land⁹ remained relatively stable during the period under study. In Czechoslovakia, the German Democratic Republic, Hungary, Poland, and Yugoslavia, agricultural land declined from over 1 to over 4 percent, while in Bulgaria and Romania it increased by 1 to over 7 percent in the same period.¹⁰ Poland has close to 26 percent of the total agricultural land in Eastern Europe, followed by Romania and Yugoslavia with close to 19 to 20 percent each. The remaining four countries each held between over 8 to 9 percent of the total agricultural land in Eastern Europe (Table 16).

In comparison to the U.S. standard, the agricultural land per person employed in agriculture is very small in all the East European countries (Table 9). Because of the continuing rapid decline in agricultural employment in the last fifteen years, agricultural land per employed person in agriculture rose sharply in all countries except Poland. By 1979, the number of hectares per person employed in agriculture ranged from 3.5 in Poland to 7.5 in the German Democratic Republic, with 4.7 hectares the average for all Eastern Europe. The growth of agricultural land per person employed accelerated for the countries with centralized agriculture during the 1965-79 period, while for the countries with decentralized agriculture the rate of growth was slower in the same period. Poland actually experienced almost a 5 percent decline in land per person employed in agriculture in the last four years because agricultural employment increased (Table 15) while total agricultural land declined.

B. Growth of Output and Inputs Per Unit of Land

In this section we summarize our findings on output and input measures per hectare of agricultural land. As a result of the relative

TABLE 9.—AGRICULTURAL LAND PER PERSON EMPLOYED IN AGRICULTURE

	Hectares per person employed				Indexes, ¹ 1965=100			
	1965	1970	1975	1979 ²	1965	1970	1975	1979 ²
Bulgaria.....	3.27	4.11	5.01	6.04	100	125.7	153.2	184.7
Czechoslovakia.....	5.67	6.00	6.67	7.16	100	105.8	117.6	126.3
German Democratic Republic.....	5.62	6.58	7.39	7.52	100	117.1	131.5	133.8
Hungary.....	5.54	5.83	6.61	6.81	100	105.2	119.3	122.9
Poland.....	3.71	3.74	3.68	3.51	100	100.8	99.2	94.6
Romania.....	2.70	3.08	3.90	4.72	100	114.1	144.4	174.8
Yugoslavia.....	3.40	3.73	4.07	4.35	100	109.7	119.7	127.9
Countries with centralized agriculture.....	4.64	5.38	6.23	6.86	100	115.9	134.3	147.8
Countries with decentralized agriculture.....	3.43	3.69	4.05	4.27	100	107.6	118.1	124.5
Total, Eastern Europe...	3.67	4.01	4.46	4.74	100	109.3	121.5	129.2

¹ Indexes are calculated from unrounded data.

² Preliminary.

Source: See appendix A.

⁹ Agricultural land comprises all arable land, including orchards, gardens, vineyards, and temporary meadows, pasture, and grazing lands.
¹⁰ Statistical Yearbook for Economic Mutual Assistance. Secretariat. *Statisticheski Eshegodnik* 1979, Moscow, 1979, pp. 226-227, and national statistical yearbooks.

stability of the area in agricultural land, the output and input measures per unit of land followed the same general trends during the period under review as the total performance measures given in Tables 2 and 3.

Tables 10 and 11 show the trends of various measures of production and expenses per hectare of agricultural land by country, group of countries, and region. In general, the productivity of land increased in all the countries. However, the economically less developed countries except Bulgaria had the larger annual rates of increase because their production per unit of land was low in the earlier postwar years. In all countries the average annual rate of growth of output of animal products per unit of land exceeded that of output of crops except in Hungary for 1970-75 and the German Democratic Republic for 1975-79. During the whole period, the countries with decentralized agriculture experienced a higher annual rate of growth of output per unit of land than the countries with centralized agriculture (Table 10).

Current operating expenses per unit of land increased from 1965 to 1979 most in Hungary (3.2 times), followed by Romania (2.8 times), Poland (2.3 times), Yugoslavia and Bulgaria (2.2 times), the German Democratic Republic (over 2 times), and Czechoslovakia (1.9 times). Over the whole period the growth of expenses per unit of land was higher in the countries with decentralized agriculture than in the countries with centralized agriculture (Table 11). For 1975-79, however, the annual rate of growth was higher for the latter group.

From 1965 to 1979, gross and net product per unit of land increased fastest in Yugoslavia (54 percent for both measures), followed by Romania (45 and 31 percent, respectively), Hungary (33 and 17 percent), Czechoslovakia (21 and 10 percent), the German Democratic Republic (18 and 7 percent), and Poland (14 and 6 percent); Bulgaria had an absolute decline in gross and net product per unit of land. The rates were higher for all countries in the 1970-75 period than in 1965-70 and 1975-79. The countries with decentralized agriculture had higher rates of growth in gross and net product per unit of land from 1970 to 1979 than the countries with centralized agriculture.

C. Comparison of Levels of Output and Inputs Per Unit of Land

Relative levels of productivity of land in relation to the East European average as a base are shown in Table 12. Over the postwar period the differences among countries in productivity of land have been reduced, but in 1976-79 they were still very large, and they were greater in the output of animal products than in that of crops. In 1976-79, for example, the German Democratic Republic produced roughly three times as much animal products per hectare as either Romania or Yugoslavia. In the countries with centralized agriculture, productivity of land in terms of crop output had been about 24 percent higher than in countries with decentralized agriculture in 1966-70, but this difference was reduced to about 11 percent by 1976-79. Levels of animal output were substantially higher in the centralized group.

TABLE 10.—GROWTH OF AGRICULTURAL OUTPUT PER HECTARE OF AGRICULTURAL LAND

	Indexes, 1965=100																	Average annual rates of growth		
	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ¹	1965-70	1970-75	1975-79 ¹		
Bulgaria:																				
Output.....	100	109.2	110.8	108.3	104.7	105.7	109.3	113.5	113.0	110.5	116.7	118.3	111.2	117.1	125.1	0.4	1.5	1.3		
Crops.....	100	114.6	110.7	106.6	105.0	101.3	100.8	108.8	107.2	96.4	97.1	102.5	88.3	94.9	102.0	-1.0	-1.0	2.2		
Animal products.....	100	101.1	110.9	110.8	104.3	112.3	121.8	120.4	121.6	132.1	146.3	142.0	145.4	150.2	159.7	1.9	4.6	2.3		
Czechoslovakia:																				
Output.....	100	119.5	111.0	113.8	114.3	122.3	121.7	128.0	130.1	139.5	143.7	141.2	152.9	156.0	152.9	2.6	3.6	2.3		
Crops.....	100	121.5	116.4	118.6	112.2	118.9	104.0	111.5	117.7	125.5	135.3	122.5	145.4	144.3	131.4	1.9	3.7	1.4		
Animal products.....	100	104.2	108.7	111.7	115.2	123.9	129.5	135.3	141.2	145.7	147.4	149.4	156.2	161.3	162.4	4.1	3.7	2.7		
German Democratic Republic:																				
Output.....	100	106.6	109.6	110.5	108.4	111.3	112.8	119.7	122.3	129.4	131.9	131.0	135.5	135.5	136.8	1.7	3.7	1.1		
Crops.....	100	108.2	113.3	104.6	97.2	106.3	103.4	111.2	107.5	112.0	114.2	113.0	127.1	122.1	123.4	-1.6	1.6	2.4		
Animal products.....	100	105.9	107.9	113.0	113.4	113.5	117.1	123.6	128.9	137.2	139.8	139.0	139.2	141.5	142.8	2.6	4.6	6.6		
Hungary:																				
Output.....	100	107.8	116.1	118.4	128.5	114.3	130.8	136.9	145.7	153.3	150.0	148.1	172.3	175.5	175.9	3.5	5.6	5.0		
Crops.....	100	111.1	126.6	125.5	149.7	105.7	126.7	139.9	156.5	149.6	148.9	141.5	173.4	170.3	165.9	3.4	6.9	4.1		
Animal products.....	100	105.2	107.8	112.7	111.4	121.1	134.2	134.4	137.1	156.3	150.9	153.5	171.4	179.5	183.9	3.4	4.6	5.7		
Poland:																				
Output.....	100	107.6	110.0	110.2	109.8	108.7	110.5	119.3	128.5	132.9	132.1	129.7	133.7	141.4	141.6	1.4	4.7	2.3		
Crops.....	100	108.2	110.8	112.6	105.4	109.8	101.3	105.7	110.7	104.2	114.6	125.5	114.8	119.4	115.2	1.2	1.0	-1.4		
Animal products.....	100	107.2	109.6	108.8	112.3	107.7	115.6	127.0	138.6	149.3	142.2	132.2	144.6	154.1	156.7	1.4	6.6	3.5		
Romania:																				
Output.....	100	114.5	119.4	115.1	116.4	107.0	122.8	134.8	143.5	139.4	146.2	168.2	167.0	169.1	174.7	1.0	5.9	3.7		
Crops.....	100	116.3	117.9	114.7	117.7	94.2	113.2	120.4	126.5	118.8	122.4	145.8	139.7	137.0	141.6	-1.8	4.4	2.3		
Animal products.....	100	112.2	121.2	115.6	114.8	122.8	134.2	152.2	164.0	164.4	175.1	195.4	200.1	208.2	214.8	3.0	7.3	4.8		
Yugoslavia:																				
Output.....	100	115.1	117.5	113.5	125.0	116.6	126.1	124.9	135.5	146.0	137.3	151.5	159.8	156.3	164.5	2.8	3.9	4.0		
Crops.....	100	128.1	126.7	119.7	141.9	114.7	129.5	125.9	139.5	143.8	126.9	148.3	153.1	140.3	149.0	2.7	2.7	2.7		
Animal products.....	100	102.0	108.1	107.2	108.0	118.6	122.5	124.0	131.4	148.4	148.0	154.7	167.5	172.4	180.4	2.9	5.1	5.2		
Countries with centralized agriculture:																				
Output.....	100	109.1	110.2	110.8	108.9	113.2	114.4	120.3	123.3	127.1	131.4	130.2	133.8	136.3	138.1	1.8	3.2	1.5		
Crops.....	100	115.2	113.1	109.1	104.6	108.2	103.0	110.9	110.4	109.5	112.9	112.0	116.5	117.3	117.6	2.2	1.1	1.3		
Animal products.....	100	105.4	108.4	111.9	111.7	118.3	121.3	126.2	131.2	138.0	142.8	141.5	144.4	148.1	150.7	3.0	4.0	1.5		
Countries with decentralized agriculture:																				
Output.....	100	110.5	114.4	113.0	117.1	110.7	119.3	126.3	135.7	140.0	138.7	144.9	151.8	155.3	158.4	1.9	4.9	3.4		
Crops.....	100	115.3	118.7	116.8	123.9	106.3	114.9	119.6	128.6	124.2	124.8	138.5	139.0	136.7	137.9	1.5	3.2	1.9		
Animal products.....	100	106.7	110.9	110.1	110.2	114.2	122.8	131.7	141.2	152.3	149.9	150.1	162.0	170.2	174.8	2.2	6.1	4.4		
Total, Eastern Europe:																				
Output.....	100	109.7	113.0	112.3	114.4	111.7	117.7	124.3	131.5	135.7	136.3	140.2	145.8	149.0	151.6	1.9	4.3	2.8		
Crops.....	100	114.9	117.0	114.4	117.9	107.0	111.2	116.9	123.0	119.7	121.1	130.3	132.0	130.7	131.6	1.1	2.6	1.7		
Animal products.....	100	105.8	110.0	110.7	110.8	115.1	122.4	129.8	137.7	147.4	147.4	147.4	155.8	162.4	166.2	2.5	5.4	3.4		

¹ Preliminary.

Sources: Data in table 2 were divided by acreage of agricultural land taken from statistical yearbooks of respective countries (see appendix A).

TABLE 11.—GROWTH OF OPERATING EXPENSES INCLUDING DEPRECIATION, GROSS AND NET PRODUCT PER HECTARE OF AGRICULTURAL LAND

	Indexes, 1965=100																	Average annual rates of growth		
	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ¹	1965-70	1970-75	1975-79 ¹		
Bulgaria:																				
Expenses.....	100	114.6	120.8	138.6	132.6	135.6	153.8	147.4	141.8	161.7	149.3	155.6	180.9	195.2	220.4					
Gross product.....	100	106.9	106.9	98.6	96.3	97.3	96.3	104.3	106.2	96.7	109.9	110.6	92.2	95.8	98.6					
Net product.....	100	107.2	107.0	97.0	94.3	94.7	92.7	100.8	102.2	91.5	104.7	104.5	85.3	88.0	89.7	6.2	1.7	10.6		
Czechoslovakia:																				
Expenses.....	100	104.7	103.2	102.6	109.5	134.4	130.2	139.5	147.4	155.0	164.2	167.3	174.3	187.2	189.5	-1.5	1.8	-3.5		
Gross product.....	100	112.7	117.5	122.8	118.5	109.2	113.0	116.7	121.0	124.8	124.9	117.6	134.7	128.4	120.7	-2.1	1.4	-4.7		
Net product.....	100	115.1	120.3	126.8	119.8	108.3	111.7	114.8	118.4	121.4	119.8	110.7	127.7	119.8	110.2	4.7	4.6	4.1		
German Democratic Republic:																				
Expenses.....	100	107.1	108.0	111.4	115.7	136.2	151.8	157.4	160.8	168.5	183.2	209.6	196.4	199.8	205.7	1.8	2.9	.2		
Gross product.....	100	106.5	110.5	110.6	106.9	103.3	99.9	108.8	111.1	118.6	117.3	106.3	118.5	117.8	117.8	1.6	2.3	-0.9		
Net product.....	100	106.4	110.3	110.0	105.1	101.0	96.0	103.2	105.6	112.4	109.6	96.8	109.0	107.5	106.8	5.3	5.3	1.9		
Hungary:																				
Expenses.....	100	98.4	107.7	124.9	132.8	149.5	180.2	192.2	199.1	235.0	225.9	250.8	292.4	310.4	320.6	0	2.6	.5		
Gross product.....	100	110.3	118.5	115.7	126.6	102.6	114.0	117.9	128.5	126.9	126.7	118.0	135.6	134.2	133.2	9.1	8.6	9.6		
Net product.....	100	111.6	119.5	115.7	126.6	99.9	110.8	114.3	123.9	120.1	119.1	106.3	123.3	120.0	116.9	1.5	4.3	2.3		
Poland:																				
Expenses.....	100	93.8	103.9	107.5	156.1	144.8	130.0	144.5	166.3	185.9	227.0	201.6	216.3	224.7	229.1	1.0	3.5	.8		
Gross product.....	100	112.9	112.5	111.2	93.3	96.6	104.9	111.4	115.6	114.8	104.6	106.2	106.4	114.2	113.6	10.2	10.4	1.3		
Net product.....	100	113.2	112.5	111.3	91.1	94.2	102.5	109.0	113.1	111.4	99.7	100.7	100.3	107.7	106.2	-2.1	2.0	2.4		
Romania:																				
Expenses.....	100	111.2	123.0	131.8	143.0	148.1	171.3	194.7	237.2	233.1	257.5	264.9	271.4	268.6	279.5	-2.7	1.6	2.0		
Gross product.....	100	114.4	116.8	109.0	107.9	95.1	109.6	117.5	113.1	109.8	110.0	138.7	135.6	140.3	144.6	8.3	11.7	1.8		
Net product.....	100	115.8	117.9	108.2	105.4	90.1	102.7	110.0	104.7	100.7	100.2	128.2	123.7	128.0	131.3	-1.4	2.0	5.7		
Yugoslavia:																				
Expenses.....	100	116.9	110.7	101.5	113.4	112.9	124.6	136.7	150.9	185.8	146.9	181.0	187.2	212.5	223.9	-2.5	1.2	5.5		
Gross product.....	100	114.8	118.7	115.7	127.3	117.3	126.6	123.0	132.8	139.1	135.8	146.5	155.2	146.6	154.5	1.2	7.8	10.6		
Net product.....	100	114.8	118.7	115.7	127.3	117.3	126.3	122.8	132.7	138.8	135.6	146.0	154.7	146.0	153.7	3.1	3.2	2.6		
Countries with centralized agriculture:																				
Expenses.....	100	108.3	108.0	112.3	115.5	134.8	141.6	146.5	150.3	159.8	167.2	178.2	181.5	191.2	199.1	3.1	3.2	2.5		
Gross product.....	100	109.2	111.2	110.3	106.7	103.3	102.0	109.4	112.2	113.7	117.2	110.2	114.8	114.0	112.9	5.1	4.3	4.3		
Net product.....	100	109.5	111.5	109.9	105.2	100.7	98.5	105.1	107.4	108.1	110.5	102.3	106.0	104.4	102.5	.2	2.8	-4		
Countries with decentralized agriculture:																				
Expenses.....	100	101.3	109.7	115.5	143.8	142.5	147.9	163.7	187.0	205.7	223.4	222.7	239.1	248.5	256.3	-3	2.2	-1.3		
Gross product.....	100	113.2	115.6	112.3	108.9	101.6	112.0	116.0	120.7	120.8	115.7	123.6	127.6	129.8	132.0	8.6	10.1	3.9		
Net product.....	100	113.8	116.0	112.2	107.6	99.4	109.1	113.0	117.4	116.6	110.8	117.3	120.8	122.1	123.5	-2	2.7	3.2		
Total Eastern Europe:																				
Expenses.....	100	103.8	109.0	114.1	131.9	139.4	145.4	156.7	171.7	186.6	199.7	204.4	215.1	224.7	232.6	-7	2.3	2.6		
Gross product.....	100	111.5	114.2	111.6	108.2	102.2	108.8	114.0	118.0	118.6	116.3	119.5	123.6	124.8	126.0	7.2	7.8	4.1		
Net product.....	100	112.1	114.6	111.5	106.9	99.9	105.8	110.6	114.3	114.0	110.7	112.7	116.2	116.7	117.1	0	2.7	2.1		

¹ Preliminary.

Sources: Data in table 3 divided by acreage of agricultural land taken from statistical yearbooks of respective countries (see appendix A).

TABLE 12.—COMPARISONS OF LEVELS OF OUTPUT, EXPENSES INCLUDING DEPRECIATION, GROSS AND NET PRODUCT PER HECTARE OF AGRICULTURAL LAND IN AGRICULTURE
 (Total Eastern Europe=100)

	Agricultural output			Crop output			Animal output			Expenses including depreciation			Gross product			Net product		
	1966-70	1971-75	1976-79 ¹	1966-70	1971-75	1976-79 ¹	1966-70	1971-75	1976-79 ¹	1966-70	1971-75	1976-79 ¹	1966-70	1971-75	1976-79 ¹	1966-70	1971-75	1976-79 ¹
Bulgaria.....	108.6	98.5	90.8	151.4	138.4	118.6	76.4	73.4	74.0	110.2	89.8	87.8	105.5	102.7	92.6	107.9	104.0	93.3
Czechoslovakia.....	115.4	117.1	116.5	84.7	82.6	85.3	138.5	138.9	135.4	189.2	174.8	167.2	92.3	90.8	83.4	80.8	78.8	75.5
German Democratic Republic.....	174.3	170.9	164.4	121.6	121.5	121.4	213.9	202.0	190.4	175.4	173.5	168.0	175.3	172.3	165.5	173.7	168.7	161.1
Hungary.....	118.0	125.7	129.6	129.1	145.4	147.9	109.7	113.3	118.5	112.4	131.6	146.9	119.0	121.2	119.9	120.7	121.4	115.6
Poland.....	105.5	104.5	100.9	89.5	84.6	84.5	117.5	117.1	110.8	105.6	103.3	103.7	103.5	103.2	96.1	105.4	106.1	98.6
Romania.....	71.4	74.5	81.0	89.3	92.5	97.8	58.0	63.1	70.9	75.3	87.2	84.7	72.6	71.2	82.9	69.6	65.9	78.0
Yugoslavia.....	70.5	69.8	72.5	88.7	90.2	90.2	56.8	56.9	61.7	32.2	30.1	31.9	83.0	87.5	93.5	88.3	95.8	105.3
Countries with centralized agriculture.....	132.5	128.8	123.8	117.1	112.6	107.6	144.2	139.1	133.6	160.6	148.0	142.1	123.7	121.0	115.0	119.4	115.8	109.0
Countries with decentralized agriculture.....	88.8	90.0	91.6	94.1	95.6	97.3	84.8	86.4	88.1	79.1	83.3	85.1	91.8	92.7	94.7	93.3	94.5	96.8
Total, Eastern Europe.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹ Preliminary.

Sources: Calculated from physical quantities weighted by FAO Eastern European and Soviet Union wheat-based price relatives for 1961-65 divided by hectares of agricultural land (see appendix A).

There have been even larger differences in inputs per hectare among East European countries. Czechoslovakia's and the German Democratic Republic's levels were over 5 times as large as Yugoslavia's in 1976-79. The use of non-agricultural inputs per unit of land in the countries with centralized agriculture exceeded by 67 percent that in the countries with decentralized agriculture in the 1976-79 period, but the difference was 103 percent in the 1965-70 period.

Differences in levels of gross and net product per hectare among countries of Eastern Europe were smaller than those of inputs. The net product per hectare of land in the countries with centralized agriculture exceeded that in the countries with decentralized agriculture by 28 percent in the 1966-70 period, and by less than 13 percent in 1976-79. The level of Romanian gross and net product per unit of land remained the lowest among the East European countries over the most of the period under study.

D. Yields of Selected Crops Per Hectare

Table 13 provides a more specific view of comparative levels and trends in productivity of land among various East European countries. It shows yields per hectare for selected crops: wheat, rye, potatoes, and sugar beets. In the 1950's the yields in all the East European countries, except the German Democratic Republic and Czechoslovakia, were substantially below those in the Federal Republic of Germany. In Bulgaria, Romania, and Yugoslavia the average yields were one half or less than half of those of the German Federal Republic. It should be noted that the natural fertility of German land is not better than that of Eastern Europe; much of the land in the Danubian Plains is of superior quality. In the last 20 years an effort has been made to improve the productivity of land, and in most of the East European countries yields have increased substantially. In all the countries, the yields of wheat improved the most, and by 1977-79, the differences in yields between East European countries and the Federal Republic of Germany became much smaller. The rates of improvement in rye, potatoes, and sugar beets were less uniform among the East European countries; Czechoslovakia, Hungary, and Romania showed most rapid progress in yields of wheat, rye, and potatoes: the progress in yields of sugar beets was irregular. Overall the yields were still below those of the Federal Republic of Germany in 1976-79.

E. Yields Per Livestock Unit

Throughout the postwar period, the yields of meat per pig were increasing steadily from low levels. In the periods from 1965-67 to 1977-79 these yields increased in all countries by between 8 and 25 percent (Table 14).

In the 1950's, milk yields per cow were very low in Bulgaria, Romania and Yugoslavia, but they have since increased substantially. The countries with higher milk yields, i.e., Czechoslovakia, the German Democratic Republic, Hungary and Poland achieved the highest increases among the East European countries from 1965-67 to 1977-79.

TABLE 13.—YIELDS PER HECTARE OF AGRICULTURAL LAND FOR WHEAT, RYE, POTATOES, AND SUGAR BEETS, PER YEAR

	Quintals per hectare			Indexes of yields per hectare, 1965-67=100		
	1965-67	1974-76	1977-79 ¹	1965-67	1974-76	1977-79 ¹
Wheat:						
Bulgaria	28.0	36.2	39.6	100	129	141
Czechoslovakia	25.5	37.1	40.3	100	145	158
German Democratic Republic	35.3	39.7	40.6	100	112	115
Hungary	23.1	36.1	38.7	100	156	168
Poland	21.5	30.0	30.2	100	140	140
Romania	18.9	21.7	27.4	100	115	145
Yugoslavia	23.8	32.0	32.6	100	134	137
Federal Republic of Germany	34.8	46.1	46.5	100	132	134
Rye:						
Bulgaria	12.2	13.9	12.1	100	114	99
Czechoslovakia	20.5	28.9	31.2	100	141	152
German Democratic Republic	23.7	27.0	26.4	100	114	111
Hungary	11.3	14.9	17.2	100	132	152
Poland	18.0	23.8	21.9	100	132	122
Romania	11.5	12.3	12.6	100	107	110
Yugoslavia	11.8	12.6	13.3	100	107	113
Federal Republic of Germany	28.0	35.1	35.8	100	125	128
Potatoes:						
Bulgaria	105.5	110.1	111.5	100	104	106
Czechoslovakia	122.3	142.0	171.5	100	116	140
German Democratic Republic	189.0	152.8	173.9	100	81	92
Hungary	94.8	119.0	144.2	100	126	152
Poland	166.3	184.8	192.1	100	111	116
Romania	93.1	130.0	152.2	100	140	163
Yugoslavia	84.0	101.0	92.2	100	120	110
Federal Republic of Germany	263.2	286.2	297.0	100	109	113
Sugar beets:						
Bulgaria	317.5	295.1	278.4	100	93	88
Czechoslovakia	326.0	346.0	340.0	100	106	104
German Democratic Republic	303.1	241.8	289.6	100	80	96
Hungary	312.3	323.9	335.0	100	104	107
Poland	310.0	303.0	301.0	100	98	97
Romania	204.9	234.8	237.0	100	115	116
Yugoslavia	357.3	411.0	418.0	100	115	117
Federal Republic of Germany	418.7	430.0	476.0	100	103	114

¹ Data for 1979 are preliminary.

Sources: Calculated from FAO yearbooks and statistical yearbooks of respective countries.

Yields of eggs per hen increased by between 31 to 71 percent in Bulgaria, Hungary, the German Democratic Republic, Poland, Czechoslovakia, Romania, and Yugoslavia, in ascending order, from 1965-67 to 1977-79. As of 1977-79, the yields per livestock unit remained lower in all East European countries than in the Federal Republic of Germany. The differences in yields, however, have been reduced greatly among countries in recent years.

VI. PRODUCTIVITY OF LABOR IN AGRICULTURE

A. Decline in Agricultural Labor Force

Labor data used in this study are mostly in terms of the full-time employment equivalents in agriculture, which includes farmers, their wives working in agriculture, helping family members, and hired labor. The quality of agricultural labor statistics varies from country to country. The German Democratic Republic's, Czechoslovak, Hungarian, and Polish labor data are homogeneous, while those for the other East European countries are less standardized, and consequently the quality of labor units is less homogeneous.

TABLE 14.—YIELDS PER HEAD OF LIVESTOCK FOR MEAT, MILK, AND EGGS

[Per year]

	Yields per head of livestock			Indexes of yields per head of livestock 1965-67=100		
	1965-67	1964-76	1977-79 ¹	1965-67	1974-76	1977-79 ¹
Meat per pig in kilograms of live weight:						
Bulgaria.....	113	122	125	100	108	111
Czechoslovakia.....	116	130	134	100	112	116
German Democratic Republic.....	112	122	121	100	109	108
Hungary.....	120	138	141	100	115	118
Poland.....	92	109	115	100	118	125
Romania.....	92	110	112	100	120	122
Yugoslavia.....	110	126	125	100	115	114
Federal Republic of Germany.....	160	188	180	100	118	112
Milk per cow in liters:						
Bulgaria.....	1,864	2,309	2,275	100	124	122
Czechoslovakia.....	2,069	2,807	2,926	100	136	141
German Democratic Republic.....	3,079	3,801	3,811	100	123	124
Hungary.....	2,328	2,675	3,010	100	115	129
Poland.....	2,257	2,605	2,913	100	115	129
Romania.....	1,621	1,768	1,970	100	109	122
Yugoslavia.....	1,196	1,362	1,460	100	114	122
Federal Republic of Germany.....	3,666	4,000	4,300	100	109	117
Eggs per hen in numbers:						
Bulgaria.....	99	122	130	100	123	131
Czechoslovakia.....	150	215	225	100	143	150
German Democratic Republic.....	148	195	200	100	132	135
Hungary.....	97	120	130	100	124	134
Poland.....	96	125	132	100	130	138
Romania.....	91	139	151	100	153	166
Yugoslavia.....	76	114	130	100	150	171
Federal Republic of Germany.....	202	279	298	100	138	148

¹ Data for 1979 are preliminary.

Sources: Calculated from FAO yearbooks and statistical yearbooks of respective countries.

In all of the East European countries except Poland, the labor force in agriculture continued to decline substantially from 1965 to 1979. The percentage declines for different countries are given in Table 15.

Bulgaria and Romania had the largest exodus of labor from agriculture (about 42 percent); followed by the German Democratic Republic, Yugoslavia, Czechoslovakia, and Hungary (about one-fourth decline, more or less), while Poland experienced first a slight decline and then a slight increase in between 1965 and 1979. In the last decade, the largest decrease occurred in Romania, Bulgaria, Czechoslovakia, Yugoslavia, the German Democratic Republic, and Hungary.

Table 16 shows the percentage distribution of agricultural labor. The Polish agricultural labor force in 1979 accounted for over 33 percent and the Romanian and Yugoslav for 21 percent each, of the total East European agricultural labor force. The remaining four countries together account for only about one-fourth of the total.

B. Growth of Output and Inputs Per Worker

As a result of the decline in the agricultural labor force, a consequence of continuing industrialization, the productivity of labor in agriculture increased sharply over the postwar period. Tables 17 to 19 summarize trends in the labor productivity by country, groups of countries, and region from 1965 to 1979.

TABLE 15.—EMPLOYMENT IN AGRICULTURE

	Indexes, 1965=100													Average annual rates of change				
	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ¹	1965-70	1970-75	1975-79 ¹
Bulgaria.....	100	96.8	95.3	90.7	86.1	82.5	79.1	77.3	74.8	71.8	67.1	64.1	61.9	60.1	58.2	-3.8	-3.8	-3.4
Czechoslovakia.....	100	99.6	97.2	95.6	94.5	93.7	92.5	86.9	84.5	83.8	83.2	81.5	79.7	78.2	76.7	-1.4	-2.6	-2.0
German Democratic Republic.....	100	97.3	95.5	90.6	87.1	84.5	82.2	78.9	77.3	76.0	75.3	73.9	73.4	73.7	73.7	-3.4	-2.3	-1.5
Hungary.....	100	98.9	97.8	97.0	95.6	93.2	91.2	88.9	85.8	83.0	80.9	78.8	77.6	77.3	77.3	-1.3	-2.9	-1.1
Poland.....	100	99.7	99.2	98.9	98.8	98.5	98.3	98.1	97.8	98.4	98.9	99.1	100.5	101.3	102.2	-.3	-.1	.9
Romania.....	100	98.9	96.6	95.5	92.0	88.6	84.0	80.0	76.8	73.3	70.1	66.5	64.5	61.1	57.9	-2.4	-4.4	-4.6
Yugoslavia.....	100	98.1	96.2	94.3	92.4	90.4	88.5	86.8	85.0	83.3	81.6	80.0	78.4	76.9	75.3	-2.0	-2.0	-2.0
Countries with centralized agri- culture.....	100	97.8	95.9	92.2	88.9	86.5	84.0	80.6	78.4	76.6	74.2	72.0	70.4	69.3	68.0	-3.0	-3.0	-2.1
Countries with decentralized agri- culture.....	100	98.9	97.4	96.4	94.6	92.6	90.4	88.3	86.5	84.8	83.3	81.6	80.8	79.5	78.5	-1.5	-2.1	-1.4
Total, Eastern Europe.....	100	98.7	97.1	95.5	93.4	91.4	89.1	86.8	84.8	83.1	81.5	79.6	78.7	77.4	76.3	-1.8	-2.3	-1.6

¹ Preliminary.

Sources: See appendix A.

TABLE 16.—PERCENTAGE DISTRIBUTION OF AGRICULTURAL EMPLOYMENT, AGRICULTURAL LAND, AND TOTAL POPULATION¹

[Eastern Europe=100]

	Agricultural employment			Agricultural land			Total population		
	1966-70	1971-75	1976-79 ²	1966-70	1971-75	1976-79 ²	1966-70	1971-75	1976-79 ²
Bulgaria.....	8.1	7.5	6.7	7.8	8.0	8.3	6.9	6.8	6.8
Czechoslovakia.....	6.2	6.2	6.2	9.4	9.4	9.3	11.8	11.6	11.6
German Democratic Republic.....	5.3	5.0	5.2	8.4	8.4	8.4	14.0	13.5	12.9
Hungary.....	6.2	6.3	6.1	9.1	9.1	9.0	8.4	8.3	8.2
Poland.....	26.8	29.8	33.3	26.0	25.8	25.6	26.4	26.5	26.8
Romania.....	26.4	24.0	21.3	19.8	19.9	20.1	16.1	16.6	16.8
Yugoslavia.....	21.0	21.2	21.1	19.5	19.4	19.2	16.4	16.7	16.9
Countries with centralized agriculture.....	19.6	18.7	18.2	25.6	25.8	26.1	32.6	31.9	31.3
Countries with decentralized agriculture.....	80.4	81.3	81.8	74.4	74.2	73.9	67.4	68.1	68.7
Total, Eastern Europe.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹ Percentages may not add up to total due to rounding.² Preliminary.

Sources: See appendix A.

Obviously, countries with the largest declines in labor force experienced the largest increases in labor productivity, provided that total output was not lagging. Romania, Bulgaria, Hungary, Yugoslavia and Czechoslovakia had the largest increases in output per unit of labor during this period (between 2 and 3 times); they were followed by the GDR and Poland with increases of 65 and 34 percent, respectively. From 1970 to 1979, the average annual compound rates of increase were higher for the countries with decentralized agriculture than for those with centralized agriculture; the agricultural labor force declined at a faster rate in the former group than in the latter. In Eastern Europe as a whole agricultural output per unit of labor increased by 6.5 percent annually for the 1970-75 period and 4.3 percent annually for 1975-79. During 1970-75, except for Bulgaria the growth of output per unit of labor was higher for all countries than in the 1965-70 and 1975-79 periods.

The increases in inputs per worker in agriculture were very impressive in all countries. The most dramatic increase occurred in Romania, with about 4.9-fold rise over the 1965-79 time span. In descending order, other increases were Bulgaria and Hungary (4-fold), Yugoslavia and the GDR (2.9 and 2.8-fold respectively), Czechoslovakia (2.4 fold), and last, Poland (2.2 fold). From 1965 to 1979, the countries with decentralized agriculture had somewhat larger increases in inputs per unit of labor than the countries with centralized agriculture. During the 1975-79 period, however, the former group had a lower annual rate of increase in inputs per worker (5.2 percent) than the latter group (6.7 percent).

The increases in gross and net product per unit of labor in descending order ranked as follows: Romania, Yugoslavia, Bulgaria, Hungary, the GDR, Czechoslovakia and Poland (Table 18). In the 1965-75 period the countries with centralized agriculture achieved higher rates of growth in gross and net product per unit of labor than the countries with decentralized agriculture. In the 1975-79, however, the annual

TABLE 17.—GROWTH OF AGRICULTURAL OUTPUT AND EXPENSES INCLUDING DEPRECIATION PER PERSON EMPLOYED IN AGRICULTURE

	Indexes, 1965=100															Average annual rates of change		
	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ¹	1965-70	1970-75	1975-79 ¹
Bulgaria:																		
Output.....	100	113.0	117.6	121.2	126.5	134.1	143.2	152.7	156.0	161.7	178.8	197.5	192.4	209.0	230.9	5.4	5.4	5.8
Expenses.....	100	118.6	128.3	155.1	160.2	171.9	159.7	198.3	195.9	236.6	228.8	259.8	312.9	348.6	406.7	11.5	7.7	15.5
Czechoslovakia:																		
Output.....	100	109.7	113.8	118.3	120.0	129.3	129.9	145.6	151.8	163.8	168.9	169.1	186.8	193.7	193.0	4.7	6.1	4.1
Expenses.....	100	104.9	105.8	106.7	114.9	142.2	139.0	158.6	172.0	182.1	193.0	200.4	213.0	232.5	239.1	6.0	7.2	5.9
German Democratic Republic:																		
Output.....	100	109.2	114.2	121.1	123.3	130.3	135.8	150.1	156.5	168.4	173.4	175.5	182.6	181.7	165.3	5.1	6.2	-6
Expenses.....	100	109.8	112.6	122.1	131.7	159.4	182.6	197.3	205.7	219.2	240.9	280.8	264.6	267.8	275.4	8.8	7.9	2.2
Hungary:																		
Output.....	100	108.9	118.0	121.2	133.2	121.2	141.4	151.6	166.9	180.1	180.6	182.7	214.9	218.6	218.2	4.7	8.4	5.7
Expenses.....	100	99.1	109.5	127.8	137.7	158.7	194.8	212.9	228.1	276.0	271.9	309.4	364.7	386.7	397.8	10.4	11.5	10.3
Poland:																		
Output.....	100	107.8	110.7	111.1	110.7	109.8	111.6	119.9	129.4	132.5	130.6	127.6	129.5	135.5	134.1	1.6	4.3	1.1
Expenses.....	100	93.9	104.5	108.4	157.4	146.3	131.3	145.3	167.3	185.4	222.4	198.4	209.5	215.4	217.0	10.5	9.8	.3
Romania:																		
Output.....	100	116.1	124.0	122.0	128.0	121.9	147.6	170.1	188.3	192.0	210.7	255.6	261.7	280.0	305.4	3.7	10.9	8.7
Expenses.....	100	112.7	127.7	139.7	157.3	168.6	206.0	245.8	311.3	320.9	371.0	402.7	425.4	444.8	488.6	11.2	17.0	6.7
Yugoslavia:																		
Output.....	100	117.3	122.1	119.5	134.5	128.1	140.5	141.6	156.2	171.8	164.6	184.2	197.7	196.5	210.6	4.8	5.7	5.7
Expenses.....	100	119.2	115.1	106.9	122.0	124.0	138.9	155.0	174.0	218.6	176.1	220.1	231.6	267.2	286.6	3.1	9.7	12.4
Countries with centralized agri- culture:																		
Output.....	100	110.4	115.0	120.2	123.3	131.4	136.5	149.9	157.4	167.0	176.5	182.5	191.6	198.1	204.3	5.1	6.3	3.8
Expenses.....	100	109.6	112.7	121.8	130.7	156.4	169.0	182.5	192.0	209.9	224.7	249.7	259.9	277.8	294.6	8.5	7.4	6.7
Countries with decentralized agri- culture:																		
Output.....	100	111.7	117.5	117.2	123.7	119.3	131.3	141.9	155.1	163.0	164.2	174.8	184.5	191.4	197.2	3.4	6.9	4.7
Expenses.....	100	102.4	112.6	191.8	151.9	153.6	162.8	183.9	213.9	239.4	264.5	268.5	290.6	306.3	319.0	10.2	12.2	5.2
Total, Eastern Europe:																		
Output.....	100	111.1	116.4	117.6	122.6	122.1	131.6	142.5	153.8	162.0	165.4	174.4	183.2	190.1	195.7	3.8	6.5	4.3
Expenses.....	100	105.2	112.2	191.5	141.3	152.4	162.7	179.6	200.8	222.7	242.3	254.3	270.3	286.6	300.3	9.1	10.1	5.6

¹ Preliminary.

Sources: Data in tables 2 and 3 divided by the indexes of agricultural employment of respective countries given in table 15 (see appendix A).

TABLE 18.—GROWTH OF GROSS AND NET PRODUCT PER PERSON EMPLOYED IN AGRICULTURE

	Indexes, 1965=100															Average annual rates of growth		
	1965	1966	1967	1968	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978	1979 ¹	1965-70	1970-75	1975-79 ¹
Bulgaria:																		
Gross product.....	100	110.6	113.5	110.4	116.3	123.4	125.9	140.4	146.7	141.5	168.4	184.6	159.6	171.0	182.0			
Net product.....	100	111.0	113.6	108.6	113.9	120.1	121.5	135.6	141.2	134.0	160.4	174.4	147.7	157.1	165.5	3.4	5.7	0.8
Czechoslovakia:																2.7	5.2	-0.4
Gross product.....	100	113.0	120.4	127.7	124.4	115.5	120.6	132.7	141.2	146.5	146.9	140.9	164.6	159.5	152.3			2.0
Net product.....	100	115.4	123.3	131.8	125.8	114.5	119.4	130.5	138.1	142.6	140.9	132.5	156.1	148.7	139.1	2.9	4.8	.9
German Democratic Republic:																		
Gross product.....	100	109.1	115.1	121.2	121.6	120.9	120.2	136.4	142.2	154.3	154.2	142.4	159.7	157.9	157.9			1.5
Net product.....	100	109.0	114.9	120.5	119.6	117.5	115.4	129.4	135.1	146.3	144.1	129.6	146.9	144.1	143.0	3.9	5.9	.9
Hungary:																		
Gross product.....	100	111.1	120.4	118.5	131.3	108.9	123.2	130.6	147.2	149.0	152.5	145.6	169.2	167.1	165.2	2.6	7.0	3.0
Net product.....	100	112.4	121.5	118.5	131.3	106.0	119.7	126.7	142.0	141.1	143.4	131.1	153.9	149.5	145.0	2.1	6.2	1.5
Poland:																		
Gross product.....	100	113.1	113.2	112.1	94.0	97.6	106.0	111.9	116.4	114.4	103.4	104.4	103.0	109.5	107.6	-1.9	1.6	1.3
Net product.....	100	113.4	113.2	112.2	91.8	95.1	103.6	109.6	113.8	111.1	98.6	99.1	97.1	103.3	100.6	-2.5	1.2	.8
Romania:																		
Gross product.....	100	116.0	121.3	115.5	118.7	108.4	131.8	148.4	148.4	151.2	158.5	210.8	212.6	232.4	252.7	1.2	6.8	10.9
Net product.....	100	117.4	122.5	114.7	116.0	102.6	123.5	138.9	137.4	138.6	144.4	194.9	194.0	211.9	229.5	.1	6.0	10.6
Yugoslavia:																		
Gross product.....	100	117.0	123.4	121.8	136.9	128.9	141.0	139.4	153.1	163.6	162.7	178.1	192.0	184.4	197.7	5.1	5.0	4.3
Net product.....	100	117.0	123.4	121.8	136.9	128.9	140.7	139.2	152.9	163.3	162.5	177.6	191.5	183.6	196.8	5.1	5.0	4.3
Countries with centralized agriculture:																		
Gross product.....	100	110.5	116.1	119.6	120.7	119.9	121.8	136.2	143.2	149.3	157.4	154.4	164.3	165.6	167.1	3.5	5.9	1.9
Net product.....	100	110.8	116.4	119.2	119.0	116.9	117.6	130.9	137.1	141.9	148.5	143.3	151.7	151.6	151.6	3.0	5.3	1.0
Countries with decentralized agriculture:																		
Gross product.....	100	114.5	118.7	116.5	115.0	109.5	123.2	130.4	138.0	140.6	137.0	149.0	155.1	160.0	164.3	1.3	4.6	4.4
Net product.....	100	115.1	119.1	116.4	113.6	107.1	120.1	127.0	134.2	135.7	131.0	141.4	146.8	150.6	153.8	.8	4.2	3.9
Total, Eastern Europe:																		
Gross product.....	100	113.0	117.6	116.9	116.0	111.7	121.8	130.6	138.1	141.5	141.1	148.6	155.3	159.2	162.6	1.8	4.9	3.6
Net product.....	100	113.6	118.0	116.8	114.6	109.2	118.4	126.7	113.7	136.1	134.4	140.2	146.0	148.8	151.1	1.3	4.4	3.0

¹ Preliminary.

Sources: Data in table 3 divided by the indexes of agricultural employment of respective countries given in table 15 (see appendix A).

rates of growth for the decentralized group were higher than the centralized (4.4 versus 1.9 percent for gross product, and 3.9 versus 1.0 percent for net product).

On the whole, the East European performance per unit of labor has been impressive. It reflects largely the reduction of extensive disguised agricultural unemployment by transfers of labor to non-agricultural sectors of the economy, permitting better overall use of available labor resources.

C. Levels of Output and Inputs Per Worker

It may be useful to bring into focus comparative levels of productivity of labor among the different countries in relation to the East European average. Such data are shown in Table 19.

TABLE 19.—COMPARISONS OF LEVELS OF OUTPUT, EXPENSES, INCLUDING DEPRECIATION, GROSS, AND NET PRODUCT PER PERSON EMPLOYED IN AGRICULTURE

[Eastern Europe=100]

	Agricultural output			Expenses including depreciation		
	1966-70	1971-75	1976-79	1966-70	1971-75	1976-79 ¹
Bulgaria.....	104.3	105.5	112.3	105.8	96.2	108.6
Czechoslovakia.....	175.7	177.2	174.9	288.1	264.5	251.1
German Democratic Republic.....	277.1	284.4	266.6	279.0	288.7	272.4
Hungary.....	172.9	182.8	190.3	164.7	191.5	215.6
Poland.....	102.1	90.6	77.6	102.3	89.4	79.8
Romania.....	53.5	61.7	76.2	56.4	72.2	79.7
Yugoslavia.....	65.6	63.8	66.0	30.0	27.5	29.0
Countries with centralized agriculture.....	173.2	177.4	177.9	209.8	203.8	204.3
Countries with decentralized agriculture.....	82.1	82.1	82.7	73.2	76.1	76.9
Total, Eastern Europe.....	100.0	100.0	100.0	100.0	100.0	100.0
	Gross product			Net product		
Bulgaria.....	102.3	110.0	114.5	103.7	111.4	115.3
Czechoslovakia.....	140.5	137.4	132.7	123.1	119.1	113.4
German Democratic Republic.....	278.7	286.9	270.0	276.2	280.8	261.9
Hungary.....	174.4	176.3	175.9	176.8	176.7	169.8
Poland.....	100.2	89.4	73.9	102.1	91.9	75.9
Romania.....	54.4	59.0	78.0	52.2	54.6	73.4
Yugoslavia.....	77.3	80.0	85.2	82.2	87.6	95.9
Countries with centralized agriculture.....	161.7	166.6	165.2	156.1	159.5	156.6
Countries with decentralized agriculture.....	85.0	84.6	85.5	86.3	86.3	87.4
Total, Eastern Europe.....	100.0	100.0	100.0	100.0	100.0	100.0

¹ Preliminary.

Sources: Calculated from physical quantities, weighted by FAO Eastern-European and Soviet Union wheat-based price relatives for 1961-65 divided by the number of employed in agriculture taken from statistical yearbooks of respective countries. (See app. A.)

Very large differences in productivity of labor continue to exist among the individual countries. Before the war a Bulgarian, Romanian, or Yugoslav worker in agriculture produced hardly one-sixth as much output as a German Democratic Republic worker. As of 1979, the Yugoslav worker still produced only about one-fourth and the Polish and Romanian worker 29 percent of the GDR output per worker. Hungary has been the second highest in output per worker, followed by Czechoslovakia, Bulgaria, Poland, and Yugoslavia on a rapidly descending scale.

The difference in relative levels of output of animal products per worker have been even greater. Relative levels of inputs and gross and

net product per worker were approximately of the same order of magnitude as in the case of output.

In comparing the groups of countries, we find that for the whole period under review, output per worker in countries with centralized agriculture was more than double that in countries with decentralized agriculture. Gross and net product per worker were almost double that in the former group as compared to the latter. A worker in the countries with decentralized private agriculture had only about 38 percent the magnitude of the inputs at the disposal of a worker in the countries with centralized agriculture in 1976-79. There was no significant change in relative levels of output and input measures between the two groups of countries from 1965 to 1979.

VII. PROGRESS IN AGRICULTURAL TECHNOLOGY

A. Progress in Mechanization

A close relationship between mechanical power input and productivity of land and labor has been observed in many countries.¹¹ A widely used indicator of the extent of mechanization is the number of tractors per unit of land and per unit of labor. Table 20 presents estimates of tractors in terms of standard 15 H.P. tractor units per 1,000 hectares of agricultural land and per 1,000 workers in agriculture by country, groups of countries, and major regions. Our findings show that in the 1963-67 period the extent of the use of mechanical power was still low, by West European standards, in most of the East European countries. Only Czechoslovakia and the GDR were close to West European levels. However, the level of West European mechanization was, in turn, low in comparison to that of the United States, where there were 2,184 tractors per 1,000 full-time workers in agriculture in 1977.¹²

Progress in mechanization has continued to gain momentum. In most East European countries the rates of increase were high; in fact the percentage increases exceeded those of Western Europe. As a result, the differences among individual countries and between Eastern and Western Europe have somewhat narrowed with the passage of time. By the 1976-79 period, Czechoslovakia and the GDR had almost 4 times as many tractors per unit of land and five to six times as many tractors per worker as Romania.

Here it is not only the quantity of capital that is decisive in the rate of progress in mechanization but also the quality and the effectiveness of its use. There is ample evidence that the productivity of machinery in agriculture has been declining, especially in Czechoslovakia and Bulgaria, due to the excessive age of tractors and machines and their inefficient use (see more detailed discussions in individual country contributions to this volume by M. Jackson, F. Levčik and W. Newcomb).

Yugoslavia's level of mechanization was somewhat higher than that of Romania, and Poland's intensity in the use of tractors per

¹¹ U.N., FAO, *The State of Food and Agriculture 1968*, Rome, 1968, pp. 93-95, and *ibid.*, 1973, pp. 145-154.

¹² U.S. Dept. of Agriculture, *Agricultural Statistics of 1977*, *op. cit.*, p. 431, and FAO, *Production Yearbook 1978*, Rome, 1979, vol. 32, p. 65.

TABLE 20.—NUMBER OF TRACTORS PER 1,000 HECTARES OF AGRICULTURAL LAND AND PER 1,000 WORKERS IN AGRICULTURE

	Number of tractors			Eastern Europe=100			Indexes of number of tractors (1962-67=100)		
	1963-67	1973-76	1976-79 ¹	1963-67	1973-76	1976-79 ¹	1963-67	1973-76	1965-79 ¹
	Bulgaria:								
Per 1,000 hectares.....	11.4	23.3	24.1	119	106	96	100	204	211
Per 1,000 workers.....	34.6	105.7	138.5	108	113	118	100	305	400
Czechoslovakia:									
Per 1,000 hectares.....	24.7	38.5	38.4	257	175	152	100	156	155
Per 1,000 workers.....	139.6	250.5	267.8	435	267	228	100	179	192
German Democratic Republic:									
Per 1,000 hectares.....	23.1	42.1	41.6	240	191	165	100	182	180
Per 1,000 workers.....	128.2	300.5	313.5	339	321	267	100	234	245
Hungary:									
Per 1,000 hectares.....	9.1	17.2	18.6	95	78	74	100	189	204
Per 1,000 workers.....	44.0	107.8	126.7	137	115	108	100	245	288
Poland:									
Per 1,000 hectares.....	7.3	25.6	33.7	76	116	134	100	351	462
Per 1,000 workers.....	23.3	95.0	120.5	73	101	103	100	408	517
Romania:									
Per 1,000 hectares.....	5.5	10.4	11.6	57	47	46	100	189	211
Per 1,000 workers.....	13.0	35.9	50.8	40	38	43	100	276	391
Yugoslavia:									
Per 1,000 hectares.....	3.1	14.2	18.1	32	65	72	100	458	584
Per 1,000 workers.....	10.7	55.7	76.6	33	59	65	100	521	716
Countries with centralized agriculture:									
Per 1,000 hectares.....	22.7	35.0	34.9	236	159	138	100	154	154
Per 1,000 workers.....	101.3	206.3	232.9	316	220	199	100	204	230
Countries with decentralized agriculture:									
Per 1,000 hectares.....	6.0	17.5	21.8	63	80	87	100	292	363
Per 1,000 workers.....	21.3	68.4	91.5	66	73	78	100	321	430
Total, Eastern Europe:									
Per 1,000 hectares.....	9.6	22.0	25.2	100	100	100	100	229	263
Per 1,000 workers.....	32.1	93.7	117.2	100	100	100	100	292	365
Total Western Europe:									
Per 1,000 hectares.....	27.1	46.0	50.0	282	209	198	100	170	185
Per 1,000 workers.....	198.0	398.0	469.0	617	425	400	100	201	237

¹ Data for 1979 are preliminary.

Sources: Calculated from statistical yearbooks of respective countries and FAO yearbooks and monthly statistical bulletins.

worker was about a third to a half of that of either Czechoslovakia or the GDR. Polish and Yugoslav progress in mechanization was particularly rapid in the last 15 years. The differences in relative levels of mechanization between the countries with centralized and decentralized agriculture, taken as groups, narrowed dramatically from the 1963-67 to 1976-79 period. The pace of mechanization was much faster in the countries with decentralized agriculture.

Western Europe has nonetheless retained its lead in mechanization over Eastern Europe. In the 1976-79 period, Western Europe still had about two times as many tractors per worker as Eastern Europe. Although progress in the mechanization of agriculture in Eastern Europe has been at a faster rate than in Western Europe in the last two decades, there is still plenty of room for further improvement toward the West European level.

B. Growth of Fertilizer Consumption

Most of the East European countries did not turn seriously toward increased use of fertilizers until the late 1950's, but since then they have made tremendous progress. Table 21 shows that by 1963-68,

consumption of fertilizers per unit of land was approaching the West European level in most East European countries. Czechoslovakia and the GDR already had extremely high levels of fertilizer use; in fact they exceeded the West European level by 1.6 to 2.4 times and that of Eastern Europe by two to three times in the 1963-68 period. Bulgarian, Polish and Hungarian consumption per hectare were getting close to the level of Western Europe, and they were at about the average for Eastern Europe in the same period.

TABLE 21.—CONSUMPTION OF COMMERCIAL FERTILIZERS PER HECTARE OF AGRICULTURAL LAND

	Nitrogen (N), phosphate (P ₂ O ₅) and potash (K ₂ O) in kilograms per hectare			Total, Eastern Europe=100			Indexes of fertilizer consumption per hectare (1963-68=100)		
	1963-68	1973-76	1976-79 ¹	1963-68	1973-76	1976-79 ¹	1963-68	1973-76	1976-79 ¹
Bulgaria.....	79	105	116	118	76	77	100	133	147
Czechoslovakia.....	117	214	242	175	154	161	100	183	207
German Democratic Republic.....	201	281	276	300	206	184	100	140	137
Hungary.....	61	204	218	91	147	145	100	334	357
Poland.....	64	175	189	96	126	126	100	273	295
Romania.....	22	69	76	33	50	51	100	314	345
Yugoslavia.....	33	48	57	49	35	38	100	145	173
Countries with centralized agriculture.....	132	204	213	197	147	142	100	155	161
Countries with decentralized agriculture.....	44	117	128	66	84	85	100	266	291
Total, Eastern Europe.....	67	139	150	100	100	100	100	207	224
Total, Western Europe.....	85	176	197	127	127	131	100	207	232

¹ Data for 1979 are preliminary.

Sources: Calculated from statistical yearbooks of respective countries and FAO yearbooks and monthly statistical bulletins.

The consumption of fertilizers between 1963-68 and 1976-79 has been expanding at the fastest rate in Hungary, Poland, and Romania, increasing about three to three and a half times, followed by Czechoslovakia, Yugoslavia, Bulgaria, and the GDR, in descending order.

The German Democratic Republic, Czechoslovakia, Hungary, and Poland were the most intensive users of fertilizers per hectare of agricultural land in Eastern Europe. Their respective annual consumption was 276, 242, 218, and 189 kilograms per hectare in the 1976-79 period. Bulgaria, one of the lowest users of fertilizers in the 1950's, also became an intensive user with an annual consumption of 116 kilograms in the 1976-79 period. Czechoslovakia, the GDR, and Hungary exceeded the West European consumption level by 23, 40 and 11 percent, respectively, in the 1976-79 period. Poland achieved an average level of 189 kilograms per hectare, or almost the same as in Western Europe, while Romania and Yugoslavia remained the lowest users with 76 and 57 kilograms per hectare annually in the same period.

The countries with centralized agriculture had fertilizer consumption per unit of land 200 percent higher than the countries with decentralized agriculture in the 1963-68 period. That margin, however, was reduced sharply to about 66 percent by 1976-79.

Eastern Europe as a whole compares quite favorably in fertilizer consumption with Western Europe. The heavily increased application of fertilizers already has paid off with significantly increased yields in Eastern Europe.

C. Scientific Methods on the Farm

The adoption of high-yielding crop varieties and livestock breeds helped to increase yields per unit of input in all the East European countries. Research on improvement of seeds has been stepped up by the agricultural research institutes, partly under the coordination of the CMEA (Council for Mutual Economic Aid) Permanent Commission on Agriculture. A significant increase in wheat yields has been attributed to the introduction of improved Soviet hard wheat varieties (Mironovskaya-808, Bezostaya-1, Kavkaz and Aurora) during 1966-79. These wheat strains were sown on more than 70 percent of the wheat area in Czechoslovakia, East Germany and Hungary, and on more than 85 percent in Bulgaria in recent years. Also, hybrid varieties of corn and better strains of barley, rye, and oats were introduced. The development of improved breeds of livestock has contributed to increased yields of milk per cow, eggs per hen, higher dressing rates of livestock, leaner types of animals, and higher daily gains in live-weight for all livestock. New breeds of livestock are being imported from Western Europe and the United States, especially by Hungary and Yugoslavia.

Irrigation and drainage of agricultural land on a large scale is increasing the productivity of land in all East European countries. Technological knowledge has been disseminated through rapidly increasing numbers of agricultural technical institutes and agricultural colleges. The number of trained agronomists has increased several fold in every East European country. Their application of more advanced farming methods undoubtedly has contributed to the higher productivity of land and labor. The recent development in Eastern Europe of agro-industrial complexes is increasing the overall efficiency of labor use through local processing of agricultural products, employing seasonally idle agricultural labor, and diffusing technical knowledge in rural areas.¹³

D. Investment in Agriculture

The recent growth of gross fixed agricultural investment and its share in total investment in Eastern Europe is shown in Table 22. These investment series should be interpreted with care, assuming a considerable margin of error, because for some of these countries, not enough is known about the prices of investment goods and the content of the investment total (it includes, for example some military procurements), and the terms of measurement vary from country to country. Yet, despite their shortcomings, these series indicate general trends in investment in the recent years.

Throughout Eastern Europe there has been a substantial increase in agricultural investment, generally with the less developed countries showing the greater increases: Romania, Yugoslavia, Poland, Hungary, and Bulgaria experienced high increases in investment in the 1966-70 and 1971-1975 periods; see Table 22. However, in the 1976-78 period increases in investment were smaller, especially in Hungary, the GDR and Bulgaria. In comparison to the Federal Republic

¹³ See *Zemledelska ekonomika*, 1980, No. 1, pp. 1-2.

TABLE 22.—GROSS FIXED AGRICULTURAL INVESTMENT AND ITS SHARE IN TOTAL INVESTMENT

	Indexes of gross fixed agricultural investment			Agriculture's share in total investment percent		
	(1961-65 =100)	(1966-70 =100)	(1971-75 =100)	1966-70	1971-75	1976-78
	1966-70	1971-75	1976-78			
Bulgaria ¹	139	140	120	16.3	15.8	13.9
Czechoslovakia ²	103	139	133	11.1	10.8	11.9
German Democratic Republic ³	162	121	112	14.1	12.6	10.7
Hungary ⁴	182	143	115	15.9	13.0	12.8
Poland ⁵	170	163	149	16.1	13.7	15.6
Romania ⁶	153	149	147	15.6	14.0	14.1
Yugoslavia ⁷	152	162	-----	9.2	9.3	9.2
Federal Republic of Germany ⁸	96	109	120	3.4	2.4	3.0

¹ State and collective farms' investment in leva at 1962 and 1971 prices.

² Total investment in agriculture in crowns at 1967 prices; 1976-78 at 1977 prices.

³ Agriculture includes forestry; investment in marks at 1967 prices, 1976-78 at 1975 prices.

⁴ Investment in forints at 1968 prices; 1976-78 at 1976 prices.

⁵ Investment in zlotys at 1971 prices; 1976-78 at 1977 prices.

⁶ Investment in lei at 1963 prices; 1976-78 at 1977 prices.

⁷ Investment, including private farming, in dinars; 1976-78 is an estimate.

⁸ Investment in constant 1962 marks; 1976-78 at 1970 prices.

Sources: Calculated from statistical yearbooks of respective countries, "SE SEV 1976-1979," and "National Accounts of OECD Countries," OECD, Paris, 1979 (see appendix A).

of Germany, most of the East European countries seemed to have a much higher rate of investment in recent years. However, the Federal Republic of Germany, despite her moderate increase in investment, improved her performance in agriculture substantially (Tables 13 and 14).

Agricultural investments may be usefully related to total investment and then compared with agriculture's share in total GNP. These relationships are shown in Table 22 and Table 1. We notice that agriculture's share in total investment was relatively low, from 9 to 16 percent, depending on country, in the 1966-70 period. On the other hand, in this period the contribution of agriculture to the total GNP was over two times as large as the investment share in Romania, Bulgaria and Yugoslavia, almost two times as large in Poland, about 59 percent larger in Hungary and Czechoslovakia, and 11 percent larger in the GDR.

In the subsequent 1971-75 and 1976-78 periods agriculture's share in total investment in general declined (except for Czechoslovakia and Yugoslavia). The decrease was from over one percent point in Poland and Romania to a maximum of 3.4 percentage points in the GDR (see Table 22). However, the difference between agriculture's share in total investment and its share in GNP also shrank. In the GDR and Poland, agriculture's share in total investment is about the same as its share in GNP. In the less industrialized countries, Yugoslavia and Romania, the ratios of agricultural investment shares to their GNP shares are 46 and 58 percent, respectively. This would seem to suggest that agriculture is partly financing industrialization in these countries. In the final analysis, the ratio reflects governmental price and taxing policies towards agriculture.

It is to be noted that the Soviet Union allocated 27 percent of total investment to agriculture in the 1976-78 period.¹⁴ This is a much

¹⁴ See David M. Schoonover, "Soviet Agricultural Policies" in U.S. Congress, Joint Economic Committee, *Soviet Economy in a Time of Change*, Vol. 2, 1979, p. 93.

higher percentage than in any other East European country for the same period. In the USSR, agriculture's share in total GNP was only 15.5 percent in 1979 (Table 1).

VIII. SIZE COMPARISONS OF OUTPUT BETWEEN EASTERN EUROPE, U.S.S.R., WESTERN EUROPE, AND UNITED STATES

In this section we summarize our findings as to size comparisons of agricultural output between Eastern Europe, the U.S.S.R., Western Europe, the USA, and individual countries for selected periods in terms of international wheat units (Table 23). (Output is used here in the conventional definition: farm production of crops and animal products for consumption in kind directly by the producers and for sale outside the agricultural sector, for the food processing industry, other industrial use, and exports.)

TABLE 23.—COMPARISONS OF LEVELS OF AGRICULTURAL OUTPUT AND AGRICULTURAL OUTPUT PER CAPITA: EAST EUROPEAN COUNTRIES, U.S.S.R., WESTERN EUROPE, AND UNITED STATES

(In percent, United States=100)

	Total agricultural output			Agricultural output per capita		
	1966-70	1971-75	1976-79 ¹	1966-70	1971-75	1976-79 ¹
Bulgaria.....	3.3	3.2	3.0	78.7	76.2	73.1
Czechoslovakia.....	4.2	4.4	4.2	58.8	62.9	61.3
German Democratic Republic.....	5.6	5.7	5.4	66.1	70.3	70.3
Hungary.....	4.2	4.5	4.6	81.4	91.1	93.1
Poland.....	10.6	10.7	10.1	65.8	67.2	63.1
Romania.....	5.5	5.9	6.3	55.5	59.2	63.6
Yugoslavia.....	5.3	5.3	5.4	53.2	53.7	54.2
Countries with centralized agriculture.....	13.1	13.2	12.6	66.1	68.9	67.6
Countries with decentralized agriculture.....	25.5	26.4	26.4	62.2	64.9	64.6
Total, Eastern Europe.....	38.6	39.6	39.0	63.5	66.1	65.5
U.S.S.R.....	74.9	74.3	71.1	63.1	62.6	59.8
Western Europe.....	86.3	86.0	80.1	52.7	53.3	50.3
United States.....	100.0	100.0	100.0	100.0	100.0	100.0

¹ Preliminary.

Sources: Calculated from physical quantities weighted by FAO Eastern European and Soviet Union wheat-based price relatives for the 1961-65 period for Eastern Europe and the Soviet Union; for Western Europe, the Western European FAO wheat-based price relatives for the 1961-65 period were used as weights; and for the United States, the North American FAO wheat-based price relatives for the 1961-65 period were used as weights. Physical quantities and population data were taken from statistical yearbooks of the respective countries (see bibliography and appendix A). The FAO wheat-based price relative for the 1961-65 period were taken from: United Nations, Food and Agriculture Organization, "Production Yearbook, 1975," Rome, 1976, pp. 470-471, and FAO, "Monthly Bulletin of Statistics," 1979, No. 11, pp. 10-11.

From 1966-70 to 1971-75 agricultural output of most East European countries and of Eastern Europe as a whole in comparison to the United States increased somewhat, because of slightly lower rates of increase in the United States. The U.S.S.R. and West European magnitudes, however, declined slightly in relation to that of the United States. In the 1976-79 period, the output of most countries decreased in comparison with the United States. East European agricultural output relatively to that of the United States declined from 39.6 percent in 1971-75 to 39 percent in 1976-79, that of the U.S.S.R. from 74.3 to 71.1 percent, and that of Western Europe from 86 to 80.1. In the U.S. output increased faster than in the other countries during the second half of the 1970's. Other authors show similar relative sizes of the United States and U.S.S.R. outputs (U.S.S.R. as percent

of United States 76.8 in 1971-75, and 74.7 in 1975-77 when both are valued in 1968 ruble prices).¹⁵

International comparisons of output per capita provide better measures of relative self-sufficiency than comparisons of total agricultural output. In most years, the agricultural output of the U.S.S.R. and that of Eastern Europe is not fully sufficient in providing an adequate food supply to that region's population, while the U.S. agricultural output meets domestic needs for a high level of nutrition and provides a surplus for export. Hence a comparison of the per capita levels of agricultural output in terms of the U.S. per capita output will provide a rough measure of the degree of "self-sufficiency." We may define "self-sufficiency" assuming that the U.S. level of per capita output is about 25 percent above the norm of an adequate food supply.¹⁶ The per capita levels of agricultural output in different countries in terms of the the United States = 100 for 1966-70, 1971-75 and 1976-79 are given in Table 23.

These per capita levels indicate that the U.S.S.R. produced roughly 63 percent of the output of the United States in the 1966-1975 period and roughly 60 percent in 1976-79; this is clearly inadequate if we consider 80 percent of the U.S. level to be the norm for an industrial society.

Eastern Europe as a whole shows a little more favorable per capita level and trend of output than the Soviet Union. In the 1971-75 period it produced roughly 66.1 percent as much agricultural output per capita as the United States. This level represented an increase of 2.6 percentage points from 63.5 percent in the 1966-70 period. In 1976-79 the level dropped slightly to 65.5 percent of the USA's because of poor harvests in most Eastern European countries due to adverse weather conditions. The per capita levels of output in Eastern Europe in comparison to the United States, and even more so vis-a-vis the Soviet Union, were improving in the 1971-75 and 1976-79 periods as compared to the 1966-70 period. Both East European country groups, centralized and decentralized agriculture, were improving in per capita levels of output during the period under study.

As for the individual countries, the highest per capita level in the 1976-79 period was achieved in Hungary, with 93.1 percent of the U.S. level, followed by Bulgaria, with 73.1 percent, the GDR with 70.3 percent, Romania with 63.6 percent, Poland with 63.1 percent, Czechoslovakia with 61.3 percent, and, at the bottom, Yugoslavia with 54.2 percent. If we refer to the norm given above (80 percent of U.S. output per capita=selfsufficiency), only Hungary would seem to have about 14 to 16 percent of her output available for export while providing adequate food for the domestic population. All other East European countries would be considered to have 9 to 32 percent deficits in domestic output if they were to maintain roughly the U.S. food consumption level.

¹⁵ See Douglas B. Diamond with W. Lee Davis, "Comparative Growth in Output and Productivity in U.S. and U.S.S.R. Agriculture." U.S. Congress, Joint Economic Committee, *Soviet Economy in a Time of Change, A Compendium of Papers*. U.S. Government Printing Office, 1979, p. 48. The authors also give a comparison in constant 1957-59 dollars which yields a higher level for the U.S.S.R. than the comparison in rubles.

¹⁶ For the 1971-75 period, in the United States 92 percent of agricultural output was consumed domestically and the balance was exported (see U.S. Dept. of Agriculture, *Agricultural Statistics, 1975*, pp. 461, 576, and *Survey of Current Business 1976*, No. 12, p. 36). However, it is believed that the U.S. consumption level is more than adequate, and we reduce it to 80 percent as norm for illustrative purposes.

Western Europe seems to be the most deficient region in per capita food supply, producing only a little over one-half as much as the United States. More than one third of Western Europe's food requirements would have to be imported if 80 percent of the U.S. output level were the norm.

The above comparisons of levels are affected to a certain degree by the composition of output and prices in various countries, which in turn reflect differences in natural resources, levels of income, tastes, and governmental agricultural policies. Although they are very crude indicators of relative sizes of levels and trends of per capita output between selected countries and regions, they seem to show clearly that the domestic output of food in Eastern Europe as a whole, and even more so in the Soviet Union, was deficient by some 18 to 25 percent in the 1976-779 period if the U.S. norm defined above as 80 percent of U.S. output, were to be maintained. This deficiency seems to have been improving for East European countries but worsening for the U.S.S.R. in relation to the U.S. per capita output levels since the late 1960s.

IX. CONCLUSION AND OUTLOOK

Some tentative conclusions on the recent performance of East European agriculture may be highlighted as follows:

(1) Agricultural performance as reflected in our measures has been uneven among the East European countries and over the period under study. Agricultural output in the 1965-70 period experienced a slow rate of growth: about 1.9 percent per year on the average in Eastern Europe as a whole, and for both the centralized and decentralized country groups of agriculture. In the 1971-75 period, output grew at an average rate of 4.1 percent for the whole region, or more than double the rate for the previous five years with the decentralized group of countries experiencing a significantly higher rate of growth than the centralized group. In Hungary and Romania output has expanded the most rapidly, followed by Poland, the GDR, Yugoslavia, Czechoslovakia, and Bulgaria. In the 1976-79 period, there was a slowdown in growth. Output grew at an average annual rate of 2.7 percent for the whole region, but the countries with decentralized agriculture had a rate of growth twice as high as the countries with centralized agriculture. Hungary, Romania and Yugoslavia had the highest rate of growth, while the GDR had the lowest rate, one percent (see Table 2).

(2) Hungary, Romania, Poland, and Yugoslavia, as a group with predominantly decentralized agriculture, had a growth performance in all production measures better than that of the group of countries with centralized agriculture. The advantage of a decentralized incentive system in agriculture over a centralized bureaucratic system in agriculture seems to have continued in the 1970s to the present (see Tables 2 and 3).

(3) In terms of gross and net product (i.e., agriculture's contribution to GNP and NNP), the group of countries with decentralized agriculture surpassed the group of countries with centralized agriculture by a comfortable margin in the 1975-79 period. Between 1965 and 1979 the former group, with less regimentation and more incentives in farming, enjoyed increases of 29 and 20.7 percent in gross and net

product, respectively, while the latter group, with large-scale, mechanized centralized farming, attained 13.6 and 3.1 percent increases, respectively (see Table 3).

(4) Since the countries with centralized agriculture had allocated larger quantities of non-agricultural inputs to agricultural production but had smaller increases in gross product and net product than those with decentralized agriculture (see Tables 4 and 12), they probably have used their productive resources less efficiently than the group with decentralized agriculture.

(5) The better performance of the countries with decentralized agriculture as compared to that of centralized agriculture is evident in several growth measures. The countries with decentralized agriculture had superior performance measures to those countries with centralized agriculture between 1965 and 1977-79 as follows:

Measure:	By margin of (percent)
Crop output.....	14.5
Animal output.....	11.3
Expenses.....	26.6
Gross product.....	10.9
Net product.....	14.0
Crop output per capita.....	5.8
Animal output per capita.....	2.8
Gross product per capita.....	2.5
Net product per capita.....	5.3
Agricultural output per unit of land.....	14.0
Gross product per unit of land.....	14.0
Net product per unit of land.....	17.1

(6) Progress in mechanization of agriculture had been quite good in Eastern Europe, but its level, except in Czechoslovakia and the GDR, is still behind that of Western Europe. Yugoslavia and Romania have the lowest levels of mechanization. However, the application of commercial fertilizers is in general close to the West European level, and in Czechoslovakia, the GDR, and Hungary the use of fertilizers per hectare of land is higher than in Western Europe as a whole. Hungary, Poland and Romania saw the greatest expansion in the use of fertilizers in the period under review.

(7) The introduction of higher-yielding varieties of wheat, corn, barley, rye, and oats, with the increased use of fertilizers brought rapidly increasing yields per unit of land in all the East European countries. Livestock yields were being increased by importing high-producing breeding stock from the United States and Western Europe, especially by Hungary and Yugoslavia.

(8) Considerably greater emphasis has been placed on animal output in recent years in order better to satisfy rapidly increasing demands for products of animal origin in all the East European countries. Yields per unit of livestock have increased significantly in the last 15 years.

(9) All the East European governments are putting increasingly stronger emphasis on increasing agricultural output and the productivity of land and labor. To effect this, they are channelling more resources into agriculture in the form of increased investment in machinery and equipment, land irrigation, better technology on farms, technical education, more flexibility and incentives to managers of

farms and individual farmers, and pricing systems more responsive to changing scarcities, especially as shown in sharply increased prices paid to farmers, and increased fringe benefits. These incentive policies were followed especially in Hungary, Yugoslavia, and to a lesser degree in Poland, Romania, and Bulgaria.

(10) An international comparison of agricultural outputs shows that Eastern Europe as a whole accounted for about 55 percent as much output as the U.S.S.R. and about 39 percent as much as the United States in 1976-79. In turn, the U.S. output was about 41 percent larger than that of the U.S.S.R. in 1976-79. In terms of per capita levels of agricultural output, the United States ranks the highest, followed by Hungary, Bulgaria, the GDR, Romania, Poland, Czechoslovakia, the U.S.S.R., Yugoslavia and Western Europe, in descending order for 1976-79 period. These findings are significant primarily in regard to self-sufficiency, and they do not take into account country specialization in the world division of labor, or more narrowly the various national priorities as to the allocation of manpower and other resources to agriculture and competing sectors of production.

(11) On the basis of the above overall growth performance measures, one is led to a conclusion that thus far centralized agriculture in the countries of Eastern Europe has not lived up to the expectations of their communist governments for higher growth rates in production and in productivity than decentralized incentive farming could achieve. Our comparisons of centralized versus decentralized farming in Eastern Europe show better overall results for the latter.

(12) The findings of this study afford a critique of agricultural systems in Europe. With the evident trend toward rational use of resources in Eastern Europe, leaders there, as elsewhere, may want to ponder the significance of the systems as influences on productivity. Their concern with agricultural efficiency has prompted the springs of motivation through higher producer prices, higher profit, more freedom of action, control of resources, and other personal incentives. Scarce foreign exchange has been allocated to importing advanced agricultural technology. Agriculture remains a critical sector in Eastern Europe in view of the rising populations and the sharply increasing demand for more and higher quality, protein-rich foods of animal origin.

In comparison with the relatively poor agricultural year for most of the East European countries in 1979, the prospects for the remaining last year of the current five year plans seem favorable. East European countries had dry weather since the beginning of the year, with extensive areas of below normal precipitation. However, overwintering grains remain in good condition due to abundant precipitation early in the winter.¹⁷ Barring more adverse weather developments in the next few months, there should be a rebound in agricultural production from last year's depressed levels (experienced in all countries except Bulgaria, Romania and Yugoslavia), and some hope of at least approaching the plan targets for 1980.

The official gross agricultural production plans for 1980 and the five-year plans for 1976-80 are quite optimistic. Table 24 summarizes

¹⁷ See U.S. Dept. of Agriculture. "News," March 20, 1980, p. 3.

the officially reported gross production results for the past two five-year plan periods and the average growth rate targets for the 1976-80 five-year plan as well as planned and actual growth for 1979 and plans for 1980.

Czechoslovakia and Hungary overfulfilled their 1971-75 production plans, but all the other countries including the Soviet Union failed to reach their planned targets. Eastern Europe as a whole reported a 3.1 percent average annual rate of growth in gross agricultural production which fell short of the 3.5-4.0 percent planned.

TABLE 24.—RATES OF GROWTH OF GROSS AGRICULTURAL PRODUCTION, PLANNED AND ACTUAL, 1976-80, AS OFFICIALLY REPORTED

[Average annual rates of growth; percent]

	1971-75 ¹ actual	1976-80 ¹ planned	1976-79 ² actual	1979		1980 planned
				planned	actual ³	
Bulgaria.....	2.2	3.7	2.3	7.0	7.0	3.7
Czechoslovakia.....	2.9	2.6-2.8	1.3	3.8	-4.0	7.2
German Democratic Republic.....	2.1	3.0	1.2	1.3	.9	5.5
Hungary.....	3.5	3.2-3.4	2.4	3.0-3.5	0	5.0-5.5
Poland.....	3.2	3.0-3.5	.8	3.9-4.8	-1.4	5.8
Romania.....	4.7	6.9-9.0	6.0	5.1-5.6	5.0	4.7-6.0
Total, Eastern Europe.....	3.1	3.3-3.9	1.9	4.1	.2	5.5
U.S.S.R.....	2.5	3.0	2.3	5.8	-4.0	8.8

¹ Change in the 5-yr average production from the average of the preceding 5 yr, expressed as annual compound rate.

² Average annual compound rate between terminal years.

³ Preliminary.

⁴ Estimated.

⁵ Production and services of the agricultural sector and food industry combined.

Sources: National plans and plan fulfillment reports of respective countries published in statistical bulletins of these countries; and "World Economic Survey, 1978," ch. IV, "The Centrally Planned Economies," New York, United Nations, 1979, p. 29.

For 1976-80, the planned growth rates for gross agricultural production were set at about the same levels as for 1971-75. Bulgaria and Hungary set slightly higher goals, and Poland and Romania somewhat lower. The planned 1976-80 average annual rate of growth for Eastern Europe as a whole is 0.2 percentage points lower than that planned for 1971-75, but about 0.5 percentage points higher than the 3.1 percent realized in that period.

What are the prospects for the 3.3-3.9 percent planned 1976-80 average annual rate of growth of gross agricultural production in Eastern Europe? For the first four years of the current five year plans, all countries have fallen behind the target rates. For the whole of Eastern Europe, the reported actual average annual rate of increase was only 1.9 percent for 1976-79. The targets for 1979 were fulfilled only for Bulgaria and the 4.1 percent planned target for Eastern Europe as a whole was transmuted into an actual 0.2 percent increase. The planned targets for 1980 are again very optimistic, 5.5 percent increase over 1979 for the whole region.

Success in meeting this goal will depend on two major factors: weather, and continuation of increased supply of resources to agriculture. The weather cannot be planned, but even if we assume that it will prove more favorable than the average past experience, increased inputs into agriculture will be required to fulfill the current production plans.

Since the emphasis in the current plans is on increases in livestock production to meet increasing domestic demand for meat and dairy products, Eastern Europe confronts an insufficient domestic feed base that has to be supplemented by sharply increased imports of feed grains, oilcake meal, and soybeans, and other protein concentrates in order to fulfill production plans.¹⁸ Eastern Europe in recent years has become increasingly dependent upon regular imports of feed-stuffs. The net imports of feed grains rose from 2.1 million metric tons in 1970-71 to 7.2 million tons in 1976-78, and imports of oilseed cake, soybeans and soybean meal increased from 3.4 million tons to 6.3 million tons in the same period.¹⁹

Such imports must be increased if the livestock production plans are to be met. Since most of the suppliers of these feeds are hard currency countries (United States, Canada, Australia, and South America), Eastern Europe is facing difficult choices in allocating their limited hard currency flows to finance increasing feed imports. The East European countries have steadily and increasingly relied upon imports of feed grain, oil cake, soybeans, soybean meal, feed concentrates, vitamin supplements, and breeding stock from North America, Australia, Latin America, and other countries. Given East European expectations for an increased supply of meat, this trend is expected to continue.

An important requirement for improved performance of agriculture is the continuing provision of a variety of production incentives to farmers, but on a larger scale than in the past. Finally, the cost and availability of energy supplies will be an important factor determining progress in agricultural production. Since petroleum prices probably will continue to increase and its availability will become more restricted, downward adjustments in planned rates of growth of agricultural production would become necessary. Reduced availability of energy supplies would adversely effect progress in advancing the levels of output and consumption of quality protein foods in Eastern Europe in the 1980's.

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¹⁸ See *Foreign Agriculture*, November 8, 1976, pp. 8-9; *ibid.*, January 10, 1977, pp. 2-4; *ibid.*, August 14, 1978, pp. 6-9.

¹⁹ U.S. Dept. of Agriculture, Foreign Agricultural Service, *Foreign Agriculture*, August 1979, pp. 10-13, *ibid.*, March 1980, pp. 14-15.

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APPENDIX A

NOTES AND SOURCES TO TABLES 1 TO 24

1965-79

All quantity series and national prices needed for the construction of tables 1 to 24 were taken from publications published by the Research Project on National Income in East Central Europe, Columbia University, Riverside Research Institute (RRI), and L.W. International Financial Research (L.W.I.F.R.), as follows:

Bulgaria.—Gregor Lazarcik and Wassyl Znayenko, "Bulgarian Agricultural Production, Output, Expenses, Gross and Net Product, and Productivity, 1939 and 1948-1967," OP-32, RRI, 1970.

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Note for 1979

Our indexes for 1978 (weighted by wheat-based price relatives for 1961-65) were extended to 1979 by means of crop output indexes, animal products output indexes and agricultural production indexes for individual countries calculated from plan fulfillment reports of respective countries for 1979 published in January and February 1980 issues for Bulgaria: "Rabotnichesko delo," Sofia, daily; for Czechoslovakia: "Rude pravo," Prague, daily, and "Hospodarske noviny," Prague, weekly; for East Germany: "Neues Deutschland," Berlin, daily, and "Die Wirtschaft," Berlin, weekly; for Hungary: "Nepszabadsag," Budapest, daily, and "Magyar Nemzet," Budapest, daily; for Poland: "Trybuna ludu," Warsaw, daily, and "Zycie gospodarcze," Warsaw, weekly; for Romania: "Ellore," Bucharest, daily, and "Scinteia," Bucharest, daily; for Yugoslavia: "Borba," Belgrade, daily; for U.S.A.: "Survey of Current Business," 1980, No. 1; for U.S.S.R.: "Pravda," Moscow, daily.

APPENDIX B

METHODOLOGICAL NOTES

The definition of agriculture as an economic sector and the concepts and definitions of output and input measures used in this study have been set forth in detail in an earlier study of East European agriculture presented to the Joint Economic Committee of the U.S. Congress in 1970. (See Gregor Lazarcik, "Compendium 1970," pp. 467-472.) Perhaps only a very brief summary of the methodology used here may be in order for the benefit of the reader.

Forestry, fishing and hunting are not included in agriculture, while for some countries U.N. statistics include forestry with agriculture. The coverage of our data ranges from 95 percent to almost 100 percent of agricultural output, depending on the country. Our measures of output and inputs are based on physical quantity series consisting of from 70 to over 100 individual products for each country. Since the official output and input measures sometimes differ from those used by international organizations, or are not published, an independent, uniform calculation of all important measures was made by the Research Project on National Income in East Central Europe in New York in accordance with standard international definitions. These measures are presented in this study.

Pricing system.—The best available uniform price weights to facilitate international comparisons of East European countries are the calculated wheat-based price relatives for Eastern Europe and the USSR for 1961-65 devised by the Food and Agriculture Organization of the United Nations for the calculation of regional and world agricultural production. These Eastern European price-weights were used in this study for the aggregation of agricultural output. These price relatives for agricultural products are the arithmetic averages of all the national wheat-based price relatives weighted by the respective country's production of the farm products concerned. The national wheat-based price relative consists of the national producer price of the product expressed as a percentage of the national producer price of an equal weight of wheat. For most products the prices are weighted averages of producer prices for the 1961-65 period. (See U.N. Food and Agriculture Organization, "Production Yearbook 1975," vol. 29, Rome, 1976, pp. 469-471). Most recently the indices for regions are obtained by FAO by summing the country aggregates into US dollars by means of the exchange rates of national currencies for US dollars; for East European countries and the U.S.S.R., the non-commercial, tourist, and other rates were used for this purpose (FAO, "Production Yearbook 1978," Vol. 32, Rome, 1979, p. 5).

Other measures (i.e., operating expenses, gross product, depreciation, and net product of agriculture) were derived from output (calculated in wheat-based price relatives for 1961-65) on the basis of percentage relationships of these measures for each country and each year calculated in each country's constant prices paid to or by producers for their products or production inputs. (The national price weights used were as follows: Bulgaria, 1968 leva; Czechoslovakia, 1970 crowns; East Germany, 1975 marks; Hungary, 1970 forints; Poland, 1970 zlotys; Romania, 1970 lei; and Yugoslavia, 1972 dinars.) This system of valuation takes into account the differences in relative scarcities in each country, and at the same time it permits international comparisons in terms of uniform wheat-based price relatives for all countries.

The index numbers of various output and input measures are computed by a modified Laspeyre's formula (the formula is

$$\frac{\sum P_k Q_i}{\sum P_k Q_k}$$

where P_k represent the selected constant prices, Q_k the quantities of the base year, and Q_i the quantities of the given year) using the FAO Eastern European wheat-based price relatives as weights. The time comparison base period chosen in this study is the year 1965.

Agricultural output.—In this study agricultural output is defined as end-use output from agriculture available for human consumption and industrial use, plus changes in livestock, and farm investment in kind by farmers' own efforts. The same concepts are used by the U.N. economic organs to calculate agricultural

output in Western Europe and by the OECD member countries. In this study the output of agriculture is calculated by subtracting from gross crop and animal production all intermediate products utilized on farms in further production. The physical quantities of output are then aggregated by the FAO wheat-based weights. (The weights are given with some adjustments in G. Lazarcik, "Compendium 1974," pp. 388-389.)

Expenses and depreciation.—Current operating expenses are defined here as the total quantity of all goods and services bought by the agricultural sector from all non-agricultural sectors and from abroad and used up in the production of agricultural output. Depreciation is here defined and calculated as the current charge to take account of wear, tear and obsolescence of capital goods serving agriculture. (See U.N. Economic Commission for Europe, "Agricultural Sector Accounts and Tables, A Handbook of Definitions and Methods," Geneva, 1956, p. 10, and Organization for European Economic Cooperation, "The Measurement of Agricultural Production and Food Consumption," Paris, 1955, p. 15.)

Gross product and net product.—The gross product of agriculture is the gross value added by productive activity within the agricultural sector. It is the contribution of the agricultural sector to gross national product (GNP). In this study it is obtained from agricultural output by subtracting current operating expenses. The net product of agriculture is the gross product minus depreciation. It is the contribution of the agricultural sector to the net national product (NNP) or net value added by the agricultural sector. For the years after 1970, the expenses, gross and net product were calculated by a short cut method described in detail in OP-48 (pp. 74-93 and OP-56, notes to tables 1 to 7.

COMMERCIAL RELATIONS

TRADE AND FACILITATION OF COMMERCIAL RELATIONS BETWEEN EASTERN EUROPE AND THE UNITED STATES

By Karen L. Jurew*

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I. OVERVIEW

U.S. trade with the countries of Eastern Europe¹ showed an impressive rate of growth during the early part of the 1970 but in the past 5 years has slowed to a much more modest pace. Even though the dollar value of total U.S. trade turnover with Eastern Europe has risen from around \$500 million in 1972 to over \$3 billion in 1979, the U.S. share of total Industrialized West trade with Eastern Europe remains small, and currently lies around 5 percent. Several factors account for this. On the economic side, the small share of U.S. trade with Eastern Europe has reflected not only these countries' traditionally established trade patterns with Western Europe and with other CMEA members

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¹For purposes of this paper, Eastern Europe refers to Bulgaria, Czechoslovakia, the German Democratic Republic (GDR), Hungary, Poland, and Romania, all of which are members of the Council of Mutual Economic Assistance (abbreviated CMEA, CEMA or Comecon).

and the historically self-sufficient character of the American economy, but also the Eastern Europeans' difficulties with increasing hard currency-earning exports to the West and these countries' growing concern with restricting imports from, and indebtedness to, the West. Section II of this paper addresses some of these factors, insofar as they relate to U.S. trade with Eastern Europe.

Beyond these elements, the low level of United States-East European trade has been the result of our political relationship with these countries. Section III deals with the development of U.S. legislation governing trade relations with Eastern Europe. The most important legislation in this regard is that relating to export control and to the granting or withholding of trade benefits, including Most-Favored-Nation tariff treatment, Export-Import Bank and Commodity Credit Corporation credits. Issues arising in the context of this legislation are addressed in Section V, while Section IV presents an overview of facilitative institutions and mechanisms that have accompanied the gradual evolution of U.S. commercial policy towards the region.

II. RECENT DEVELOPMENTS IN U.S. TRADE WITH EASTERN EUROPE

From 1977 to 1979, U.S. trade with Eastern Europe continued the expansion that characterized earlier years of the decade. Total trade turnover with these countries nearly doubled between 1977 and 1979, increasing from \$1.6 billion to over \$3 billion (see Tables 1a and 1b). Most of this increase was due to larger shipments of U.S. agricultural products to Eastern Europe that more than tripled during this period, principally because of poor harvests in many of the East European countries in 1979. As a result, the share of agricultural products in total trade turnover increased from about 60 percent in 1977 to almost 80 percent in 1979.

U.S. exports of manufactured products demonstrated mixed performance from 1977 to 1979 but did not match the rapid rate of increase experienced in earlier years of the 1970s. Region-wide growth in these exports showed a modest increase from 1977 to 1978 (from \$267 million to \$353 million, Table 1a), but then declined to \$323 million in 1979. U.S. imports of Eastern European manufactured goods increased by almost 60 percent from 1977 to 1978 but slowed to a 4 percent increase from 1978 to 1979 (Table 1b).

As has been the case since the early 1970s, agricultural products continue to dominate U.S. trade with Eastern Europe. However, the climate within which U.S. trade with these countries is conducted has improved in recent years, broadening possibilities for firms on both sides to cooperate in non-agricultural areas. For example, the 1978 Trade Agreement concluded between the United States and Hungary provided for reciprocal extension of Most-Favored-Nation tariff treatment, which has facilitated a number of cooperation agreements between United States and Hungarian firms. The effects of industrial cooperation agreements in the field of transport, for instance, began to appear in 1979 United States-Hungarian trade statistics, which showed that U.S. imports of tractor and motor vehicle parts increased from about \$6 million in 1978 to \$26 million in 1979.

Although commercial relations between the United States and Eastern Europe have improved and the East Europeans continue to show an interest in pursuing contracts and agreements with firms in the United States, economic developments in these countries in recent years have complicated the bilateral trade picture. East European inability to increase hard currency-earning exports to the Western countries to pay for imports of technology, manufactures, and agricultural products has resulted in a hard currency debt estimated at year-end 1979 to be \$54 billion.² To reduce this debt, most of the countries are now limiting their imports from Western countries. As a result, U.S. exports to these countries, especially of nonagricultural products, have showed slower growth since 1977, and for some countries (notably Poland) have even fallen.

While the East European countries can gain some short-run relief by reducing hard-currency imports, the reasons which persuaded them to seek Western goods and advanced Western technology in the first place—the need for intensive economic development, increased efficiency, and to supplement agricultural shortfalls—remain as, if not more, compelling. However, while unsatisfied needs for equipment, technology and grain remain large and enhance prospects for moderate increases in U.S. exports, needs are not the sole determinants of trade. In the long run continued growth of United States-East European trade will depend on the ability of these countries to expand their hard currency-earning exports to the United States and other Western countries, rather than on continued increase in the debt that contributed to much of the growth in East European imports in the 1970s.

This situation poses a dilemma for the United States' East European trading partners, for while the need to expand exports to the United States clearly exists, East European efforts to do so have met with only modest success. Even though many of these countries have emphasized increasing exports of manufacturers, earnings from these have been held back by traditional problems of quality and servicing. Those manufactures which have proven acceptable in the U.S. market, especially footwear and clothing, have been increasingly susceptible to U.S. import protectionist measures. This also has been true of Eastern European exports of semi-processed goods, such as chemicals, iron and steel products, and textiles, which many East European countries have emphasized in their economic plans of the past five years.

In addition to these factors, restrictions placed on U.S. commercial relations with Eastern Europe by U.S. legislation have influenced bilateral trade levels. This legislation is addressed in the following section and in Section V.

III. TRADE AND THE U.S. POLITICAL RELATIONSHIP WITH EASTERN EUROPE

Increased trade is generally argued to encourage more amicable and stable relations among nations, and U.S. economic relations with

² For a comprehensive review of the Eastern European hard currency debt, see Joan Parpart Zoeter, "East Europe: the Growing Hard Currency Debt," which appears in this volume.

the Soviet Union and Eastern Europe specifically have been assumed to be an effective lever to further U.S. national interests. Changes in U.S. foreign economic policy toward Eastern Europe traditionally have been used for a number of political ends deemed consistent with U.S. foreign policy. Specifically, U.S. Eastern European policy has attempted to encourage the moderation and reform of the East European regimes' domestic policies as well as to encourage polycentrism in the Communist World, including improved bilateral relations of the individual Communist countries with the United States and moderation in their foreign policy to the West as a whole.³

Traditionally underlying the specific applications of economic leverage has been the general attitude that the Communist countries have posed a political and military threat to the United States and should be denied any assistance in development of capabilities which might endanger broadly-defined U.S. security. As a reflection of this attitude, in the 1950s and 1960s restrictive trade legislation was enacted that denied Most-Favored-Nation (MFN) tariff treatment. The Jackson-Vanik Amendment to the Trade Act of 1974 illustrates the persistence of this attitude today.⁴ However, even before the advent of East-West detente in the early 1970s, U.S. policymakers recognized the individuality of certain East European countries in their approach to domestic and foreign policy, and U.S. policies were modified accordingly. Thus, in 1957 a more liberal export licensing policy was introduced for Poland in response to acceptable internal and external policy changes by the Polish government, and MFN treatment was restored to Poland in 1960.

Differentiation in U.S. commercial policy later (1975) was applied to Romania and, more recently (1978), to Hungary under the terms of the Jackson-Vanik Amendment to the Trade Act of 1974. The U.S. approach normally has been a restrictive one with relaxation as reward for specific East European policy changes. The postwar history of United States-East European commercial relations has been characterized by U.S. efforts to expand and improve bilateral political and economic relations with Eastern Europe. This has taken place within the overall framework of foreign policy objectives that attempt to promote acceptable East European policies at home and abroad. This has been done, on the one hand, by loosening restrictions on trade with countries such as Poland, Romania, and Hungary, whose domestic policies are relatively liberal or whose foreign policy demonstrates varying degrees of independence from the Soviet Union, and by maintaining a restrictive stance as regards the more internally repressive regimes of Czechoslovakia, Bulgaria, and the German Democratic Republic, who closely follow the Soviet line on foreign affairs.

U.S. Legislation and Trade Relations

Legislation affecting U.S. commercial relations with Eastern Europe over the years has reflected this ambivalence. The major legis-

³ John P. Hardt, "United States-Soviet Trade Policy," in *Issues in East-West Commercial Relations*. Joint Economic Committee Print, January 12, 1979.

⁴ The Jackson-Vanik Amendment to the Trade Act of 1974 (19 USC 2432) links freedom of emigration in nonmarket economy countries to these countries' eligibility for MFN treatment, programs of credits, credit and investment guarantees, or commercial agreements.

lation that has influenced U.S. commercial policy toward Eastern Europe has been export control legislation and legislation granting or withholding trade benefits (MFN tariff treatment, Export-Import Bank and Commodity Credit Corporation credits). The continued denial of MFN and the restrictions on government-supported credits have affected those nonmarket economy countries unwilling to comply with the provisions of the Trade Act of 1974.

The administration of controls on U.S. exports to Communist countries with potential military applications has been a subject of major legislation since the late 1940s, when the Export Control Act was passed.⁵ Legislation in this area has been characterized by steady liberalization, beginning in the 1960s and embodied in legislation such as the Export Administration Acts of 1969,⁶ 1974, 1977, and 1979. As part of the U.S. response to the Soviet invasion of Afghanistan, President Carter in January 1980 announced his intention to impose new restrictions on U.S. exports to the Soviet Union of agricultural commodities and of high technology and other strategic items.

At the time of this writing, these restrictions have been directed only at the Soviet Union, not at the countries of Eastern Europe. While a certain risk of diversion to the Soviet Union is entailed in continuing to license exports of some high-technology products to Eastern Europe, the U.S. Government is monitoring carefully those exports. If such diversion occurs, U.S. policy towards Eastern Europe will undergo review.

IV. MECHANISMS AND INSTITUTIONS FOR BUSINESS FACILITATION

The overall improvement in political relations between the United States and the countries of Eastern Europe has given rise to a network of institutions and mechanisms designed to promote business contacts and to facilitate trade and economic relations between both sides. In the private sector, bilateral trade and economic councils have been set up between the United States and all six Eastern European countries. On the government-to-government level, these institutions include the three Joint Commercial Commissions which the United States has established with Poland, Romania, and Hungary. In addition, the U.S. Government has taken various initiatives to support increased economic and commercial contacts, has organized numerous trade promotion programs to facilitate business ties, and has attempted to maintain the least restrictive conditions possible for East European businessmen operating within the United States. Details of these various initiatives are outlined below.

Commercial Commissions

The United States has established Commercial Commissions with three Eastern European governments. The Joint Commissions with Poland and Romania were established as a result of summit meetings with the respective leaders in the early 1970s and were viewed as a way

⁵ The Export Control Act of 1949 (50 USC App 2101 et. seq.) enabled the President to control strategic trade with Eastern Europe as well as other communist areas, and was instrumental in the establishment of COCOM (the International Coordinating Committee on Export Controls).

⁶ 50 USC App 2401 et. seq.

of expanding trade by creating an institutionalized, governmental framework for resolving mutual economic problems. The United States-Hungarian Economic Committee was formed as a result of the Trade Agreement signed in March of 1978 by the two countries to meet the same purpose as the other Commissions. The Commissions essentially set trade goals, facilitate commercial relations and open significant channels for the expansion of business contacts and industrial cooperation. They are chaired by senior officials on both sides, and include lower-level working groups operating in specific problem areas. Each Commission meets annually, alternating between Washington and the foreign capital, where discussions are held at the cabinet level.

The joint Commissions have been especially active in examining problems regarding the availability of business facilities and improved operating conditions in the CMEA nations. They also have been responsible for improvements in bilateral exchanges of commercial information. Foreign trade laws and regulations on both sides have been studied and explained, as have foreign investment conditions, tariff structures and domestic regulations and standards. The Commissions have, in addition, served as channels for relaying information on specific trade and investment opportunities. They have also considered questions of trade agreements, trade targets, trade promotion and industrial cooperation.

Trade and Economic Councils

In addition to the three joint governmental Commissions, six private bilateral trade and economic councils have been established to assist in problems of trade development between the United States and the East European countries. These councils, which on the U.S. side are made up of leading businessmen, actively seek to improve commercial relations and contacts between the U.S. business community and that of the East European countries. They carry out a broad range of activities to meet these goals, including: annual meetings of all members; smaller meetings and symposia on individual topics or specific problem areas; guidance and logistical support for individual businessmen; advice on doing business in each other's countries; assisting in contracts, negotiations and disputes settlement; supplying economic data and information on regulations and procedures; developing lists of common commercial terminology; identifying trade opportunities; researching trade-related issues; participating in exhibitions and fairs; and liaison services with the respective governments.

Trade Promotion

Since the signing of the Helsinki Final Act, the U.S. Government has been carrying out an active program of official trade promotion events ranging in scope from major commercial exhibitions, technical sales seminars, to catalogue shows and seminar exhibits.

The U.S. Department of Commerce, since August of 1977, has sponsored official American participation in over a dozen commercial exhibitions in every East European country, in cities such as Poznan, Poland, Plovdiv, Bulgaria, Brno, Czechoslovakia, Leipzig, Bucharest,

and Budapest. These exhibits brought over 600 U.S. exhibitors to Eastern Europe, many of them for the first time. Show themes were technical and provided opportunities for new and significant contacts and exchanges of information in their respective areas.

Official American commercial events in Eastern Europe have included the organization of between 5 and 8 technical sales seminars annually, covering each country of the region. Here again, the emphasis has been on high-technology products and the promotion of commercial and technically oriented contacts between United States and East European industry officials. Official trade promotion efforts have also included exhibits of American industrial and scientific catalogues. They were presented as a way of acquainting East European ministries, purchasing organizations and enterprises with U.S. products and technology.

In addition, the U.S. Government continues to operate a Trade Development Center in Warsaw and Business Facilitation Centers in Budapest and in Prague to provide businessmen with on-the-spot information and assistance, technical support services, liaison assistance with government officials and facilities for staging small sales presentations. U.S. trade promotion events in Eastern Europe were attended by over 500 American firms annually since 1977.

Additionally, as part of its domestic activities, the U.S. Department of Commerce has organized an Advisory Committee on East-West Trade, composed of leading members of the business and academic communities. It meets quarterly to advise the Commerce Department on ways to facilitate the expansion and promotion of East-West trade.

V. MAJOR ISSUES IN U.S.-EAST EUROPEAN COMMERCIAL RELATIONS

The fundamentally restrictive basis from which Congressional legislation affecting U.S. trade with East Europe has departed has engendered the criticism of various East European governments. The thrust of these criticisms, which have repeatedly been raised during bilateral and multilateral discussions, is that U.S. trade policies in four specific areas discriminate against the CMEA states, and stand as obstacles to the development of trade between the United States and CMEA countries. These four areas are: the denial of Most-Favored-Nation tariff treatment (MFN); the denial of government and government-backed credits; export control restrictions; and market disruption and antidumping legislation.⁷

Most-Favored-Nation Tariff Treatment

Of the East European CMEA states the United States presently extends MFN treatment to Poland, Hungary, and Romania. The United States does not extend such treatment to Bulgaria, the German Democratic Republic, or Czechoslovakia. Extension of MFN tariff treatment to these countries must take place within the framework of the 1974 Trade Act,⁸ which provides the legislative authority for the

⁷ "Fulfilling Our Promises: The United States and the Helsinki Final Act," a status report compiled and edited by the staff of the Commission on Security and Cooperation in Europe, Washington, D.C., November 1979, p. 179.

⁸ 19 USC 2101 et. seq.

granting of Most-Favored-Nation status to nonmarket economies. Section 402 of the Act⁹ links the extension of MFN tariff treatment to a country's emigration practices and requires annual Congressional review of those practices. Specifically, the Act allows the President to waive the Act's prohibitions against extending MFN treatment and to enter into a trade agreement with a nonmarket economy country which does not grant its citizens the freedom or opportunity to emigrate if he determines that such a waiver will substantially promote the objectives of free emigration, and if he receives assurances from the foreign government that its emigration practices will, in the future, lead substantially to the objectives of freer emigration. The President's waiver authority must be renewed annually. Furthermore, MFN can be extended only as part of a bilateral trade agreement, which is limited to a three-year, renewable term. Section 405 of the Act¹⁰ outlines certain minimum provisions that must be contained in a trade agreement.

If these conditions are satisfied and a trade agreement is negotiated MFN tariff treatment is extended to the other party when approved by Congress. Poland, which received MFN treatment prior to passage of the 1974 Trade Act, is not subject to the conditions of the Act.

The United States concluded Trade Agreements with Romania in 1975 and with Hungary in 1978 in accordance with the above requirements. Both the Romanian and Hungarian Agreements contain substantive provisions designed to promote trade and economic cooperation. These include nondiscriminatory trade relations; principles governing the expansion of trade; facilitation of business contracts; market disruption safeguards; rights relating to financial transactions; rights relating to patents, trademarks, copyrights, and other industrial rights and processes; the establishment of government trade officers; and settlement of commercial disputes.

With respect to Czechoslovakia, the Trade Act contains a separate provision (Section 408, the Long-Gravel Amendment),¹¹ which requires that the United States and Czechoslovakia renegotiate the agreement of July 5, 1974, concerning the settlement of the claims of U.S. citizens against the Government of Czechoslovakia. The renegotiated agreement must be submitted to Congress for approval at the same time as any proposed trade agreement. The claims agreement has not yet been renegotiated.

The Eastern European countries not now receiving MFN treatment perceive its denial as discriminatory and in negotiations have declared their view that this issue must be solved before our bilateral trade can increase substantially. In addition to the economic obstacles engendered by lack of MFN treatment, a symbolic importance is attached to extension of this trading privilege: receipt of MFN treatment is viewed as recognition of the legitimacy of the trading relationship and as the cornerstone of normalized commercial relations. Furthermore, Romania and Hungary, countries now receiving MFN treatment, have indicated their desire to see the waiver period extended beyond one year, claiming that the annual review provisions inhibit negotiation

⁹ 19 USC 2432.

¹⁰ 19 USC 2435.

¹¹ 19 USC 2438.

of long-term business contracts. However, little evidence exists that this in fact is the case.

Those in the United States who favor granting MFN tariff treatment to the East European countries not now receiving it cite the substantial increase in the level of bilateral trade which granting this privilege would generate. An econometric study completed some years ago in the Department of Commerce indicated that 1976 U.S. imports from Bulgaria, Czechoslovakia, and the GDR would have increased 41, 169, and 250 percent, respectively, had these countries been receiving MFN treatment during that year.¹²

The implication is that, with enlarged hard-currency earnings from increased exports to the U.S., and lower tariffs on U.S. products, these countries would greatly expand their imports from the United States. Supporters of MFN tariff treatment also cite the discouraging effect that its lack is likely to have on United States firms' participation in joint ventures with these countries.

As a consequence of such arguments, there have been some suggestions that the United States should reevaluate Trade Act legislation linking MFN and credits to human rights. While there may be some support for eliminating such linkage, current Congressional interest seems to focus more on modifications of the waiver provisions to give the President greater discretionary power in their application. This interest is reflected in bills introduced in 1979 by Representative AuCoin (H.R. 1835) and Senator Stevenson (S. 339) that would amend the Trade Act of 1974 by removing the requirement that the President receive assurances from a Communist government that its emigration practices will lead substantially to freer emigration of its citizens before using the waiver authority and extending the waiver authority period from one to 5 years.

A second bill introduced by Representative AuCoin (H.R. 1908) would provide, in addition to the provisions of the AuCoin-Stevenson bill, a five-year period for Presidential authority to extend the waiver, except for the period of the initial grant, which would remain one year. The bills are still pending before Congress.

Credits

Countries have access to U.S. commercial banks and financial institutions in order to arrange export financing. Restrictions on borrowing in the United States are contained in the Johnson Debt Default Act of 1934, which prohibits private persons from conducting certain financial transactions with foreign governments which are in default on their obligations to the U.S. Government.¹³ For purposes of the Act, Romania, Hungary, and Bulgaria are not in default of such obligations and are not affected by the Act. However, Poland and Czechoslovakia are potentially affected. The applicability of the Act with regard to the GDR is subject to legal interpretation. Nevertheless,

¹² Helen Raffel, Marc Rubln and Robert Teal, "The MFN Impact on U.S. Imports from Eastern Europe," in *East European Economies Post-Helsinki*, Joint Economic Committee Print, August 25, 1977, p. 1396.

¹³ The prohibited transactions include the making of loans to and the purchase or sale of bonds, securities, or other obligations of, a foreign government which is within the statutory category. The provisions of the Act apply to all countries, not solely the Communist countries. (18 USC 955)

exceptions to the Act and interpretations by the Attorney General have so narrowed the scope of the Act that a significant amount of financing directly from private U.S. sources is still possible even to those countries directly affected.

Unlike commercial banking credits, the extension of U.S. Government credits is governed by specific provisions of U.S. law. Section 402 of the Trade Act prohibits the extension of government or government-backed credits to non-market economy countries, other than Poland (and Yugoslavia) unless the President makes a determination to waive these countries' emigration requirements as stipulated in the Act. Such a determination has been made in the case of Romania and Hungary, thereby making them eligible for U.S. government-supported credits during the period for which the waiver extension applies. The Export-Import Bank Act of 1945, as amended,¹⁴ also contains certain provisions governing the extension of financial support by the Bank. Such support may not be granted to Communist countries unless the President determines that it would be in the national interest to do so. These determinations have been made for all CMEA countries that are otherwise eligible for bank financing (i.e., Poland, Hungary, and Romania). In addition, the Act requires a separate national interest determination by the President for any transaction with a Communist country in excess of \$50 million.

Lack of access to official U.S. Government-supported credits, guarantees, and insurance is an important issue to the three East European countries not now receiving them, not only because such support would help in financing U.S. exports to these countries, but also because they view denial as discriminatory. Furthermore, it is argued that extending eligibility for government support to these countries could have the indirect effect of encouraging U.S. commercial banks to increase lending to them.

For a country such as Bulgaria, which currently is the smallest trading partner of the United States among all the East European CMEA countries, U.S. Government-supported financing potentially could have an impact on bilateral trade with the United States. Bulgaria has an interest in expanding its imports of technology from the United States, but with an estimated year-end 1979 hard currency debt of \$4.5 million it must face the choices of either limiting imports from the West, or finding alternative financing and cooperation arrangements. Official U.S. Government credits potentially could fill part of the financing gap. While trade with the United States would be likely to increase were Bulgaria to become eligible for official credits, such an increase is likely to remain small, given the apparently low priority which the Bulgarians accord the United States and the existing nature of our bilateral trade, which is mostly concentrated in agricultural products. The benefits of increased trade between the United States and the more highly industrialized countries of Czechoslovakia and the GDR that would accrue to both sides were these countries made eligible for U.S. Government financing support are likely to be greater, since potentially more room exists for sustaining a more viable, diversified trading relationship.

¹⁴ 12 USC 82, 835 to 835g.

The Stevenson and AuCoin bills mentioned above also would liberalize the extension of loans to East European countries currently eligible to receive Eximbank credits by raising the ceiling for loans requiring a Presidential determination of national interest from \$50 million to \$100 million. In addition, they would replace the current \$300 million ceiling on Eximbank of trade with the Soviet Union with a \$2 billion ceiling for any Communist country. Such measures could benefit Hungary, Romania, and Poland by facilitating U.S. official lending to these countries, but eligibility for the other three CMEA nations is unlikely to be established in the foreseeable future.

Export Controls

The United States, like all countries with an inherent interest in promoting exports, must consistently strive to maintain a balance between the need to increase exports generally and to control those exports which might be detrimental to national security or foreign policy interests. The two concerns are often contradictory, and both the legislative and executive branch of the U.S. Government strive periodically to review and revise the laws and procedures governing U.S. export controls to ensure that they best meet the requirements of both these interests.

Congress has attempted, in its periodic reviews of the Export Administration Act, to improve the procedures involved in U.S. export license processing by clarifying and limiting specific licensing criteria, by reducing licensing delays and by minimizing unilateral U.S. controls. The Export Administration Act of 1979¹⁵ comprises the first major reform of export control legislation in the past decade by attempting to liberalize controls in several ways: providing for clear distinction between foreign policy and national security controls; reducing the number of categories requiring validated licenses by encouraging the periodic removal of goods as they become obsolete and by allowing application for multiple exports; setting time limits on an agency's decisions, and by requiring greater consideration of foreign availability.

Market Disruption and Other Safeguards

The United States maintains laws to safeguard against market disruption, dumping, and foreign subsidies. Four basic legal provisions govern the investigation of market disruption, injury, or unfair trade practices complaints against imports from nonmarket economies: Title I of the Trade Agreements Act of 1976,¹⁶ which replaces the Anti-dumping Act of 1921; the market disruption provisions and the escape clause provisions of the 1974 Trade Act; and the countervailing duty provisions of the 1930 Tariff Act.¹⁷ Of these, the market disruption provisions of the Trade Act and the antidumping provisions of the Trade Agreements Act apply specifically to imports from centrally-planned economy countries. The justification for this is based on the need to protect against the presumed superior ability of the cen-

¹⁵ 50 USC App 2401 et. seq.

¹⁶ 19 USC 1873.

¹⁷ 19 USC 1303.

trally-planned economy to direct and control its trade, to price its exports without regard to production costs, and to act without regard to the market forces that constrain the behavior of other world traders.¹⁸

The antidumping provisions of the Trade Agreements Act of 1979 are intended to counter unfair foreign competition created by price discrimination. Whenever the Secretary of Commerce¹⁹ determines that a class or kind of foreign merchandise is being imported into the United States at less than fair value, thereby injuring, threatening injury to, or preventing the establishment of, an industry in the United States, a special dumping duty equal to the amount by which the foreign market value of the imported merchandise exceeds its United States price is levied and paid on all such imported merchandise. This is applicable to all countries.

Section 773(c) contains special provisions that govern the determination of the foreign market value of merchandise exported from State-controlled economies. These provisions stipulate that the foreign market value of such merchandise will be made on the basis of the normal cost, expense, and profit as reflected by either (1) prices at which such or similar merchandise of a non-state-controlled economy country or countries is sold either for home consumption to other countries; or (2) the constructed value of such or similar merchandise in a non-state-controlled economy country or countries. Determination of the constructed value of imported merchandise is governed by Section 773(c)(1) of the Trade Agreements Act of 1979.

Following determination by the Secretary of Commerce that sales at less than fair value exist, the case is forwarded to the U.S. International Trade Commission (USITC) for a determination of whether the imports at less than fair value are injuring a U.S. industry. An affirmative determination of injury by the USITC is followed by a formal dumping finding, after which all imports covered by the finding are subject to the assessment of duties to offset any dumping margins that exist on each entry of the merchandise following the date at which appraisal was withheld.

In only five instances since 1970 has an East European import been found to be sold in the United States at less than fair value, resulting in the forwarding of the case to the United States International Trade Commission for an injury determination. In only one of these cases has the USITC investigation resulted in a determination of injury to U.S. industry: that of golf cars from Poland. As a result of that determination special dumping duties were imposed by the Treasury Department. However, on May 20, 1980, the USITC removed the finding of dumping following a reinvestigation of the case.

In antidumping cases involving imports of cast iron soil pipe fittings from Poland in 1972, Romanian clear sheet glass in 1977, Hungarian incandescant light bulbs in 1978, and Polish carbon steel plate in 1979, no finding of injury was made.

The market disruption provisions of the Trade Act give the President authority to restrict imports from nonmarket economy countries

¹⁸ Karen Taylor and Deborah Lamb, "Communist Exports to the West in Import Sensitive Sectors," in *Issues in East-West Commercial Relations*, January 12, 1979, p. 127.

¹⁹ An executive order signed by President Carter on January 2, 1980, implementing a reorganization of the trade functions of the U.S. Government vested in the Department of Commerce new responsibilities in administering antidumping and countervailing duty statutes. These responsibilities formerly were held by the Treasury Department.

if such imports cause or threaten to cause material injury to the United States domestic industry. Since the Trade Act was enacted in January 1975, only one investigation with respect to an East European import—that of clothespins from Romania and Poland—has been conducted, but no finding of market disruption was made by the ITC.

Criticisms levied against United States antidumping laws and market disruption provisions, as they are applied to nonmarket economies, are based on the fact that they do create some difficulties for CMEA states attempting to increase their exports to the U.S. Under U.S. procedures, however, no imports from CMEA states have yet been limited under the Trade Act's market disruption provisions and in only one case have duties been assessed under U.S. anti-dumping laws. The conclusion can thus be drawn that, while from time to time specific sectors or specific products might prove troublesome, exports from the East European countries have not proved overly disruptive.

Whether this conclusion from past studies will prevail in the future is subject to conjecture. Generally, CMEA export composition does not reveal a pattern of concentration on sensitive sectors that differs notably from world export patterns. Like other countries in the world certain individual East European countries have received access to the U.S. market in a few product areas which are sensitive—principally, textiles, clothing, steel, and footwear. Though their share of total U.S. imports in those sectors remains small, in some sectors this share is rising and those countries may meet with increasing import restrictions.

Section 201 of the Trade Act of 1974 ("escape clause") provides a means whereby relief may be sought for the purposes of facilitating orderly adjustment to import competition. When petitioned, or on its own initiative, the International Trade Commission is required to determine whether an article is being imported into the United States in such increased quantities as to be a substantial cause of serious injury, or threat thereof, to the domestic industry producing an article similar to or directly competitive with the imported article. This provision closely parallels the market disruption provisions of the Trade Act of 1974, except that it applies to imports from all countries. To date, no actions have been taken against imports from the Eastern European CMEA countries under these provisions.

Pursuant to Section 701 of the Trade Agreements Act of 1979²⁰ the International Trade Commission determines with respect to any duty-free article on which the Secretary of Commerce has determined that a subsidy is being paid, whether an industry in the United States is being or is likely to be injured, or is prevented from being established, by reason of importation of such article. If an affirmative determination is made, duties in the amount of the net subsidy are assessed and collected except where the Secretary of Commerce determines that adequate steps have been taken to reduce or eliminate the adverse effect of the subsidy, or that imposition of an additional duty would not be in the national interest of the United States. There have been no countervailing duty investigations with respect to any of the Eastern European CMEA countries.

²⁰ 19 USC 1671.

VI. SUMMARY AND CONCLUSIONS

The issues discussed above constitute one set of factors influencing trade between the United States and the countries of Eastern Europe. Generally, these factors are viewed by the East Europeans as inhibiting the development of bilateral trade with the United States. These concerns may be valid, especially when one considers the expansion of bilateral trade that has taken place since commercial relations have been broadened between the United States and Poland, Romania, and Hungary. However, favorable bilateral institutional and legislative arrangements are not the only determinants of expanded trade with these countries. In the present decade international economic development and economic trends within the Eastern European countries will continue to play a role in influencing trade with the United States as well.

TABLE 1A.—UNITED STATES AGRICULTURAL AND NONAGRICULTURAL TRADE WITH EASTERN EUROPE, THE SOVIET UNION, AND CHINA, 1972 AND 1975-79

[U.S. dollars by country]

Country	1972	1975	1976	1977	1978	1979
Bulgaria.....	1,566,236	19,610,362	31,558,209	2,430,033	39,893,171	41,019,381
Czechoslovakia.....	39,412,054	35,189,485	123,698,835	54,487,431	77,110,810	247,998,734
German Democratic Republic.....	11,631,383	10,556,031	58,273,277	31,196,631	153,960,199	321,818,044
Hungary.....	10,453,499	40,463,302	22,441,607	33,889,784	52,676,231	24,466,270
Poland.....	79,864,974	367,813,420	481,272,909	293,005,348	503,476,918	651,370,650
Romania.....	44,822,880	101,053,421	171,584,447	118,301,976	148,543,037	336,514,989
Total to Eastern Europe.....	187,751,026	574,686,021	888,829,284	533,311,170	975,660,366	1,623,188,068
As percent of total exports to Eastern Europe.....	(69)	(61)	(41)	(58)	(69)	(79)
U.S.S.R.....	434,344,814	1,135,613,793	1,486,970,594	1,036,763,974	1,686,548,434	2,854,896,467
People's Republic of China.....	58,189,098	79,689,109	44,185	63,981,531	573,296,691	990,158,718
Total agricultural exports.....	680,284,926	1,789,988,923	2,375,844,063	1,634,056,675	3,235,505,491	5,468,243,253
U.S. nonagricultural exports:						
Bulgaria.....	1,635,808	9,687,587	11,761,904	21,479,864	8,227,186	15,205,568
Czechoslovakia.....	9,469,344	17,710,049	23,767,602	19,502,038	28,237,827	33,130,718
German Democratic Republic.....	3,155,793	6,622,876	6,493,398	4,902,003	16,160,476	32,703,982
Hungary.....	11,950,498	35,588,645	40,518,049	45,826,976	45,005,320	53,122,014
Poland.....	31,660,880	212,270,166	139,762,307	143,530,580	173,544,853	134,887,291
Romania.....	24,227,878	88,224,169	77,448,102	141,103,362	168,880,139	163,949,185
Total to Eastern Europe.....	82,100,201	370,103,487	299,751,353	376,344,821	440,055,789	432,998,750
As percent of total exports to Eastern Europe.....	(31)	(39)	(59)	(42)	(31)	(21)
U.S.S.R.....	112,268,895	697,081,448	818,963,717	586,719,743	562,471,823	748,735,878
People's Republic of China.....	2,016,093	223,941,804	135,343,962	107,336,577	244,944,426	726,341,187
Total nonagricultural exports.....	196,385,189	1,661,230,226	1,254,059,032	1,070,401,141	1,247,472,038	1,908,075,815
Total agricultural and nonagricultural exports.....	876,670,115	3,451,219,649	3,629,903,095	2,704,457,816	4,482,977,529	7,376,319,058
Of which to Eastern Europe.....	269,851,227	944,789,508	2,133,370,145	909,655,991	1,415,716,155	2,056,186,818

TABLE 1B.—UNITED STATES AGRICULTURAL AND NONAGRICULTURAL TRADE WITH EASTERN EUROPE, THE SOVIET UNION, AND CHINA, 1972 AND 1975-79
[U.S. dollars by country]

Country	1972	1975	1976	1977	1978	1979
Bulgaria.....	2, 508, 755	19, 513, 001	26, 332, 503	15, 343, 824	16, 195, 834	27, 769, 979
Czechoslovakia.....	1, 105, 755	1, 882, 134	3, 977, 943	5, 423, 004	6, 171, 831	7, 766, 640
German Democratic Republic.....	173, 433	572, 090	905, 112	1, 703, 745	2, 721, 620	2, 226, 820
Hungary.....	5, 711, 261	13, 639, 105	22, 492, 987	26, 190, 896	34, 611, 192	35, 948, 406
Poland.....	79, 864, 974	367, 813, 420	481, 272, 909	293, 005, 348	503, 476, 918	651, 370, 650
Romania.....	44, 822, 880	101, 053, 421	171, 584, 447	118, 301, 976	148, 543, 037	336, 514, 989
Total from Eastern Europe.....	134, 187, 050	504, 473, 170	706, 565, 885	459, 963, 779	711, 720, 417	1, 061, 592, 475
As percent of total imports from Eastern Europe.....	(48)	(62)	(61)	(49)	(50)	(60)
U.S.S.R.....	3, 847, 262	8, 403, 981	8, 785, 656	13, 280, 279	12, 642, 888	14, 049, 076
People's Republic of China.....	16, 981, 014	28, 702, 634	56, 445, 587	67, 797, 867	84, 704, 761	87, 993, 479
Total agricultural imports.....	155, 015, 326	541, 579, 785	771, 797, 128	540, 546, 925	803, 068, 066	1, 163, 635, 025
U.S. nonagricultural imports:						
Bulgaria.....	362, 798	704, 071	622, 226	2, 607, 060	2, 896, 478	6, 932, 756
Czechoslovakia.....	26, 866, 146	32, 746, 980	32, 397, 575	31, 175, 538	51, 832, 876	43, 169, 952
German Democratic Republic.....	10, 162, 673	10, 677, 483	12, 739, 730	15, 060, 048	32, 563, 135	34, 124, 225
Hungary.....	7, 014, 014	21, 012, 826	26, 520, 733	20, 393, 888	33, 852, 189	76, 276, 372
Poland.....	74, 463, 114	123, 070, 300	174, 051, 149	203, 105, 982	283, 664, 754	261, 476, 820
Romania.....	26, 157, 841	120, 447, 198	182, 636, 792	212, 678, 847	315, 245, 755	295, 342, 385
Total from Eastern Europe.....	145, 026, 581	303, 658, 850	453, 319, 943	485, 021, 354	720, 055, 170	717, 322, 500
As percent of total imports from Eastern Europe.....	(52)	(38)	(39)	(51)	(50)	(40)
U.S.S.R.....	91, 593, 787	245, 794, 822	211, 831, 989	221, 062, 338	527, 747, 411	859, 102, 882
People's Republic of China.....	15, 338, 652	129, 627, 833	145, 471, 334	134, 863, 390	239, 247, 815	504, 287, 388
Total nonagricultural imports.....	251, 959, 011	684, 031, 500	810, 623, 253	840, 947, 134	1, 487, 050, 390	2, 030, 712, 700
Total agricultural and nonagricultural imports.....	406, 974, 337	1, 225, 661, 585	1, 582, 420, 381	1, 381, 494, 059	2, 296, 118, 456	3, 224, 347, 725
Of which from Eastern Europe.....	279, 213, 630	813, 132, 020	1, 159, 885, 800	944, 990, 120	1, 431, 775, 500	1, 778, 914, 975

TABLE 1C.—UNITED STATES TRADE WITH BULGARIA, 1972 AND 1975-79

[Dollar amounts in U.S. dollars]

SITC	1972	1975	1976	1977	1978	1979	Percent of total 1979	
United States domestic exports to Bulgaria:								
Animal feeding-stuff, excl unml cereal								
Oil seeds and oleaginous fruit	08	\$7,518	\$3,931,630	\$1,590,405	\$284,568	\$11,637,312	\$23,322,608	41.5
Cereals and prep of cereal, flour, etc	22			1,595	174,757	22,764	9,141,758	16.3
Pulp and waste paper	04		14,779,595	28,455,241	1,374,896	25,010,140	5,515,353	9.8
Apparel articles and accessories	25	2,552		141,063		358,009	3,133,286	5.6
Hides skins and furskins, undressed	84			1,450	583,175	591,631	2,793,181	5.0
Tobacco and tobacco manufactures	21	724,172	274,567	746,471	528,820	1,128,972	1,883,250	3.3
Office machines and auto data proc equip	12	49,679	22,146	274,696		633,717	1,675,256	3.0
Electric equipment n.s.p.f. and elect pts, n.s.p.f.	75					565,542	1,326,038	2.4
Industrial machy, n.s.p.f.; and mach pt n.s.p.f.	77					730,683	1,324,682	2.4
Prof. scientific and control inst n.s.p.f.	74					246,186	930,825	1.7
Specialized industrial machinery	87				4,011,212	1,089,248	916,199	1.6
Metalworking machinery	72	185,966	1,846,812	1,585,933	8,826	390,158	678,698	1.2
Chemical materials and products n.s.p.f.	73	6,190	30,813	8,304	1,049,863	218,058	400,048	.7
Vegetables and fruits	59	40,737	180,832	207,563	805,085	224,495	327,477	.6
	05	743,036		426,186		1,033,850	288,813	.5
Total		3,202,044	29,297,949	43,320,113	23,909,897	48,120,357	56,224,949	95.6
United States general imports from Bulgaria:								
Tobacco and tobacco manufacturers	12	4,773	17,202,329	24,150,584	13,851,588	14,240,498	25,315,991	73.0
Wear app and access and articl made of fur	84			25,200	1,515	965,983	1,484,013	4.3
Office and automatic data process machs	75	558,557				836,728	1,299,060	3.7
Dairy products and birds' eggs	02	552,705	381,502	888,831	377,708	1,151,898	1,280,731	3.7
Essential oils, perfumery, soaps, etc	55	400	301,124	560,513	337,646	331,665	1,100,391	3.2
Metalworking machinery	73					274,280	1,030,058	3.1
Metalliferous ores and metal scrap	28	47,961					905,926	2.6
Footwear, new, exc military or orthopdc	85	32,693	12,982		17,109	132,480	858,795	2.5
Nonmetallic mineral manufactures n.s.p.f.	66	130,342	61,128	92,899	207,490	229,114	373,390	1.1
Medicinal and pharmaceutical products	54	30,428	38,532	3,016	9,144	156,901	250,359	.7
Misc manufactured articles n.s.p.f.	89	538,852	47,635	94,474	86,553	57,467	206,786	.6
Coffee, cocoa, tea, spices, and mfrs	07	285,844	935,850	333,231	252,533	188,074	131,515	.4
Meat and meat preparations	01	333,697	382,820				101,579	.3
Animal and vegetable nriarl, n.s.p.f., crude	29		159,952	144,139	233,530	67,655	99,452	.3
Industrial machinery, n.s.p.f., and parts	74					3,263	63,085	.2
Total		2,871,553	20,217,072	26,954,729	17,950,884	19,092,312	34,702,735	99.7

Note: 1978 and 1979 data are not directly comparable to years previous to 1978 due to commodity schedule changes.

TABLE ID.—UNITED STATES TRADE WITH CZECHOSLOVAKIA, 1972 AND 1975-79

[Dollar amounts in U.S. dollars]

	SITC	1972	1975	1976	1977	1978	1979	Percent of total 1979
United States domestic exports to Czechoslovakia:								
Cereals and prep of cereal, flour, etc.....	04	\$4,224,726	\$62,444	\$69,680,151	\$8,936,293	\$44,642,556	\$167,226,332	49.6
Animal feeding-stuff, excl unml cereal.....	08	14,563,959	18,149,126	27,330,866	17,125,965	10,746,424	42,836,400	12.7
Hides, skins, and furskins, undressed.....	21	13,171,793	8,813,524	11,555,877	15,951,685	14,375,677	31,441,926	9.3
Fertilizers and fertilizer material n.s.p.f.....	22					1,782,625	9,595,500	2.8
Oilseeds and oleaginous fruit.....	56	3,530,086	3,665,673	7,114,233	8,116,486	4,251,537	4,108,313	1.2
Office machines and auto data proc equip.....	75					5,115,288	2,944,368	.9
Prof, scientific and control inst n.s.p.f.....	87					2,414,662	2,771,775	.8
Industrial machy, n.s.p.f. and mach pt n.s.p.f.....	74					3,031,842	2,352,508	.7
Specialized industrial machinery.....	72	1,688,358	2,311,042	2,803,600	2,202,194	3,937,821	2,335,142	.7
Tobacco and tobacco manufactures.....	12	474,359	3,601,471	5,841,288	3,166,026	1,815,001	1,996,754	.6
Chemical materials and products n.s.p.f.....	59	166,440	383,409	694,131	949,077	279,197	1,295,300	.4
Gen merchandise, under \$251, estimated.....	99					266,097	1,228,981	.4
Misc manufactured articles n.s.p.f.....	89	259,526	1,549,558	1,662,522	1,200,956	464,214	1,157,162	.3
Organic chemicals.....	51	422,447	629,420	1,379,957	1,233,519	596,689	1,021,996	.3
Inorganic chemicals.....	52				1,200	561,249	982,305	.3
Total.....		48,881,398	52,899,534	147,466,437	73,989,469	105,348,637	281,129,452	81.0
United States general imports from Czechoslovakia:								
Footwear, new, exc military or orthopdc.....	85	4,295,826	4,168,203	6,118,223	6,069,722	9,733,811	7,052,262	8.2
Specialized industrial machinery.....	72	13,243	188,134	75,396	186,703	5,460,319	6,831,197	8.0
Nonmetallic mineral manufacturers n.s.p.f.....	66	4,010,653	3,948,040	5,146,123	5,795,745	6,596,701	6,826,284	8.0
Metalworking machinery.....	73	5,077,053	2,045,356	1,136,038	959,161	4,886,295	5,243,545	6.1
Meat and meat preparations.....	01	433,345	442,846	1,960,058	2,109,519	3,787,047	4,418,914	5.2
Iron and steel.....	67	4,654,503	3,342,749	3,248,759	2,459,581	11,180,757	4,072,290	4.8
Misc manufactured articles n.s.p.f.....	89	1,869,040	5,186,305	1,672,184	1,192,984	2,352,712	2,553,086	3.0
Yarns, fabric, and articles, textile.....	65	712,168	1,359,956	1,800,088	1,833,369	2,235,554	2,255,157	2.6
Wear app and acces and articl made of fur.....	84	653,976	1,106,128	1,887,274	2,352,589	3,052,641	2,242,326	2.2
Vegetables and fruits.....	05	1,671	413,004	704,707	1,148,337	527,787	1,858,220	2.2
Furniture and parts thereof.....	82	680,172	494,425	823,623	893,370	1,188,014	1,208,257	1.4
Light fxts, ftrs; crmc plum fx n.s.p.f.....	81	510,267	538,867	537,113	584,938	996,685	953,073	1.1
Medicinal and pharmaceutical products.....	54	9,586	505,784	730,124	841,849	1,078,733	898,948	1.0
Road vehicles.....	78					926,727	642,454	.8
Manufactures of metal, n.s.p.f.....	69	215,865	101,721	165,589	164,135	272,769	517,389	.6
Total.....		27,971,901	34,629,114	36,375,518	36,598,542	58,004,707	50,936,592	55.6

Note: 1978 and 1979 data are not directly comparable to years previous to 1978 due to commodity schedule changes.

TABLE 1E.—UNITED STATES TRADE WITH THE GERMAN DEMOCRATIC REPUBLIC, 1972 AND 1975-79

[Dollar amounts in U.S. dollars]

	SITC	1972	1975	1976	1977	1978	1979	Percent of total 1979
United States domestic exports to German Democratic Republic:								
Cereals and prep of cereal, flour, etc.	04	\$9,965,793	\$6,815,609	\$48,742,082	\$20,246,099	\$106,812,675	\$245,773,593	69.3
Animal feeding-stuff, excl unml cereal	08				5,117,753	43,573,680	72,835,167	20.5
Syn resins; rubber and plastic materials	58	75,982	25,600	72,998	72,241	1,310,292	8,777,264	2.5
Coal, coke, and briquettes	32	411,010					6,123,828	1.7
Photo equip, OPT goods and timing appts	88					246,814	4,130,418	1.2
Industrial machy, n.s.p.f.; and mach pt n.s.p.f.	74					1,019,336	2,497,095	.7
Specialized industrial machinery	72	385,031	326,026	601,965	559,739	853,222	1,943,368	.5
Crude rubber, nc, synthetic and reclaimed	23			122,443	203,835	455,101	1,498,860	.4
Prof, scientific and control inst n.s.p.f.	87					2,031,511	1,257,831	.4
Hides, skins, and furskins, undressed	21	132,056	853,204	518,426	1,128,310	868,002	1,109,300	.3
Office machines and auto data proc equip	75					429,771	1,008,709	.3
Yarn, fabric, and articles, textile	22	3,533		43,991	4,130	37,587	889,463	.3
Oilseeds and oleaginous fruit	65			840,000	1,079,891	563,737	867,838	.2
Pulp and waste paper	22			165,600		340,987	692,475	.2
Misc manufactured articles n.s.p.f.	25	104,720	721,300	544,103	70,013	79,657	573,104	.2
Total		14,787,176	17,178,907	64,766,675	36,098,634	170,120,675	354,522,026	98.7
United States General imports from German Democratic Republic:								
Specialized industrial machinery	72	992,443	433,419	407,949	365,957	4,359,247	5,936,187	16.3
Nonmetallic mineral manufacturers n.s.p.f.	66	1,416,077	1,499,522	1,157,983	1,846,905	2,814,871	3,675,929	10.1
Fertilizers and fertilizer materials	56			2,070,773	3,158,988	6,894,714	3,192,447	8.8
Office machines and auto data proc equip	75					522,874	3,135,940	8.6
Metalworking machinery	73	18,766	150,788	42,358	167,958	1,948,399	1,995,129	5.5
Photo equip, OPT goods and timing appt	88					2,044,559	1,977,265	5.4
Hides, skins, and furskins, undressed	21	133,401	461,073	696,629	1,495,734	2,424,397	1,791,639	4.9
Wear app and acces and articl made of fur	84	22,081	8,008	5,612	7,200	1,658,084	1,765,119	4.9
Tires and tubes for tires	62		45,096	48,669	7,238	1,399,157	1,756,334	4.8
Leather, lea mfrs, n.s.p.f. and drssd furskns	61	236,347	172,500	608,455	956,200	1,116,167	1,545,871	4.3
Misc manufactured articles n.s.p.f.	89	726,201	1,095,907	1,459,881	1,188,527	4,012,831	1,385,036	3.8
Special transactions n.s.p.f.	93	13,443	12,783	56,042	88,294	152,592	1,277,273	3.5
Petroleum products	33	1,328,212	1,094,703	561,732	452,415	924,370	977,983	2.7
Cork and wood mfrs, exc furniture	63	277,594	350,349	364,252	490,996	797,337	915,287	2.5
Prof, scientific and control inst n.s.p.f.	87					651,663	895,165	2.5
Total		10,336,106	11,249,573	13,644,842	16,763,793	35,284,755	36,351,045	88.6

Note: 1978 and 1979 data are not directly comparable to years previous to 1978 due to commodity schedule changes.

TABLE 1F.—UNITED STATES TRADE WITH HUNGARY, 1972 AND 1975-79

[Dollar amounts in U.S. dollars]

	SITC	1972	1975	1976	1977	1978	1979	Percent of total 1979
United States domestic exports to Hungary:								
Animal feeding-stuff, excl unml cereal	08	\$6,627,727	\$34,908,209	\$14,521,231	\$12,254,864	\$32,360,896	\$13,392,739	17.8
Fertilizers and fertilizer material n.s.p.f.	56	1,320	6,988,830	13,637,732	8,501,800	5,826,318	12,256,011	15.8
Specialized industrial machinery	72	460,699	1,255,974	1,429,963	4,972,961	15,867,004	10,016,262	12.9
Hides, skins, and furskins, undressed	21	2,557,929	2,791,043	5,174,924	8,104,079	5,825,718	6,732,332	8.7
Road vehicles (incl air-cushion) and pts	78					5,508,576	4,124,546	5.3
Prof, scientific and control inst n.s.p.f.	87					2,860,814	3,301,091	4.3
Organic chemicals	51	2,730,141	3,786,814	1,960,814	1,224,049	508,498	2,860,354	3.7
Nonmetallic mineral mfgs n.s.p.f.	66	435,029	711,729	1,502,958	1,664,082	2,562,508	2,462,029	3.2
Industrial machy, n.s.p.f.; and mach pt n.s.p.f.	74					645,077	2,194,394	2.8
Medicinal and pharmaceutical products	54	4,810	89,810	359,730	981,763	2,717,062	2,148,557	2.8
Yarn, fabric, and articles, textile	65	3,500	141,877	149,105	7,851	337,461	1,845,355	2.4
Metalworking machinery	73	130,996	3,206,802	5,701,735	6,072,224	1,004,133	1,808,375	2.3
Raw textile fibers and their waste	26	6,000	3,758	7,364	3,000	27,257	1,736,849	2.2
Electric equip n.s.p.f. and elect pts, n.s.p.f.	77					721,359	1,694,752	2.2
Office machines and auto data proc equip	75					2,620,105	1,617,890	2.1
Total		22,403,997	76,051,947	62,959,656	79,716,760	97,681,551	77,588,284	88.0
United States general imports from Hungary:								
Meat and meat preparations	01	4,787,419	12,475,209	19,797,702	20,014,964	27,248,394	25,836,525	23.0
Road vehicles	78					5,705,967	23,467,533	20.9
Electrical machinery, n.s.p.f. and pts n.s.p.f.	77					6,237,109	9,465,396	8.4
Wear app and acces and articl made of fur	84	770,658	495,009	364,465	692,592	1,348,652	8,164,889	7.3
Organic chemicals and related products	81	140,178	168,979	225,026	494,560	838,666	6,707,418	6.0
Footwear, new, exc military or orthopdc	85	12,126	161,639	474,764	1,859,466	6,420,611	5,598,602	5.0
Dairy products and birds' eggs	02	97,326	173,771	184,500	370,322	876,435	4,965,604	4.4
Office and automatic data process machs	75					2,159,198	4,722,962	4.2
Tires and tubes for tires	62	3,527	43,512	2,315,670	1,760,559	2,792,298	4,215,721	3.8
Misc manufactured articles n.s.p.f.	89	1,288,731	2,043,632	2,135,884	2,472,559	2,095,759	3,207,913	2.9
Nonmetallic mineral manufactures n.s.p.f.	66	1,545,837	2,048,280	1,728,421	1,674,722	2,058,897	3,109,699	2.8
Coffee, cocoa, tea, spices, and mfrs	07	131,158	90,984	560,317	1,348,849	2,019,328	1,999,229	1.8
Medicinal and pharmaceutical products	54	1,232,266	609,620	3,628,065	3,698,952	3,942,386	1,478,748	1.3
Yarns, fabric, and articles, textile	65	452,717	124,992	192,740	250,110	155,904	1,440,057	1.3
Metalworking machinery	73	139,534	2,531,048	6,702,491	4,056,521	462,792	1,233,796	1.1
Total		12,725,275	34,651,931	49,013,720	46,584,784	68,463,381	112,224,778	94.2

Note: 1978 and 1979 data are not directly comparable to years previous to 1978 due to commodity schedule changes.

TABLE 1G.—UNITED STATES TRADE WITH POLAND, 1972 AND 1975-79

[Dollar amounts in U.S. dollars]

SITC	1972	1975	1976	1977	1978	1979	Percent of total 1979	
United States domestic exports to Poland:								
Cereals and prep of cereal, flour, etc.	04	\$22,963,546	\$255,334,626	\$346,736,812	\$197,686,309	\$270,474,392	\$399,276,841	
Animal feeding-stuff, excl unml cereal	08	13,180,402	37,693,990	74,958,847	46,110,417	127,207,273	95,468,542	50.8
Oil seeds and oleaginous fruit	22	11,847,879	36,473,268	12,873,335	5,049,055	41,842,579	55,060,002	12.1
Raw textile fibers and their waste	26	8,456,837	4,945,704	10,857,585	5,117,341	17,116,365	26,240,000	7.0
Vegetable oils and fats, fixed	42	7,275,888	11,126,137	4,725,393	8,502	8,034,517	22,903,200	3.3
Hides skins and furskins, undressed	21	9,691,679	10,106,551	8,869,821	13,442,894	10,779,066	22,697,177	3.0
Fertilizers, crude and minerals excl coal	27	118,094	19,981,023	8,321,986	21,862,237	26,343,758	22,081,813	2.9
Specialized industrial machinery	72	1,601,222	20,962,287	19,041,013	10,340,318	16,551,047	16,051,245	2.8
Tobacco and tobacco manufactures	12	2,556,174	4,777,096	6,450,299	11,115,838	11,226,350	13,343,447	2.0
Metalworking machinery	73	242,868	11,768,709	14,307,725	13,753,047	27,722,201	11,232,586	1.7
Industrial machy, n.s.p.f.; and mach pt n.s.p.f.	74					31,385,662	10,197,525	1.4
Road vehicles (incl air-cushion) and pts	78					12,895,438	9,472,810	1.3
Yarn, fabric, and articles, textile	65	544,356	4,305,054	4,962,456	2,165,213	5,731,396	9,260,132	1.2
Vegetables and fruits	05	1,183,651	4,729,621	7,466,527	5,667,003	9,948,108	7,078,878	1.2
Organic chemicals	51	3,819,885	4,459,843	7,382,259	3,304,947	2,551,940	6,426,854	.9
Total		111,525,854	580,083,586	621,035,216	436,535,928	677,021,771	786,257,941	92.4
United States General imports from Poland:								
Meat and meat preparations	01	52,800,696	105,964,626	126,992,676	107,703,521	136,043,921	147,026,243	34.5
Wear app and acces and articl made of fur	84	4,627,014	11,592,753	25,815,272	37,857,951	49,950,185	44,341,658	10.4
Metalworking machinery	73	2,530,360	9,093,182	9,014,311	9,603,588	14,548,312	22,701,252	5.3
Manufactures of metal, n.s.p.f.	69	10,316,736	14,127,540	17,188,186	16,587,917	24,656,870	21,436,583	5.0
Coal, coke, lignite, and peat	32	169,658	2,581,297	7,529,062	8,880,337	19,742,576	20,820,007	4.9
Iron and steel	67	17,423,930	15,059,291	12,940,159	22,394,840	53,408,953	20,000,001	4.8
Yarns, fabric and articles, textile	65	6,418,147	6,953,932	11,107,855	12,976,208	15,735,565	19,328,010	4.5
Footwear, new, exc military or orthopdc	85	2,671,051	11,349,107	19,169,773	13,854,833	22,374,148	16,537,805	3.9
Organic chemicals and related products	51	5,037,551	10,343,108	19,073,061	10,238,530	14,050,813	12,883,795	3.0
Fish (including shellfish) and preps	03	5,504,902	5,455,313	8,785,869	11,155,965	5,562,690	10,659,015	2.5
Nonferrous metals	68	1,708,665	900,318	1,893,160	2,908,200	5,376,091	10,003,956	2.3
Misc manufactured articles n.s.p.f.	89	3,529,249	3,545,518	5,068,988	4,211,925	8,222,548	8,732,214	2.0
Furniture and parts	82	3,609,279	6,289,908	7,208,277	7,667,604	9,867,635	8,444,737	2.0
Nonmetallic mineral manufactures n.s.p.f.	66	4,500,189	3,577,790	4,943,934	5,757,155	7,183,896	7,395,570	1.7
Road vehicles	78					7,050,138		1.7
Total		139,170,988	243,078,513	318,763,398	329,085,429	438,848,649	426,493,931	88.5

Note: 1978 and 1979 data are not directly comparable to years previous to 1978 due to commodity schedule changes.

TABLE 1H.—UNITED STATES TRADE WITH ROMANIA, 1972 AND 1975-79

[Dollar amounts in U.S. dollars]

	SITC	1972	1975	1976	1977	1978	1979	Percent of total 1979
United States domestic exports to Romania:								
Cereals and prep of cereal, flour, etc.	04	\$11,060,959	\$73,716,493	\$74,038,858	\$36,839,968	\$32,545,663	\$116,747,188	23.3
Oil seeds and oleaginous fruit	22	919	3,505,646	45,282,040	38,646,173	40,788,410	73,947,278	14.8
Hides, skins, and furskins, undressed	21	19,798,850	9,717,246	34,297,461	26,662,828	52,223,118	59,671,971	11.9
Animal feeding-stuff, excl unml cereal	08	5,513,048	1,886,102	17,730,548	9,500,387	8,556,733	57,016,083	11.4
Coal, coke, and briquettes	32	1,312,604	17,521,278	10,734,774	53,550,894	32,392,908	29,060,523	5.8
Fertilizers, crude and minerals excl coal	27	2,770,916	6,403,017	7,057,174	14,988,241	11,899,646	26,207,981	5.2
Raw textile fibers and their waste	26	7,392,169	12,208,552	174,485	6,587,757	6,610,746	24,025,754	4.8
Specialized industrial machinery	72	1,054,696	4,586,490	2,592,363	8,202,314	17,898,567	22,719,810	4.5
Industrial machy, n.s.p.f.; and mach pt n.s.p.f.	74					12,482,699	10,904,981	2.2
Office machines and auto data proc equip	75					1,225,839	9,863,728	2.0
Road vehicles (incl air-cushion) and pts	78					47,806,532	7,382,102	1.5
Metalworking machinery	73	1,572,611	8,220,683	6,305,489	6,791,192	5,293,980	6,729,239	1.3
Pulp and waste paper	25	1,497,054	5,824,898	9,375,421	11,166,806	6,048,715	6,426,226	1.3
Prof, scientific and control inst n.s.p.f.	87					4,071,676	5,755,252	1.1
Power generating machinery and equip	71	8,310,482	29,563,733	17,066,198	25,590,085			
Total		69,050,758	189,277,590	249,032,549	259,405,338	317,423,176	500,464,174	93.2
United States General imports from Romania:								
Petroleum products	33	8,752,951	82,350,373	81,869,332	74,497,412	95,241,971	54,556,979	16.6
Footwear, new, exc military or orthopdc	85	3,457,886	8,250,314	17,850,443	20,426,961	35,227,813	41,073,943	12.5
Wear app and acces and articl made of fur	84	1,836,988	4,374,350	27,325,916	43,229,744	56,847,474	39,563,211	12.0
Meat and meat preparations	01	2,845,021	8,348,876	12,997,767	14,756,334	21,932,196	25,384,932	7.7
Nonmetallic mineral manufactures n.s.p.f.	66	3,905,591	4,372,566	10,147,885	7,728,908	17,186,224	20,154,262	6.1
Transport equipment, n.s.p.f.	79					335,022	19,817,596	6.0
Yarns, fabric and articles, textile	65	732,843	621,592	5,580,638	8,804,086	13,586,472	16,280,798	4.9
Furniture and parts thereof	82	1,519,107	1,886,368	4,065,154	6,869,667	11,349,973	14,550,974	4.4
Iron and steel	67	66,824	2,378,214	1,501,562	13,326,573	26,810,176	14,036,714	4.3
Industrial machinery, n.s.p.f. and parts	74					6,962,710	12,812,367	3.9
Specialized industrial machinery	72	7,227	99,923	220,075	1,367,229	8,380,982	10,631,249	3.2
Nonferrous metals	68	1,603,108		1,380,524	1,607,170	8,335,666	9,020,243	2.7
Crude rubber, inc synthetic and reclaim	23			1,397,354	1,046,331	3,668,997	8,756,706	2.7
Metalworking machinery	73	395,185	345,198	619,930	618,945	4,534,751	7,836,245	2.4
Dairy products and birds' eggs	02	781,481	953,804	1,699,393	2,303,442	3,821,384	4,994,750	1.5
Total		31,491,466	132,956,334	198,745,143	233,287,333	346,622,460	329,325,266	90.9

Note: 1978 and 1979 data are not directly comparable to years previous to 1978 due to commodity schedule changes.

TABLE II.—UNITED STATES TRADE WITH THE U.S.S.R., 1972 AND 1975-79

[Dollar amounts in U.S. dollars]

SITC	1972	1975	1976	1977	1978	1979	Percent of total 1979	
United States domestic exports to U.S.S.R.:								
Cereals and prep of cereal, flour, etc.	04	\$368,852,395	\$1,105,449,222	\$1,346,938,103	\$848,628,612	\$1,417,438,469	\$2,253,945,704	62.5
Oil seeds and oleaginous fruit	22	52,145,758	2,668,135	124,689,500	159,022,036	216,379,948	493,481,978	13.7
Specialized industrial machinery	72	7,228,418	69,212,220	54,107,536	63,879,515	107,704,650	118,870,901	3.3
Industrial machy, n.s.p.f.; and mach pt n.s.p.f.	74					53,536,402	110,769,430	3.1
Inorganic chemicals	52					7,759,315	104,952,654	2.9
Misc manufactured articles n.s.p.f.	89	6,812,333	13,960,426	27,009,320	26,662,003	46,829,693	64,640,769	1.8
Animal oils and fats	41		13,987,958			18,744,193	57,611,650	1.6
Metaliferous ores and metal scrap	28		1,443,616	248,904	10,219,059	37,199,889	48,422,160	1.3
Prof, scientific and control inst n.s.p.f.	87					46,335,415	41,579,825	1.2
Road vehicles (incl air-cushion) and pts	78					39,274,337	41,297,340	1.1
Power generating machinery and equip	71	53,448,556	461,191,253	521,054,170	291,217,162	15,509,232	31,506,746	.9
Petroleum and petroleum products	33		3,162,123	9,272,818	16,854,685	30,434,368	23,425,060	.7
Office machines and auto data proc equip	75					18,440,729	23,164,716	.6
Vegetables and fruits	05	1,064,149	7,080,026	8,833,291	18,706,030	20,810,029	19,236,809	.5
Metalworking machinery	73	1,352,954	16,545,440	29,637,328	18,498,005	28,989,395	18,750,412	.5
Total		546,613,709	1,832,695,241	2,305,934,311	1,623,483,717	2,249,020,257	3,603,632,345	95.7
United States general imports from U.S.S.R.:								
Gold, nonmon ex ores, cncts, wst, SCP	97					285,792,782	548,831,438	62.9
Nonferrous metals	68	46,596,184	81,047,512	62,115,053	60,209,246	74,597,211	141,813,587	16.2
Inorganic chemicals	52					33,044,158	60,646,783	6.9
Misc manufactured articles n.s.p.f.	89	2,816,113	4,804,818	16,123,090	10,019,502	9,097,760	31,436,112	3.6
Metaliferous ores and metal scrap	28	14,056,418	32,506,959	39,171,299	35,243,291	38,694,886	21,129,692	2.4
Petroleum and petroleum products	33	7,461,935	94,778,725	54,304,930	64,064,121	43,642,152	15,684,256	1.8
Nonmetallic mineral manufactures n.s.p.f.	66	15,627,103	14,351,268	18,155,130	25,617,149	18,913,401	12,233,741	1.4
Hides, skins and furskins, undressed	21	3,013,937	3,610,638	6,195,366	8,363,383	9,218,901	9,783,375	1.1
Beverages	11	176,982	819,453	1,280,229	3,305,510	4,343,226	8,668,729	1.0
Organic chemicals and related products	51	1,107,469	2,949,224	5,133,901	3,349,281	105,703	3,461,668	.4
Paper, paperboard and manufactures	64	35,162	199,219	1,211,962	2,782,479	4,837,646	3,449,503	.4
Chemical materials and products, n.s.p.f.	59	18,578	1,745,853	811,232	1,789,178	2,414,114	3,027,055	.3
Fertilizers, crude and minerals ex coal	27	187,150	3,744,836	3,195,772	3,292,957	1,677,059	2,092,147	.2
Cork and wood mfrs, exc furniture	63	671,723	1,228,037	2,278,750	2,406,300	2,348,163	2,048,529	.2
Specialized industrial machinery	72	395,914	232,032	385,761	400,538	892,628	1,613,511	.2
Total		95,441,049	254,198,803	220,617,645	234,342,677	540,392,699	873,151,958	99.0

Note: 1978 and 1979 data are not directly comparable to years previous to 1978 due to commodity schedule changes.

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TABLE 1J.—UNITED STATES TRADE WITH THE PEOPLE'S REPUBLIC OF CHINA, 1972 AND 1975-79

(Dollar amounts in U.S. dollars)

	SITC	1972	1975	1976	1977	1978	1979	Percent of total 1979
United States domestic exports to People's Republic of China:								
Cereals and prep of cereal, flour, etc.....	04	\$55,989,513				\$361,902,482	\$482,652,656	28.1
Raw textile fibers and their waste.....	26		\$81,628,854	\$7,482,673	\$36,486,337	203,754,137	419,220,678	24.4
Iron and steel.....	67		12,758,789	10,907,870	422,550	1,302,837	162,957,790	9.5
Specialized industrial machinery.....	72	1,899,029	8,246,943	3,333,895	3,985,348	39,239,574	108,800,211	6.3
Oil seeds and oleaginous fruit.....	22		8,500		14,385,752	15,300,134	106,722,343	6.2
Prof, scientific and control inst n.s.p.f.....	87					12,074,395	48,775,486	2.8
Road vehicles (incl air-cushion) and pts.....	78				8,075,997	11,787,750	46,267,242	2.7
Fertilizers and fertilizer material n.s.p.f.....	56				28,297,313	38,719,325	44,607,874	2.6
Vegetable oils and fats, fixed.....	42	2,199,585	342,783	18,730	606,940	26,117,742	35,894,335	2.1
Yarn, fabric, and articles, textile.....	65		1,120	1,727,967	1,667,597	3,206,346	33,876,255	2.0
Syn resins; rubber and plastic materials.....	58		10,008,727	4,826,897	1,034,600	1,988,515	31,052,617	1.8
Manufactures of metal, n.s.p.f.....	69					14,056,672	21,680,151	1.3
Industrial machy, n.s.p.f.; and mach pt n.s.p.f.....	74					15,447,838	18,094,704	1.1
Organic chemicals.....	51		2,488,762	4,725,614	7,683,678	11,740,391	17,651,330	1.0
Nonferrous metals.....	68		46,820,627	26,593,499	5,331,921	6,181,763	17,240,249	1.0
Total.....		60,205,191	303,630,913	35,388,147	171,318,108	818,241,117	1,716,499,905	92.9
United States general imports from People's Republic of China:								
Wear app and acces and articl made of fur.....	84	820,268	8,831,438	16,459,829	25,518,048	63,372,791	150,759,270	25.5
Petroleum and petroleum products.....	33	442			3,127	451	96,435,542	16.3
Yarns, fabric and articles, textile.....	65	3,287,388	32,826,072	46,829,194	36,283,550	63,498,470	65,613,479	11.1
Misc manufactured articles n.s.p.f.....	89	4,900,676	14,744,982	25,374,555	25,700,819	35,040,756	42,766,309	7.2
Animal and vegetable mirial, n.s.p.f., crude.....	29	7,777,969	7,560,702	24,396,708	30,758,024	38,724,393	30,511,448	5.2
Inorganic chemicals.....	52					4,147,344	19,180,729	3.2
Footwear, new, exc military or orthopdc.....	85	126,480	1,159,439	3,434,988	3,517,268	3,428,926	18,365,965	3.1
Fish (including shellfish) and preps.....	03	442,785	3,895,414	7,093,076	2,649,857	2,148,466	17,261,126	2.9
Explosives and protechnic products.....	57	480,791	3,533,826	6,565,282	10,000,459	12,095,781	15,623,799	2.6
Metalliferous ores and metal scrap.....	28		2,624,013	3,377,109	4,660,335	6,403,139	14,059,784	2.4
Raw tex fib and their waste, (EX WL TP).....	26	4,075,769	4,374,665	8,193,005	7,539,658	10,027,879	12,436,735	2.1
Coffee, cocoa, tea, spices, and MFRS.....	07	2,222,218	5,044,075	8,496,857	11,488,742	9,257,857	11,954,910	2.0
Vegetables and fruits.....	05	1,147,490	2,832,447	5,740,867	8,736,955	10,729,270	11,732,088	2.0
Manufactures of metal, n.s.p.f.....	69	244,739	766,928	911,541	893,856	4,155,212	9,841,991	1.7
Organic chemicals and related products.....	51	99,406	3,122,227	5,176,015	2,436,261	3,892,627	8,819,245	1.5
Total.....		32,319,666	158,339,870	201,916,921	202,661,257	323,952,576	592,282,994	88.8

Note: 1978 and 1979 data are not directly comparable to years previous to 1978 due to commodity schedule changes.

TABLE 2.—STATUS OF U.S. COMMERCIAL RELATIONS WITH COMMUNIST COUNTRIES

	Albania	Bulgaria	Czechoslovakia	German Democratic Republic	Hungary	Poland	Romania	U.S.S.R.	People's Republic of China
Diplomatic recognition	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
MFN Tariff treatment	No	No	No	No	Yes ¹	Yes	Yes ¹	(?)	Yes. ¹
Eximbank facilities	No	No	No	No	Yes ¹	Yes	Yes ¹	(?)	Yes. ¹
OPIC ²	No	No	No	No	Yes ¹	Yes	Yes ¹	(?)	(?)
Maritime agreement ³	No	No	No	No	No	No	Yes ¹	No	(?)
Double taxation treaty ⁷	No	No	No	No	No	No	Yes	Yes	Yes.
Consular convention ⁸	No	No	No	No	Yes	Yes	Yes	Yes	(?)
Civil Aviation Agreement ¹²	No	Yes	(U)	(?)	Yes	Yes	Yes	Yes	No.
Default bonds settled	Yes	Yes	Yes	No	Yes	Yes	Yes	Yes	(10)
Financial claims settled	No	Yes	No	No	Yes	Yes	Yes	No	Yes.
Johnson Act inapplicable ¹⁴	Yes	Yes	No	No	Yes	No	No	No	No.
Fisheries Agreement ¹⁵	No	Yes	No	(U)	Yes	No	Yes	No	No.
Science, Technology Agreement ¹⁷	No	(?)	No	Yes	No	Yes	Yes	Yes	No.
Joint Commercial Commission ¹⁸	No	(?)	No	No	Yes	Yes	Yes	Yes	Yes.
Joint Trade Council (Private)	No	No	No	No	Yes	Yes	Yes	Yes	Yes.
Trade Agreement	No	(19)	(19)	Yes	(19)	(19)	(19)	Yes	Yes.
Long-Term Economic Cooperation Agreement ²¹	No	No	No	No	Yes	No	Yes	(?)	(20)
Foreign business representation offices permitted	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes.
Foreign equity investment with local partner permitted	No	Yes	No	No	Yes	Yes	Yes	No	Yes.

¹ Subject to terms of Trade Act of 1974.

² Trade Agreement extending MFN signed in October 1972 but not in force because of lack of U.S. legislative authority for "unconditional" MFN treatment, as provided for in the agreement. Certain other provisions are being implemented by both sides.

³ Credits available from October 1972 to January 1975. Pursuant to Export-Import Bank legislation and Title IV of the Trade Act of 1974, Bank facilities are no longer available, but limited facilities could be restored if accord is reached on certain provisions of the Trade Act.

⁴ Presidential determination issued Apr. 2, 1980, establishing eligibility for Eximbank facilities.

⁵ Overseas Private Investment Corporation insures U.S. private investments against certain political risks in certain countries and finances the investment and/or development of eligible projects of U.S. investors in these countries.

⁶ These agreements provide for a decreased notification time necessary for visits of each nation's vessels to the other's ports.

⁷ Designed to avoid the double taxation of business income, personal service income, and investment income.

⁸ Under negotiation.

⁹ Provides for access by U.S. Embassy personnel to U.S. nationals who might be detained in a foreign country.

¹⁰ Agreement on Mutual Establishment of Consular Relations and the Opening of Consulates Gen-

eral, signed Jan. 31, 1979, provides for interim arrangements pending negotiation and entry into force of Consular Convention.

¹¹ Negotiated. Ratification pending by respective governments.

¹² Permits and establishes civil aviation between countries.

¹³ Temporary settlement reached with Foreign Bondholder Protective Council September 1978.

¹⁴ Johnson Act prohibits certain financial transactions by private persons in the United States involving foreign governments which are in default in the payment of their obligations to the United States. The Attorney General has ruled that the act does not prohibit extensions of credit foreexport financing within "the range of those encountered in commercial sales." For more definitive legal interpretations of the issues raised by the act, involved businesspersons should seek legal counsel.

¹⁵ Subject to legal interpretation.

¹⁶ Allows for catch allocations within U.S. territorial waters.

¹⁷ Such agreements facilitate scientific information exchange and cooperation.

¹⁸ Government-to-government bodies established to discuss and negotiate outstanding trade issues.

¹⁹ Under the auspices of U.S. Chamber of Commerce, Washington, D.C.

²⁰ The National Council for United States-China Trade is a private organization of U.S. firms. While it is not a Joint Council since it has no People's Republic of China participants, it does have a close working relationship with its People's Republic of China counterpart, the China Council for Promotion of International Trade.

²¹ Such agreements are aimed at facilitating long-term business and economic cooperation.

TABLE 3.—MEMBERSHIP OF COMMUNIST COUNTRIES IN INTERNATIONAL ECONOMIC-COMMERCIAL ORGANIZATIONS

	Albania	Bulgaria	Czechoslovakia	German Democratic Republic	Hungary	Poland	Romania	U.S.S.R.	Peoples' Republic of China
GATT.....	No.....	Observer.....	Yes.....	No.....	Yes.....	Yes.....	Yes.....	No.....	No.....
IMF.....	No.....	No.....	No.....	No.....	No.....	No.....	Yes.....	No.....	Yes.....
IBRD.....	No.....	No.....	No.....	No.....	No.....	No.....	Yes.....	No.....	No.....
Berne Convention ¹ (Copyright protection).....	No.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	No.....	No.....
Paris Union ²	No.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	Yes.....	No.....
International Chamber of Commerce.....	No.....	(³).....	(³).....	(³).....	(³).....	(³).....	(³).....	(³).....	No.....
U.C.C. Copyright Protection.....	No.....	Yes.....	Yes.....	Yes.....	Yes.....	No.....	No.....	Yes.....	No.....

¹ Member of liaison committee.

² Although the United States is not a member of this Convention, a U.S. author can receive automatic copyright protection for his work in the member countries by publishing it in any other member country simultaneously with its first publication in the United States.

³ U.S. nationals are entitled to receive the same treatment under a member country's patent and trademark laws as that country extends to its own nationals. U.S. citizens are also entitled to a "right of priority" for patent and trademark applications. Under this procedure, a U.S. national, after first filing a U.S. patent application in the United States, has 1 yr. in which to file a corresponding patent

application in a member country and receive on this application the date that appeared on the 1st-filed U.S. application. The period is 6 mo for trademarks.

⁴ Universal Copyright Convention. Under this convention U.S. authors are entitled to automatic protection of their U.S. copyrighted works in that country by inserting on such works their name, year of publication and symbol "c" in a circle.

Source: U.S. Department of Commerce. East-West Trade Update: A Commercial Fact Sheet for U.S. Business. Overseas Business Reports, OBR 77-68, December 1977.

LIMITS TO TRADE NORMALIZATION WITH EASTERN EUROPE

By Ronda A. Bresnick*

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I. INTRODUCTION

Continued moves toward normalization¹ of economic relations with individual countries of Eastern Europe² are likely to remain U.S. policy during the coming decade. The same rationale that led to the initiation of this policy during the 1970's, namely, a desire to offer the East European countries an economic alternative to excessive dependence upon the Soviet Union, will continue to hold during the 1980's.

A normalized state of trade implies the removal of special impediments to a two-way flow of goods and services, ie: impediments beyond those that apply to trade with non-communist countries. On the part of the United States these impediments include tight export controls, restricted access to trade financing, lack of MFN status, and discriminatory import relief measures.³

Despite the possibilities for selective liberalization of export control towards some Eastern European countries, achievement of MFN status by some, and further rationalization of import relief, the prospect for the 1980's is one of only modest growth in the volume of U.S.-Eastern European trade. This is due to underlying economic limitations as well as to the ambivalent character of trade with the Eastern countries which, because of political and security related interests, places a curb on the maximum realization of the economic benefits of East-West trade. However, without changes in existing legislation, or in the ways in which current legislation is administered, trade will continue to be restrained during the coming decade.

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¹ See "Normalization of U.S. Commercial Relations with East Europe" in this volume.

² Bulgaria, Czechoslovakia, the GDR, Hungary, Poland and Romania.

³ See "Issues in U.S. East European Trade" in this volume.

There are two major pieces of legislation that discriminate against trade with the communist countries, namely, the Trade Act of 1974, and the Export Administration Act of 1979.⁴ The Export Administration Act will expire in 1983 and will therefore be subject to intensive review and possible amendment in the near future. The Trade Act may also be subject to scrutiny in the 1980's.

From the point of view of East-West trade, the Trade Act impinges on finance, tariff and other import restraints, and import relief measures such as market disruption. A question of continuing importance is the proper relationship between official credits, MFN status and human rights, that is, the question of linkage.

The Export Administration Act is concerned with export controls. A central issue for review is whether the individual country approach to export controls should be reinforced so that a differentiation among the various countries of Eastern Europe can be strengthened. Or will such differentiation increase the pressure exerted by the Soviet Union on certain Eastern Europe countries to illegally transship U.S. technology from the recipient country to the U.S.S.R.?

The ways in which these questions are resolved both in the regulation of existing laws and in any new legislation will affect the volume of trade by influencing the three major variables in the U.S.-East European trade equation: imports, exports, and credit.

II. THE TRADE ACT

FINANCING U.S.-EAST EUROPEAN TRADE: U.S. OFFICIAL CREDIT

One frequently cited factor inhibiting the growth of U.S. trade with Eastern Europe is the lack of official credits and guarantees to finance U.S. exports. At present only Poland, Romania, and Hungary are eligible to receive U.S. Export-Import Bank and Commodity Credit Corporation (CCC) credits. The Eximbank promotes U.S. trade by providing four types of export financing services: direct loans to foreign borrowers purchasing U.S. goods and services; guarantees for private financial institutions; insurance for U.S. exporters against exceptional risks inherent in foreign transactions; and discount loans to provide incentives for private banks to finance U.S. exports. CCC credits are extended to promote U.S. agricultural exports and to develop long-term markets for U.S. agricultural goods. Interest rates on Eximbank credits are below market rates and maturities are usually longer than for credits offered by private banks, whereas interest rates for CCC credits are at market rates.

An issue of concern to the United States regarding trade finance is the linkage between emigration in non-market economy countries and U.S. official credit. Even those East European countries which currently have access to such credits must undergo annual review before Congress of their emigration policies; the severity of the U.S. standards applied inevitably is affected by the political climate and thus

⁴ The Stevenson and Church amendments to the Export-Import Bank Act also discriminate against communist countries, but the policy issue is duplicated in the Trade Act. Furthermore, implementation of the antidumping legislation of the Trade Agreements Act of 1979 necessarily requires different treatment of imports from state controlled economies but could not technically be called discrimination.

aggravates uncertainties in the economic relationships.⁵ A relaxation of these standards, or less likely, a repeal of the Jackson-Vanik Amendment, could result in the conclusion of trade agreements and access to official credits by other Eastern European countries. Conversely, a tightening of standards could result in the non-renewal of trade agreements currently in force and a denial of official credits to current recipients.

The availability of official credits could be less important if other impediments to normal trade that are presently incorporated in the Trade Act were lessened. That is, if the Eastern European countries had greater access to sell their products in U.S. markets, their need (although perhaps not their desire) for credits, official or private, in order to make purchases would diminish. On the other hand, their export potential is probably not large enough, even under the best of circumstances, to finance the quantity of U.S. products that they would like to purchase. Therefore the availability of credit should continue to be critical to the volume of trade. However, the availability of U.S. official credits may be constrained at least in the early 1980's, as the direct lending budget for the Eximbank in real terms may be curtailed by Congress.⁶

IMPORT PROTECTIONISM

The East European countries will need to increase their exports to the West during the 1980's in order to service past debts, as well as to finance desired Western imports. They may be frustrated in several ways. First, it may well be that increasing East European domestic needs, the demands of CMEA cooperation,⁷ and the need to pay for energy imports from the USSR and other countries will diminish exports to the West. Second, the potential for increased exports to the West may be limited, at least in the short run, by the economic situation in the West. Finally, there may be an increase in Western trade protectionism during the 1980's.

U.S. obstacles to imports from state-controlled economies have traditionally been stiffer than for imports from market economy countries.⁸ Such obstacles include failure to extend MFN status to many of the communist countries, market disruption criteria of domestic injury that are more easily applied to imports from communist countries than to imports from non-communist countries, and the application of U.S. antidumping laws in ways that may occasionally disadvantage communist country products because of the inability to price them on the basis of domestic cost.

With the United States facing a period of serious balance of payments difficulties, increased import barriers or individual relief meas-

⁵ These considerations do not apply to Poland which received MFN in 1960 and is therefore not subject to the Trade Act provisions.

⁶ The budget for the Eximbank is reviewed on an annual basis, and lending authorization legislation is amended about every 5 years. The authority for the bank to make loans and guarantees, set forth in the Export-Import Bank Act, expires on September 30, 1983. For a discussion of the constraints on Eximbank lending, see "Hard Times for the Eximbank," *Chase International Finance*, Vol. XV, No. 8, April 14, 1980, pp. 7-8.

⁷ Council of Mutual Economic Assistance. Its members are the Soviet Union, Bulgaria, Czechoslovakia, the German Democratic Republic, Hungary, Poland, Romania, Cuba and Mongolia.

⁸ See Karen Taylor. "A Summary of U.S. Laws Applying to Imports of Communist Products," and Karen Taylor and Deborah Lamb "Communist Exports to the West in Import Sensitive Sectors," in *Issues in East-West Commercial Relations*. Joint Economic Committee, U.S. Congress, 1979.

ures are a predictable response to all imports, including those from Eastern Europe. The more frequent use of compensation agreements—a method of trade strongly encouraged by the East European countries, involving payback for imported U.S. technology and equipment with shipments to the U.S. of the commodity produced by means of these imports—may also intensify protectionist tendencies. If U.S. credits are limited, and compensation agreements are discouraged by a rise in import relief cases, then East European countries will experience additional problems in financing imports from the United States.

ANTIDUMPING AND MARKET DISRUPTION AND THE ESCAPE CLAUSE

Existing antidumping provisions⁹ afford an imperfect solution to the problem of unfairly priced imports from nonmarket economy countries, because costing of these imports can only be an artificial construct.¹⁰ The provisions attempt to deal with the dual task of inhibiting unfair trade practices while preserving the benefits of comparative advantage in international trade.

To resolve antidumping cases, U.S. authorities must determine whether the import in question was sold at less than fair value, i.e., at a price either below the cost of production or lower than the price at which it is sold in the domestic market of the exporter in the normal course of trade. Because prices in a communist country are established by central authorities rather than determined by market forces, the likely procedure in an antidumping case is to compare the price of the communist good with the price of a similar good as produced in a market economy at a stage of comparable economic development. The "fair value" of the communist import is found, therefore, by hypothetically relocating the producer in an economic environment most like his home market. The chief problem in administering this law has been how best to select the surrogate producer.

It has been suggested that rather than apply antidumping laws to state controlled economies, these cases be handled under the market disruption provisions of section 406 of the Trade Act.¹¹ Under that section, the importing country can increase its tariffs or impose quantitative restrictions if increased imports are a significant cause of material injury to the domestic industry (regardless of whether the price of such imports is "fair" or "unfair"). This action does not require any information on prices or costs, but is based entirely on the injury test.

It has also been suggested that a legislative change be made so that all import relief cases are handled under the escape clause provisions of the Trade Act rather than under either the escape clause provision, the market disruption provision of the Trade Act or the antidumping provision of the Trade Agreements Act. The escape clause is primarily designed to protect against rapidly increasing imports which are, or threaten to be a substantial cause of serious injury to a U.S. industry producing a like or directly competitive product. This provision is like

⁹ See the Trade Agreements Act of 1979, Title I.

¹⁰ See *Interface One*. Eds. Wallace, Spina, Rawson and McGill. The Institute for International and Foreign Trade Law, Georgetown University Law Center, Washington, D.C. 1980, pp. 75-85.

¹¹ Market disruption: (Section 406 of the Trade Act of 1974). Market disruption remedial measures protect against rapidly increasing imports which are or threaten to be a significant cause of material injury to a domestic industry. This section applies to communist countries regardless of whether or not they receive MFN and regardless of whether or not they are members of GATT.

the market disruption provision as it requires only an injury finding in order to extend relief or impose import restrictions. It is unlike the market disruption provision, however, because it does not discriminate against state controlled economies. This proposed change is different from the change described earlier, in which cases involving imports from state controlled economies would be handled under the market disruption provision rather than the antidumping provision. Under this change, cases involving imports from state controlled economies would be handled under one provision which would not be discriminatory. Under the change described earlier, there would still be three provisions, however cases involving imports from state controlled economies would be handled under the market disruption provision which discriminates against those countries. The rationale for both proposed changes is the same—to use only the injury test to determine if remedial action is necessary.

MOST-FAVORED-NATION TARIFF TREATMENT

The granting of MFN status is linked to emigration conditions in a given country through the Jackson-Vanik Amendment (Section 402 of the Trade Act). It does not appear that the linkage will be dropped from the Trade Act in the near future.¹² Even so, other Eastern European countries may follow the lead of Romania and Hungary in complying with the terms of the Amendment.¹³ However, the extension of MFN to more countries is not likely to significantly alter the overall level of U.S.-Eastern European trade for two reasons. First, the lowering of the tariff rates, per se, is not likely to lead to a great surge in U.S. imports from these countries.¹⁴ Second, if it appeared that any Eastern European product—or indeed any foreign product—was making significant inroads into the U.S. market, a number of restraining measures—market disruption or escape clause relief, orderly marketing agreements, and the like—could be initiated. Thus while politically significant, MFN status alone will not play a major role in drawing Eastern Europe economically closer to the United States.

III. THE EXPORT ADMINISTRATION ACT

Since 1969, trends in export control legislation have been toward a liberalization of controls on goods and technology which can be exported to communist countries. Recent changes in the law include: the addition of criteria that must be met before curtailing exports for national security or foreign policy purposes; requirements to simplify and expedite the export licensing process; a declaration that it is U.S. policy to minimize uncertainty in export controls and to encourage trade; and modification of language to shift the emphasis of national security from exports to communist countries to exports to any country which poses a threat to the United States. Despite these changes, there

¹² There has been some past sentiment for modifying, although not repealing the Jackson-Vanik Amendment to the Trade Act by adding flexibility to the President's waiver authority with respect to emigration. One proposed amendment put forth in the 96th Congress was to empower the President to make a determination that the granting of a waiver to Section 402 would lead substantially to the achievement of free emigration provisions. This amendment, however, was not made.

¹³ Poland has been receiving MFN treatment from the United States since 1960, and does not have to comply with the Jackson-Vanik Amendment.

¹⁴ See Helen Raffel, Marc Rubin and Robert Teal, "The MFN Impact on U.S. Imports from Eastern Europe" in *East European Economics Post Helsinki. A Compendium of papers submitted to the Joint Economic Committee, U.S. Congress, 1977.*

is the continuing dilemma of how to encourage U.S.-East European trade, while at the same time controlling the export of goods and technology for national security reasons.¹⁵

As the law has evolved in the direction of the individual country approach to export controls and away from the political bloc approach, differentiation among communist countries has become increasingly evident. At present, Romania and Poland are under less severe export control restrictions than are the other countries of Eastern Europe or the Soviet Union. Hungary, which has signed a bilateral trade agreement with the United States and been accorded MFN status, may also eventually experience some degree of export control liberalization.

Differentiation among the Eastern European countries both acknowledges that they do not form a single monolithic bloc, and encourages them to independent action. On the other hand, the fact remains that they all are Warsaw Pact members. The more differentiation that is made between these countries and the Soviet Union, the greater the possibility of pressures from the Soviet Union to obtain via Eastern Europe technology products that have been denied to it by U.S. export controls. Such a possibility may set limits on the extent to which the United States can pursue a policy of differentiation.

IV. CONCLUSIONS

This paper has raised two critical questions in U.S.-East European trade relations. First, will the 1980's witness further moves toward normalization in U.S.-East European trade relations? Second, is normalization likely to move far enough during the 1980's to achieve a volume of trade sufficiently large to provide any Eastern European country with an economic tie to the West that is comparable with its economic tie to the Soviet Union?

The tentative conclusions are:

(1) That linkage of trade and politics is likely to continue in U.S. legislation, but that it will not constitute the chief impediment to increased trade in the 1980's.

(2) That even if the United States were to take steps toward eliminating its discriminatory approach toward import restrictions by means of changes in regulation or legislation, adverse balance of payments in the 1980's may generate significant barriers to any possible surge in imports from any source.

(3) That the low export potential of East Europe (coupled with U.S. protectionism) will constitute the chief impediment to increased trade; and

(4) That increased pressures for transshipments to the Soviet Union may limit the extent to which the United States can proceed with differentiation among the U.S.S.R. and East European countries with regard to export controls.

In short, the effect on the volume of U.S.-East European trade of any further steps taken toward normalization is not likely to be comparable to the surge experienced during the 1970's. No fundamental changes in economic relationships appear to be in the offing for the 1980's.

¹⁵ For a detailed analysis of U.S. export control laws and East-West Trade, see *Technology and East-West Trade*, Office of Technology Assessment, U.S. Congress, Washington, D.C.

NORMALIZATION OF U.S. COMMERCIAL RELATIONS WITH EAST EUROPE

By Vladimir N. Pregelj*

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INTRODUCTION

The proposition that U.S. commercial relations with East Europe¹—as for that matter with the Communist world in general—are not “normal” if measured with the yardstick of U.S. commercial relations with the industrial West or with the developing world, hardly needs elaboration. In broader general perspective, this lack of normality stems from the significant theoretical and functional differences between the West’s and the East’s conception of the nature of the economy, its role in society and state—and vice versa—and, more particularly, the place of foreign commercial relations in the total economic and political picture. In a narrower and more specific sense, this abnormality is, on the U.S. side, reflected in—and brought about by—an assortment of positive statutory or administrative measures in which commercial relations with Communist countries for various, most often political, reasons are treated less favorably than those with non-Communist countries.

Normalization which would eliminate the abnormalities of the first kind clearly is an extremely long-range, if at all realizable, undertak-

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¹For the purpose of this paper, East Europe consists of Albania, Bulgaria, Czechoslovakia, the German Democratic Republic (GDR), Hungary, Poland, Romania, and Yugoslavia.

ing, for it would require the harmonization of the widely divergent organic characteristics of free-market and state-controlled economies and their reciprocal commercial relations. A less elusive goal—at least in theory—is normalization of commercial relations between the United States and East Europe through the elimination or mitigation of abnormalities of the second kind, namely, those statutory or administrative measures applied by the United States to commercial relations with East European countries that do not encumber U.S. commerce with the non-Communist world.

The purpose of this paper is to identify and briefly describe such measures, as they affect U.S.-East European commerce, and indicate the “normalizing” action that would have to be taken in order to eliminate them. Accordingly, the main body of the paper consists of a presentation of U.S. statutory or regulatory restrictions or specific encumbrances placed on East-West commercial relations in the areas of U.S. imports, U.S. exports, U.S. investment abroad, third-country trade, and shipping.² The last part gives a brief indication of the kinds of action needed to overcome or eliminate these obstacles.

I. U.S. IMPORTS

A. Nondiscriminatory (Most-Favored-Nation) Treatment

In 1951, the United States broke its policy of unconditional and unlimited application of the most-favored-nation (MFN) treatment to its trading partners by suspending, pursuant to a requirement of the Trade Agreements Extension Act of 1951, the MFN status of all Communist countries except Yugoslavia. MFN status was restored to Poland in December 1960. A statutory, but somewhat discretionary mandate to deny the MFN status to all Communist countries without exception, enacted as a provision of the Trade Expansion Act of 1962, was not immediately implemented and was amended in 1963 to permit Poland and Yugoslavia to retain the MFN status.³

This situation was changed in 1975 to the extent that the restoration of the MFN status to Communist countries is now possible, but subject to the quite restrictive provisions of Title IV of the Trade Act of 1974.

The Act (sec. 401; 19 U.S.C. 2431) continues the general U.S. policy of denying the MFN status—defined in the House Report on the Trade Act, in effect, as application of concessionary instead of full tariff rates—to “nonmarket economy” (i.e. Communist) countries which did not enjoy such status at the time of the enactment of the 1974 Act (that is, all Communist countries except Poland and Yugoslavia). It does permit, however, under a rather complex set of provisions and conditions, the granting of the MFN status to a Communist country whose emigration policy is reasonably liberal. The basic conditions for granting the MFN status are spelled out in sec. 402 (the freedom-of-emigration or Jackson-Vanik amendment; 19 U.S.C. 2432) and several other related sections of the Trade Act.

² A table showing the application of each restriction to each East European country is contained in the Appendix.

³ In addition to Yugoslavia's eligibility for MFN treatment under U.S. statutes, such treatment is also mutually apportioned between the two countries pursuant to a treaty of commerce between the United States and Yugoslavia's predecessor, the Kingdom of Serbia, in force since November 15, 1882.

The law requires that several specific steps be taken in the process of restoring the MFN treatment to an East European country. In the approximate chronological order, these steps are:

1. *Bilateral agreement.*—The United States must conclude with the country in question a bilateral commercial agreement providing, among other things, for nondiscriminatory treatment.⁴ Such agreement can be entered into whenever the President determines that it will promote the purposes of the Trade Act and that it is in the national interest.

The agreement must contain a number of specific provisions: Its duration must be limited to three years (but may be extended for additional periods of no more than three years each if the United States had derived from its satisfactory reciprocal benefits); the right to take any action for the protection of national security (including termination of the agreement) must be provided for; arrangements (consultation, import restrictions) safeguarding against market disruption must be provided for; if the foreign country is not a party to international patent, trademark, or copyright conventions, protection of these rights must be provided for; arrangements for the protection of industrial rights and processes must be provided for; arrangements for the promotion of trade and consultations for the purpose of reviewing the operation of the agreement must be provided for.

2. *Presidential proclamation.*—The President is authorized to proclaim the entry into force of the agreement, but the proclamation cannot take effect until the Congress approves the agreement and the proclamation.

3. *Compliance with the freedom-of-emigration requirement.*—For all practical purposes, this is the crucial step in the process of restoring the MFN status to an East European country. The freedom-of-emigration provision (Jackson-Vanik amendment) of the Trade Act requires, in effect, that emigration from the prospective recipient of the MFN status be at least substantially free of restrictions or fees.⁵ The law provides for two procedures of compliance this requirement.

(a) The primary procedure, contained in the original Jackson-Vanik amendment, permits the conclusion of a commercial agreement and the extension of the MFN status only after the President has submitted to the Congress a report indicating that the country in question is not in violation of the criteria of free emigration established in the freedom-of-emigration provision. The President is also directed to submit to the Congress similar semiannual reports (June 30 and December 31) as long as the agreement, extending the MFN status, remains in effect. Since the basic condition of this procedure is that there be *no violation of the freedom-of-emigration requirements*, the potential for using this procedure is severely limited. In fact, no attempt has been made thus far to follow this avenue to the restoration of the MFN status to an East European country.

⁴ The language, originally introduced in the trade bill of 1973 for this provision, included also the participation of both countries in a multilateral agreement with MFN provision (for instance, the GATT) as an alternative to a bilateral agreement. The Congress eventually eliminated this alternative.

⁵ The more specific provision in respect to freedom-of-emigration to join a close relative in the United States (sec. 409 of the Act; 19 U.S.C. 2439) contains identical provisions as the general freedom-of-emigration provision (sec. 402) and is, in effect, a duplication of the latter.

(b) Somewhat less demanding are the requirements of the alternative approach to the MFN status, added to the freedom-of-emigration statute as a result of a compromise between the Congress and the Administration. The compromise provision authorizes the President, in extending the MFN status to any country, to waive by Executive order the primary requirement of no violation if he determines and reports to the Congress that such waiver will *substantially promote the objectives of the freedom-of-emigration provision* and that he has received assurances from the foreign country that its emigration practices will lead substantially to the achievement of the objectives of the statute.⁶

4. *Transmission to the Congress.*—The President is specifically required by law to transmit to the Congress the following documents related to the granting of the MFN status:

(a) The bilateral commercial agreement, containing the extension of the MFN status and all provisions required by law (sec. 407(a); 19 U.S.C. 2437(a));

(b) The proclamation providing for the entry into force of the bilateral agreement; and

(c) The initial report indicating no violation of the freedom-of-emigration requirement, *or* the report on his waiving the requirement, containing or together with the determinations and the statement in respect to his having received assurances which are required by statute.

5. *Congressional approval.*—A commercial agreement containing the grant of the MFN status and its implementing proclamation may take effect only if the Congress adopts a concurrent resolution of approval under the procedure specifically provided for by law (sec. 405(c); 19 U.S.C. 2435(c)). That approval statute (sec. 151 of the Act; 19 U.S.C. 2191) mandates the introduction of the resolution, prescribes its language, prohibits any debates or amendments thereto, and sets up mandatory deadlines for its various legislative stages. Consequently, if either House wishes to disapprove the grant of the MFN status, it must do so by voting against it; the resolution cannot simply die for lack of legislative action.

In the case of Czechoslovakia, a further obstacle comes into play. Sec. 408 of the Trade Act (19 U.S.C. 2438) requires that the agreement concerning the settlement of claims by U.S. citizens against the Czechoslovak Government, initialled on July 5, 1974, be renegotiated and submitted to the Congress as a part of any MFN agreement with Czechoslovakia. The Congress has thus functionally tied the granting of the MFN status to Czechoslovakia to an improvement, satisfactory to the Congress, in the levels of compensation to U.S. citizens for their property nationalized or expropriated by Czechoslovakia. At-

⁶The authority to waive the freedom-of-emigration requirement may be extended annually if the President determines that further extensions of the waiver authority will substantially promote the objectives of the freedom-of-emigration statute, recommends to the Congress, not later than 30 days before the expiration of the authority, that the authority be extended and sets forth his reasons for the recommendation. The determination must be made and the reasons for it explained in respect to every country for which a waiver is in effect as well as in respect to the general authority to waive. The annual extension of the waiver authority is automatic unless either House adopts, within 60 calendar days after the end of the previous authority year and under procedure provided for in sec. 153 of the Act (19 U.S.C. 2193), a resolution disapproving the extension of the waiver authority either generally or in respect to any particular country.

tempts at renegotiating the claims agreement with Czechoslovakia have thus far proved unsuccessful.

Moreover, implicit approval is required for the primary procedure of compliance with the freedom-of-emigration requirement. The initial Presidential report to Congress, indicating no violation of the requirement (see 3(a) above), may be disapproved (and the grant of the MFN status thereby nullified) if either House within 90 session days adopts a resolution of disapproval under the special procedures provided for by sec. 152 of the Act (19 U.S.C. 2192; prescribed language, prohibition of debate or amendments, mandatory legislative deadlines).⁷

The initial use of the waiver in respect to an individual country, on the other hand, requires no explicit or implicit Congressional approval. Congressional disapproval of any particular waiver at the time the waiver is first issued can be exercised only indirectly (except, of course, by passing a specific law to revoke the waiver) through failure to adopt the concurrent resolution required for the approval of the bilateral agreement. Under the existing statutory procedure, any waiver can be revoked directly by means of a disapproval resolution adopted by either House (one-House veto) at the time of the annual extension of the waiver authority (see footnote 6).

6. *Exchange of notices.*—The grant of the MFN status as a rule becomes effective on the date the exchange of written notices of acceptance between the two countries takes place.

Thus far, the procedure required under the freedom-of-emigration provision was followed, with the use of waivers, to extend—in East Europe—the MFN status to Romania in March 1975 and to Hungary in July 1978. Four East European countries—Albania, Bulgaria, Czechoslovakia, and the GDR—are not eligible at this time for the U.S. MFN status.

Relevant for the consideration of the MFN status of East European countries is the status of several of them as signatories of the General Agreement on Tariffs and Trade, an international compact requiring, among other things, nondiscriminatory commercial treatment of all other signatories. Of East European countries, Czechoslovakia is an original (1947) contracting party. Yugoslavia became one in April 1966, Poland in June 1967, Romania in November 1971, and Hungary in September 1973. The U.S. suspension of the MFN treatment in respect to Communist countries in 1951 conflicted with U.S. obligations toward Czechoslovakia under the GATT and the United States had to request—and did obtain—from the GATT contracting parties an approval for the suspension. Yugoslavia's and Poland's accession to the GATT created no problems in this respect since both countries already were receiving the U.S. MFN treatment at the time of their accession. When Romania and Hungary joined the GATT—at the time not yet beneficiaries of the U.S. MFN treatment—the United States invoked the provisions of Article 35 of the GATT, which allows

⁷ A similar legislative veto (resulting in the termination of the MFN status of individual countries) can be exercised annually, in respect to the President's December no-violation reports on individual countries. The statute requires that such reports be submitted semiannually (see 3(a) above) if the MFN treatment, granted under the primary freedom-of-emigration procedure, is to continue. As mentioned earlier, no country at present enjoys the MFN status on the basis of this procedure, and the reports in question are not being submitted to the Congress.

nonapplication of the MFN treatment between two signatories in the event that either of them has just become a new signatory to the agreement.

B. Generalized System of Preferences

Under its Generalized System of Preferences (GSP), provided for in Title V of the Trade Act of 1974 and in effect since January 1, 1976, the United States permits, for a 10-year period, duty-free importation of a wide array of products from eligible less developed countries (LDCs) designated as "beneficiary developing countries" (BDCs). Certain countries are excluded from participation in the GSP for a variety of reasons. Individually excepted are presumed developed countries, among them—in East Europe—Czechoslovakia, the GDR, Hungary, and Poland (sec. 502(b); 19 U.S.C. 2462(b)). By implication of omission from this list, consequently, Albania, Bulgaria, Romania and Yugoslavia are considered LDCs for the purposes of GSP. The law, however, also prohibits the designation of any Communist country as a BDC unless the country (a) has been granted the MFN status by the United States, (b) is a signatory of the General Agreement on Tariffs and Trade and a member of the International Monetary Fund, and (c) is not dominated or controlled by international communism. Under this triple restriction, only Romania and Yugoslavia among East European countries have thus far been designated beneficiary developing countries and are able to participate in the GSP.

C. Actions To Remedy Adverse Effect of Imports

Most actions to remedy or counteract the adverse effect of imports from East European countries on U.S. domestic producers, provided for by law, apply equally to Communist and non-Communist countries. In some instances, however, the remedial measure may be somewhat more readily applied in practice to a Communist than to a non-Communist country. There are also some statutes that apply specifically to Communist countries.

1. MARKET DISRUPTION

Section 406 of the Trade Act of 1974 (19 U.S.C. 2436) establishes a special procedure to prevent or remedy the disruption of the U.S. market by imports of an article specifically from Communist countries.

While the general purpose of this procedure is the same as that of the escape clause procedure (protection of domestic producers against injury caused by increasing imports) and its mechanics are generally identical, the two procedures differ in several significant aspects, all of which tend to make the market disruption procedure less favorable to imports than the escape clause procedure. Market disruption investigation by the U.S. International Trade Commission can be initiated and the eventual remedy applied by the President in respect to only the specific country or countries where the disrupting imports originate while, in escape clause cases, imports of the article in question from all sources, or at least all major sources, are considered, and

the remedial action, as a rule, is applied on a nondiscriminatory basis to all countries.⁸ The causal connection between imports and injury, and the criterion of injury itself, underlying the USITC's recommendation for remedial action, are less strict in market disruption cases ("significant cause of material injury") than in escape clause cases ("substantial cause of serious injury"), with the consequence that injury finding is more likely in market disruption cases.

In market disruption cases, the USITC's investigation must be completed in 3 months (vs. 6 months under the escape clause procedure), and an orderly marketing agreement, if such course of action is decided, must be entered into within 60 days (vs. 90 days in escape clause actions). In addition, the President may take emergency import relief action before the USITC completes its investigation if he considers it necessary; such emergency action is not provided for in escape clause statutes.

Section 406, consequently, provides for an action to remedy import-injury whose implementation is easier, faster and more specific than that of the escape clause procedure. The action is also discriminatory in that it applies only to imports from Communist countries; moreover, in contrast to most trade legislation that specifically affects Communist countries, it applies to all Communist countries without exception, hence to all East European countries, including Yugoslavia.

2. MANDATORY SAFEGUARDS CLAUSE IN BILATERAL AGREEMENTS

Apart from the discriminatory nature of the fact itself that a relative liberalization of trade relations with a Communist country (primarily, the granting of the MFN status) cannot take place without the entry into force of a bilateral agreement, such agreement, by law, must also contain a safeguards clause providing for mandatory consultations and authorizing the imposition of import restrictions in the event of actual or threatened market disruption (see also A(1) above). Such clauses are included in the trade agreements with Hungary and Romania.

3. ANTIDUMPING ACTION

East European countries are subject to the possible use of a special provision of the antidumping law (sec. 773(c) of the Tariff Act of 1930, as added by the Trade Agreements Act of 1979; 19 U.S.C. 1677b (c))—first enacted in 1975—which calls for an alternative method of determining the foreign market value of imports from state-controlled economies that are suspected of being dumped on the U.S. market. Foreign market value is one of the elements used to establish whether an imported commodity is being sold in the United States at less than fair value and to determine the level of the antidumping duty in the event that dumping has been determined to have taken place.

Generally, foreign market value is the price at which an imported commodity is sold in the country of origin or, alternatively, in third countries to which it is being exported. If, however, the economy of

⁸ Although escape clause procedure does permit discriminatory application of remedies "but only after consideration of the relation of such actions to the international obligations of the United States" (sec. 203(k); 19 U.S.C. 2253(k)), import relief action has in practice always been applied in a nondiscriminatory manner.

the exporting country is state-controlled to the extent that domestic or third-country market export prices do not permit a determination of foreign market value in the normal manner, foreign market value must be determined on the basis of the price at which similar merchandise produced in a "non-State-controlled-economy country" is sold either domestically or in third countries, or, alternatively, on the basis of the constructed value of similar merchandise of a "non-State-controlled-economy country." The method for calculating the constructed value is prescribed by law and contains mandatory minimal levels for certain cost components (general expenses, profit); it can, therefore, result in a value higher than the value based on actual cost of production.

As state-controlled-economy countries (with the exception of Yugoslavia), for which the normal method of determining the foreign market value of an import would largely not be practicable, the countries of East Europe are likely candidates for having the fair value of their exports (in the context of the antidumping law) determined on the basis of such third country-product value. Such course of action may work to the disadvantage of the exporting country if the country is, in fact, the least-cost foreign producer of the article in question, for it may result in a higher antidumping duty than would normally be the case or even in the levying of an antidumping duty where none would be called for.

The antidumping law also contains a provision, not specifically aimed at imports from state-controlled economies, which nevertheless might, in practice, be more likely to apply to such countries than to market-economy countries. In cases where export prices charged to the United States are determined to be below the actual cost of production, sales at less than fair value are presumed to have taken place even though such prices are not lower than those charged in the exporting country or to third countries, and foreign market value must by law be determined on the basis of the constructed value. Since in state-controlled economies, the sales price need not—and often does not—reflect the cost of production, East European countries tend to be more susceptible to the application of this provision than non-Communist countries.

4. COUNTERVAILING ACTION

Whenever a foreign country subsidizes the production or exportation of an article, the United States may counteract the competitive advantage that the import has in the U.S. market because of the subsidy by levying a countervailing duty, equal to the amount of the subsidy. Amendments of the countervailing statute, enacted in the Trade Agreements Act of 1979, provided for different applicability of the countervailing duty, depending on whether or not the subsidizing country is a "country under the Agreement" as defined by law.⁹ Countervailing duty may be levied on subsidized imports from

⁹ The law defines a "country under the Agreement" as a country (1) which is a signatory of the Agreement on Subsidies and Countervailing, concluded in the multilateral trade negotiations of the Tokyo Round, or (2) which has assumed obligations substantially equivalent to those under the Agreement, or (3) which is not a party to GATT but has in force a bilateral agreement with the United States, providing for unconditional MFN treatment (sec. 701(b) of the Tariff Act of 1930, as amended by sec. 101 of the Trade Agreements Act of 1979; 19 U.S.C. 1761(b)).

a country under the Agreement only if it is also determined that they are actually causing, or threatening to cause, injury to a U.S. domestic industry (Title VII, Subtitle A, Tariff Act of 1930, added by the Trade Agreements Act of 1979 (19 U.S.C. 1671-1671f)). Subsidized imports from countries not under the Agreement do not have to meet the injury test and are countervailed under the old countervailing law (19 U.S.C. 1303).

None of the East European countries (nor many non-Communist countries) are "countries under the Agreement" and their subsidized exports to the United States would be subject to a countervailing duty without the injury test.

II. U.S. EXPORTS

A. Export Controls

The system of U.S. export controls has since World War II developed into an important tool of foreign economic policy, aimed primarily at preventing the flow of strategic and high-technology products and technical data of U.S. origin to Communist countries. While the broad guidelines for controlling exports have been set by statute, their detailed and specific implementation has mostly been left to administrative regulatory action, which is more flexible and adaptable to practical exigencies of a diverse and ever changing situation. Consequently, a system of export controls has gradually emerged in which there are differences in U.S. treatment not only of Communist as compared to non-Communist countries but also of countries within the Communist group itself.

1. The bulk of U.S. exports of goods and technical data is controlled by the U.S. Office of Export Administration under the authority of the Export Administration Act of 1979 (50 U.S.C. App. 2401 et seq.), implemented through Export Administration Regulations (15 C.F.R. 368-399.2). It is through these regulations that a specific level of restrictiveness is applied to exports to any destination in the world. There are basically three levels of restrictiveness as measured by the range of commodities that require individual "validated" licenses for exportation to countries at that level and by the purpose of controls: (1) the level at which virtually all exports require validated license, which, as a rule, is not issued, the result being a virtually total export embargo; (2) the level at which validated license is required only for strategic or high-technology exports, and may be issued if the intended use of the export is judged not to endanger U.S. national security; and (3) the level at which validated license is required for strategic or high-technology exports, primarily for the purpose of preventing reexportation of the item to destinations in the other two groups, and is usually readily issued, if control over reexportation is assured. Exports that do not require a validated license take place under a general license (a blanket permission to export), usually under general license G-DEST.

Most commodities that require a validated license for export to countries at level (2) and virtually all of those requiring a validated license for export to countries at level (3) are articles whose exporta-

tion is controlled internationally by the Coordinating Committee (COCOM), consisting of all NATO countries (except Iceland) and Japan.¹⁰

For purposes of more detailed control, the countries of the world (except Canada) are assigned to specific "country groups" of which one or more are placed at one of the three general levels of restrictiveness. Countries of East Europe, except Yugoslavia, are subject to the middle level of restrictiveness and are assigned to country groups Q (Romania), W (Poland and Hungary) and Y (Albania, Bulgaria, Czechoslovakia and the GDR). Yugoslavia has been placed in group V (level (3)), otherwise consisting of non-Communist countries outside the Western Hemisphere. While the differences in the degree of restrictiveness affecting country groups Q, W and Y are minimal, Yugoslavia is treated significantly more liberally.

2. Exports of military articles are controlled under the authority of sec. 38 of the Arms Export Control Act (22 U.S.C. 2778), which authorizes the President to control all trade in defense articles and services. Exports of any arms, ammunition, and implements of war listed in the U.S. Munitions List (22 C.F.R. 121.01) and related technical data generally require a specific license issued by the U.S. Office of Munitions Control of the U.S. Department of State in coordination with the U.S. Arms Control and Disarmament Agency. While such license may be denied for any of the several reasons stated in the regulations in respect to exports to any country, the policy of the United States is to deny any licenses for exports of U.S. Munitions List articles to any Communist (hence also East European) country except Yugoslavia. In its scope and mechanics, the arms export control is similar to the control over general exports, implemented under export administration legislation.

3. Exports of nuclear materials are controlled by the Nuclear Regulatory Commission under the authority of the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011-2282). Certain nuclear materials (except any kind of nuclear equipment and special nuclear material) may be exported under general licenses provided that such exportation will not be inimical to the interest of the United States or, in other instances, to common defense and security. The geographic applicability of such general licenses to East European countries varies: all general licenses apply to exports to Yugoslavia, general licenses for certain materials apply also to exports to Poland and Romania, while a small number of nuclear materials may be exported under a general license also to other countries of East Europe (10 C.F.R. 110.20-110.27).

B. Export Credit Operations

Some East European countries at present have no access to U.S. Government export credit facilities and—to the extent that in practice private export credits functionally depend on U.S. Government insurance or guarantees—only limited access to private U.S. sources

¹⁰ The original statutory authority for U.S. participation in COCOM (Mutual Defense Assistance Control Act of 1951—"Battle Act") was terminated by sec. 17(e) of the Export Administration Act of 1979 (50 U.S.C. App. 2416(e)); the present authority is contained in sec. 5(k) of EAA79 (50 U.S.C. App. 2404(k)).

of export financing.¹¹ The primary obstacle is raised by the provisions of sec. 402 of the Trade Act of 1974 (19 U.S.C. 2432), the same provisions that deny most-favored-nation status to Communist countries unless their emigration practices are reasonably free of restrictions (see I. A. above). These provisions prohibit the participation of Communist countries in any credit operations of the U.S. Government unless the same freedom-of-emigration conditions are met. Consequently, a Communist country can participate in U.S. credit operations only if it places no restrictions on emigration, or if its restrictions are sufficiently mild to enable it to qualify for the required Presidential waiver. Although a country's privilege of participating in U.S. Government credit programs is not legally contingent on its having been granted the MFN status, the two benefits go hand in hand because they are subject to the same explicit or at least implicit approval procedure.¹²

1. EXPORT-IMPORT BANK OF THE UNITED STATES

The Export-Import Bank of the United States (Eximbank) provides direct export credits and various types of insurance and guarantees of export credits extended by private financial firms. Its activities in respect to exports to most Communist countries, including several in East Europe, are severely restricted by law, a fact which significantly hinders the potential growth of U.S. exports to the countries to which the restrictions apply.¹³

In addition to the general restriction on export credits mandated by the freedom-of-emigration provisions of the Trade Act of 1974, Eximbank's credit transactions with East Europe (and other Communist countries) are also subject to specific restrictions, contained in the Eximbank's organic act itself. The Export-Import Bank Act of 1945, as amended, in sec. 2(b)(2) (12 U.S.C. 635(b)(2)) prohibits any credit activities of the Bank related to direct or indirect exports to any Communist country (hence to all East European countries, including Yugoslavia) unless the President determines that such credit transactions would be in the national interest. Moreover, every such

¹¹ Although Johnson Debt Default Act (18 U.S.C. 955), which prohibits altogether, under criminal penalties, loans by private individuals or entities to governments, their subdivisions or agencies of countries in default to the United States, except under certain conditions, is often mentioned in connection with export credits to East European and other Communist countries, its provisions ordinarily do not constitute a serious obstacle to private export credit financing. While some East European countries are in default to the United States and do not meet the conditions of statutory exceptions, this situation has only limited relevance as to private export credits. Three Attorneys General of the United States have issued opinions [37 Op. A.G. 505 (1934) (Cummings); 42 Op. A.G. No. 15 (1963) (Kennedy); 42 Op. A.G. No. 27 (1967) (Clark)] holding that the prohibition of the Johnson Debt Default Act does not apply to customary commercial credit.

¹² There is technically a slight difference between the MFN and the credit approval procedure in that, in waiver cases, no action by Congress is necessary for a country's eligibility for credit once the waiver is issued. From a practical standpoint, however, it is not likely that credit facilities would, in fact, be extended to a country to which the MFN status has been denied by a vote of Congress, and the waiver in question would certainly be revoked by Congress at the time of the next annual extension of the waiver authority, if not sooner rescinded by the President himself.

¹³ Although, as has been mentioned in footnote 11, the Johnson Debt Default Act ban is not interpreted as applying to customary commercial credits, a country's eligibility for participation in Eximbank's programs facilitates its access to U.S. private export credits. Sec. 11 of the Export-Import Bank Act of 1945, as amended (12 U.S.C. 635h), specifically exempts from the ban those U.S. private credit transactions that take place with the participation or in connection with a transaction of the Eximbank (e.g. private credit with the Bank's guarantee).

transaction involving a Bank's loan of \$50 million or more requires a separate Presidential determination of national interest. All determinations must be reported to Congress. Although a statutory ban on Eximbank's transactions with Communist countries, with a proviso regarding the Presidential determination, has been in effect since 1963, it has not represented a serious obstacle to the Eximbank's financing of exports to Communist countries, since the President's determinations of national interest have been readily made. Thus, for all practical purposes, the obstacle to East Europe's access to Eximbank's credit facilities is the freedom-of-emigration provision.

The same four East European countries that have been extended the U.S. MFN status (Hungary, Poland, Romania, and Yugoslavia) are also eligible for and have utilized Eximbank's export credit programs, since the President has made the required national interest determinations in respect to all four. Albania, Bulgaria, Czechoslovakia, and the GDR are not eligible.

2. COMMODITY CREDIT CORPORATION

Financing of export sales of agricultural commodities by the Commodity Credit Corporation to East European countries is subject only to the restrictions of the freedom-of-emigration requirement of the Trade Act of 1974. Thus, CCC credit sales at present cannot be made to Albania, Bulgaria, Czechoslovakia, and the GDR. All four East European countries that are eligible for CCC export credits (Hungary, Poland, Romania, and Yugoslavia) have used them.

III. U.S. FOREIGN DIRECT INVESTMENT

Opportunities for direct investment by American firms in enterprises in East Europe are limited, principally because of the unwillingness of several Communist countries to offer any opportunities at all. In the few countries that do offer them, restrictions are in effect as to the maximum share of foreign, especially private, ownership or other participation, because of their views on private vs. social ownership and management of the means of production in a socialist economy.

To the extent that American investors are willing to commit their capital to joint ventures in East European countries, their willingness to invest might be enhanced by their being able to benefit from the programs offered by the Overseas Private Investment Corporation (OPIC).

OPIC was created by Title IV of the Foreign Assistance Act of 1961 (FAA 61), as added by the Foreign Assistance Act of 1969 (FAA 69) (22 U.S.C. 2191-2200a), as a Federal agency charged with the task of encouraging and supporting U.S. private investment in less developed friendly countries. Its activities encompass assistance in finding investment opportunities abroad, underwriting investment insurance and guaranties, and extending loans and loan guaranties to help finance foreign investment. Before the insurance or guaranty program can be implemented in a foreign country, a bilateral agreement must be concluded with the country in question, in which the

guidelines and conditions of the program (including provisions for compensation of covered investment losses) are spelled out.

OPIC's operations in East European countries (as well as other Communist countries), however, are subject to several restrictions. The most pervasive and basic is the freedom-of-emigration ban of the Trade Act of 1974, which places OPIC's operations in East European countries in the same position as export credit operations (see Part II. B.): unless the conditions of the Jackson-Vanik statute are met, investment guaranties or loans cannot be extended.

In addition, the general prohibition of extending assistance to any Communist country, contained in sec. 620(f) of the FAA 61, as amended (22, U.S.C. 2370(f)), applies also to OPIC operations. This restriction may be waived, however, if "the President finds and reports to Congress that (1) such assistance is vital to the security of the United States, (2) the recipient country is not controlled by the international Communist conspiracy, and (3) such assistance will further promote the independence of the recipient country from international communism."

This somewhat cumbersome waiver procedure can be dispensed with in the case of Romania and Yugoslavia. A special statute (sec. 239(g) of the FAA 61, as amended (22 U.S.C. 2199(g)), enacted in 1972, specifically permits the operation of OPIC programs in these two countries if the President determines it to be important to the national interest.

An additional practical, although not clearly defined, obstacle is the provision that OPIC's programs be carried out only in respect to "friendly" countries. "Friendly" countries are nowhere defined in the FAA 61, and a functional decision on this score must be made in each case by OPIC itself.¹⁴

Inasmuch as OPIC programs can be carried out only in respect to less developed countries, some East European countries would be excluded from it on that account alone, although there is no statutory definition of a less developed country for the purposes of OPIC operations (or any other operations under the FAA 61).¹⁵

The practical result of these various provisions is that OPIC programs are operative only in Yugoslavia and Romania, the two countries in which the operation of OPIC programs is specifically permitted by law and with which bilateral investment guaranty agreements were concluded in 1973. Even there, the agreements contain special provisions, reflecting the special circumstances in which foreign investment takes place because of the socialist conception of the ownership of means of production.

IV. CONTROL OF THIRD COUNTRIES' TRADE

In certain instances, the United States also maintains control over exports of goods or technical data from third countries. Such control is exercised over reexports of goods or data originally exported from the United States, over exports of articles containing components or

¹⁴ One essential pragmatic indication of "friendliness" of a country would be its willingness to conclude a bilateral investment guaranty agreement with the United States. An even more basic one would be the maintenance of diplomatic relations.

¹⁵ Although there is an implicit list of LDCs in the GSP provisions of the Trade Act of 1974 (see Part I. B.), it does not necessarily apply to programs under the FAA 61.

technology of U.S. origin, and over internationally controlled products exported from a third country by a firm owned or controlled by a U.S. entity. These controls apply in addition to—and sometimes in conflict with—any export controls that may be exercised by the authorities of the exporting country itself.

A. Reexports

Under the authority of the Export Administration Act, export administration regulations (15 C.F.R. 374) place virtually identical restrictions and licensing requirements on the reexportation from a foreign country of articles originally exported from the United States as they do on direct exports from the United States. Consequently, re-exports of U.S.-origin commodities from third countries to East European countries must take place essentially under the same type of license, issued by the Office of Export Administration, as would be required—depending on the country of destination—for direct exports of the same commodity from the United States (see Part II. A. 1).

B. Exports Containing U.S.-Origin Parts or Materials

The incorporation of U.S.-origin components, parts, or other materials into products made abroad and intended for exportation is subject in certain instances to prior approval of the Office of Export Administration (15 C.F.R. 376.12). With the same differentiation among the various country groups as applies to controls on exports from the United States, such incorporation into a foreign-made product to be exported to an East European country may not take place without prior U.S. approval when the final product or in most instances in which the part or component itself could not be exported to the same destination from the United States under general license G-DEST (that is, would normally require a validated export license).

C. Reexports of U.S. Technical Data

Under the provisions of 15 C.F.R. 379.8, U.S. controls on reexports of U.S.-origin technical data by third countries apply to two basic forms of data exportation: reexport of technical data as such, and export of products manufactured abroad by use of U.S. technical data. The Office of Export Administration exercises control over the second type only in respect to reexports to Communist countries, except Yugoslavia. Such controls apply principally to an array of highly sophisticated products with strategic implications that are specifically listed in relevant export administration regulations. They also apply to articles produced by any plant or major component thereof that is a direct product of U.S. technical data and included in the list.

D. Exports by Foreign Subsidiaries of U.S. Firms

The United States also exercises controls over certain exports by foreign entities owned or controlled by U.S.-resident individuals or firms. This control mechanism functions in practice as an extension of

the international COCOM export controls (see Part II. A. 1). American-owned or -controlled foreign firms are prohibited from exporting directly or indirectly to any Communist (hence, East European) country, except Yugoslavia, without a U.S. license any article subject to COCOM controls (high-technology items, munitions, nuclear materials.) Exports made from and licensed by a member country of the COCOM to a Communist country other than Cambodia, North Korea, or Vietnam (hence to all East European countries) are exempt from this restriction. In contrast to most export controls, these controls are administered by the Office of Foreign Assets Control of the U.S. Department of the Treasury under the provisions of 31 C.F.R. 505 (Transaction Control Regulations), promulgated under the erstwhile authority of sec. 5(b) of the Trading With the Enemy Act (50 U.S.C. App. 5(b)).¹⁶

In practice, then, these restrictions apply to exports of COCOM controlled articles from countries that are not members of COCOM to Communist countries, except Yugoslavia.

V. SHIPPING CONTROLS

Unilateral as well as COCOM international controls on exports to East European (and other Communist) countries are reinforced by U.S. controls on U.S.-flag shipping implemented through Transportation Order T-1, issued under the authority of secs. 101 and 704 of the Defense Production Act of 1950, as amended (50 U.S.C. App. 2071 and 2154). The order has been in effect since December 8, 1950, and is administered by the Assistant Secretary for International Trade of the Department of Commerce. It prohibits, under criminal penalties, any U.S.-flag ship or aircraft from carrying strategic or high-technology articles (all articles internationally or unilaterally controlled to all destinations, plus some others) directly or ultimately destined to any country falling into export control country groups Y and Z (in East Europe: Albania, Bulgaria, Czechoslovakia, the GDR and Hungary) unless the article has been issued a U.S. validated export license (in the case of a U.S.-origin article) or the shipment has been authorized by the Assistant Secretary (in the case of a third-country export).

In practice, authorizations by the Assistant Secretary are rarely if ever needed. The exportation of the restricted articles from the United States, or if they contain U.S.-origin components or technology, from third countries, needs and is presumed to have a U.S. validated export license, hence, does not require a specific shipment authorization. Shipments of articles wholly of third-country origin—which would require a shipment authorization—however, are not likely to be carried in U.S.-flag ships or aircraft and hence are not likely to be subject to the provisions of the order.

¹⁶ Although the national emergency authority of the Trading With the Enemy Act, under which the Transaction Control regulations were originally promulgated, has been repealed by sec. 101(a) of P.L. 95-223 of December 28, 1977, the exercise of authorities contained in those regulations has been continued until September 14, 1981, under sec. 101(b) of the same Act (50 U.S.C. App. 5 note) and Presidential Determination of September 8, 1980 (45 F.R. 59549).

VI. NORMALIZATION OF RELATIONS

As has been said in the Introduction, normalization of commercial relations with East Europe means in the context of this paper merely the elimination of those discriminatory statutory or regulatory provisions which place special obstacles, restrictions, or requirements on trade with East Europe; it means, briefly, the action needed to place East European countries on even footing with non-Communist countries as far as commercial relations are concerned. It is, furthermore, not the purpose of this brief consideration of normalizing action to assess the probability of or to present arguments either for or against such normalization, nor, indeed, to analyze the validity of and the reasons for the original placing of any special restriction or obstacle on commercial relations with East European countries.

In the preceding consideration it has already been mentioned that the various discriminatory provisions do not apply to all East European countries with equal impact: Yugoslavia is in most instances already treated like a non-Communist country, and Romania, Hungary, and Poland are in a somewhat more favorable situation than the remainder of East European countries. Whatever general normalizing action might be undertaken would not affect all East European countries equally.

Implicit in the description of the various obstacles to normal relations with East Europe is the suggestion that these obstacles are the result of several types of implementing mandate. Some of them are required by law, others are set up by Executive regulation based on a specific statutory authority (which in most practical instances amounts to an implicit legislative mandate), others again have been implemented through regulation based on a statutory authority of more general purpose or scope and are clearly discretionary. Consequently, normalizing action need not in every instance be of the same type.

It goes without saying that all restrictions, regardless of whether explicitly or implicitly mandated or merely authorized by law, can be removed by legislative action. In view of the likelihood that—as presumed by this paper—discriminatory treatment would be removed only insofar as East European countries are concerned and would not extend to other Communist countries as well, such legislative action could not take the form of a simple repeal of the mandating or authorizing legislation, for a repeal would make it impossible to continue applying the same restrictions to Communist areas other than East Europe. A more appropriate approach would consist of specific legislation authorizing or requiring that the countries of East Europe be exempted from the purview of the respective restrictive measure.

Any restriction not mandated by law but implemented pursuant to a statutory authorization can, technically, be eliminated merely by Executive action. The Executive would, of course, have to remain guided by the legislative intent of the underlying statutory authority. When the legislative intent or U.S. policy would seem to go against it, some legislative modification of the intent may also be called for before the Executive action is taken.

A certain degree of normalization in practice can be—and has been—achieved by an East European country's meeting the statutory require-

ments and conditions in those cases where such action is possible (e.g., gaining the MFN status by complying with the freedom-of-emigration requirement). Nevertheless, as long as these conditions, applicable exclusively to Communist countries, still remain part of the law, one cannot consider, within the context of this paper, that full normalization has taken place.

Legislative action would clearly be required for the elimination of some important restrictions. The freedom-of-emigration requirement, blocking the extension of the MFN status to East European countries as well as their participation in the programs of the Eximbank, the Commodity Credit Corporation and the Overseas Private Investment Corporation, cannot be completely avoided without legislation. While it is possible for East European countries to be granted the trade benefits restricted by the freedom-of-emigration provision, this granting is contingent on their meeting certain requirements and conditions. This is not required of non-Communist countries. Although their status can be "normalized" within the existing law insofar as its practical effect is concerned, such normalization and its continuation are still tied to conditions which do not apply generally.

A similar situation, with additional conditions, exists in respect to the participation of East European countries in the U.S. generalized system of preferences and requires legislative normalizing action.

Legislative action is required also to eliminate the market disruption provisions of sec. 406 of the Trade Act of 1974, the mandatory inclusion of safeguards clauses in bilateral trade agreements with Communist countries, and the alternative method of determining foreign market value of imports from "State-controlled-economy" countries in anti-dumping investigations.

Also mandatory—although waivable—and hence removable only by legislation is the ban on the participation of Communist countries in Eximbank programs. As mentioned earlier, this ban itself has not constituted an obstacle that could not be readily surmounted in practice through Presidential waiver action as authorized by the law itself. (The principal obstacle in this connection is the freedom-of-emigration requirement.)

Legislative action is needed for the elimination of the statutory ban on foreign assistance to Communist countries, which directly affects OPIC operations (restricted also by the freedom-of-emigration requirement). In contrast to the comparable Eximbank provision, however, the Presidential waiver procedure in the case of the OPIC ban is considerably more cumbersome and tied to less easily fulfilled conditions. It has been, therefore, thought more practical to remove the statutory obstacle by specific legislation, as in the case of Romania and Yugoslavia (see Part III).

The system of export controls is based on legislation that authorizes rather than mandates Executive action in this area; such controls could, technically, be mitigated or perhaps even removed by Executive action alone. Significant changes in the system have, in fact, been taking place all along within the existing statutory guidelines. A totally free hand of the Executive is, however, significantly circumscribed in practice by the clearly stated Congressional intent and—especially in the context of the Export Administration Act—by Congressional findings, declarations of policy and, implicitly, administra-

tive directives which the Congress has inserted into the legislation. Thus, while marked changes in the administration and mechanics of the export control system are possible by Executive action alone, a total removal of controls applying specifically to East European countries would appear to go counter the existing policy guidelines and would for practical purposes require Congressional sanction as well. A change in Congressional mood, expressed through new legislation, would almost inevitably be called for as a basis for the "normalization" of controls on direct U.S. exports to East European countries.

Third-country exports of articles of U.S. origin, or of articles containing U.S.-origin components or technical data, would probably fall within the same category. Exports from third countries over which the United States claims control—often faced with the respective foreign Governments' serious annoyance at what they consider U.S. interference in an area of their sovereign competence—only because they are produced by an American-owned foreign subsidiary, or shipped on a U.S.-flag carrier, can probably be released from U.S. control by Executive action without serious disregard of Congressional intent, since the occasions for exercising this control authority are generally quite infrequent and, in the case of shipping controls, virtually nonexistent.

It is obvious that—speaking practically—the prospects for substantial normalization of commercial relations with East European countries, regardless of how readily any normalizing action on the part of the United States can be taken in theory, essentially depend on changes in the internal and external political situation of East European countries as it affects or is perceived to affect the national security or foreign policy interests of the United States, namely, those interests which prompted the United States to put these restrictions into effect in the first place. This element, however, depends more on the flexibility of the East European countries than on the goodwill of the United States.

APPENDIX

STATUS OF INDIVIDUAL EAST EUROPEAN COUNTRIES IN RESPECT TO SPECIAL ASPECTS OF COMMERCIAL RELATIONS WITH THE UNITED STATES

	Albania	Bulgaria	Czecho- slovakia	German Demo- cratic Republic	Hungary	Poland	Romania	Yugo- slavia
Nondiscriminatory treatment:								
Statutory.....						×		×
Under freedom-of-em- igration waiver.....					×		×	
GSP beneficiary developing country.....			(1)	(1)	(1)	(1)	×	×
Market disruption statute.....	×	×	×	×	×	×	×	×
Special procedure for deter- mining foreign market value in antidumping cases.....	×	×	×	×	×	×	×	
Level of export controls ²	2	2	2	2	2	2	2	3
Eligibility for:								
Export credit operations.....					×	×	×	×
OPIC programs.....							×	×
Shipping controls.....	×	×	×	×	×			
Special conditions.....			(3)					
GATT signatory.....			×		×	×	×	×

¹ Ineligible for BDC designation because considered a developed country.

² See part II.A.1.

³ Agreement on settlement of private claims must be renegotiated and submitted to Congress as a part of the MFN agreement.

SOVIET AND EASTERN EUROPEAN FOREIGN TRADE IN THE 1970'S: A QUANTITATIVE ASSESSMENT

By Jan Vaňous*

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I. INTRODUCTION

The aim of this paper is to present ordered statistical information on Soviet and Eastern European foreign trade with particular concentration on the period 1970-1977 (1979 for the USSR). The data presented here were taken from the third edition of the author's Project CMEA-FORTRAM Data Bank of Foreign Trade Flows and Balances of the CMEA Countries, 1950-1977. Aside from the internal version of the CMEA Foreign Trade Yearbook, which is not available in the West, this is the only other comprehensive and regularly updated data bank of this kind. The Data Bank contains 1080 time series of exports and imports of each CMEA country (Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, Romania, USSR), the CMEA Six (Eastern Europe), and the CMEA Seven with nine main trade regions (World, Socialist Countries, Capitalist Countries, CMEA, CMEA Five, USSR, OCPEs, MDCs, LDCs) disaggregated by five commodity categories (Machinery and Equipment, Fuels, Non-Food Raw Materials, Food and Raw Materials for Food, Industrial Consumer Goods). In addition, the Data Bank contains 664 time series of commodity and overall trade balances. All data are reported in millions of current SDRs. All time series have a consistent commodity coverage, which follows the 1962 version of the CMEA Trade Nomenclature (CTN). The Data Bank can be obtained from Wharton EFA, CPE Projects, 1110 Vermont Ave., N.W., Washington, D.C. 20005.

The data in the Data Bank were compiled by the author on the basis of the officially published data in the CMEA countries (Statistical Yearbooks, Yearbooks of Foreign Trade), unpublished official data (internal versions of Yearbooks of Foreign Trade), secondary statistical information (Soviet and Eastern European books on foreign trade and economic journals), results of previous statistical work by other Western researchers (van Brabant and Marer), and finally U.N. trade publications and mirror OECD trade statistics.¹

In this paper, Eastern Europe, which consists of Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, and Romania, is treated as one country. The study analyzes Soviet and Eastern European foreign trade with five major trade regions, namely the CMEA Six (Eastern Europe), the USSR, the Other Centrally Planned Economies (OCPEs, which include Albania, China, Cuba, North Korea, Mongolia, Vietnam, and Yugoslavia), the More Developed Countries (MDCs, which include North America, Western Europe incl. Turkey, Japan, Australia and New Zealand), and the Less Developed Countries (LDCs, or the rest of the world).

The paper is divided into four sections. Following this introduction, section II analyzes the commodity pattern of Soviet and Eastern European regional trade flows. In section III we present estimates of foreign trade prices and (net) terms of trade, as well as estimates of quantity indices and gross barter terms of trade. Finally, evidence on activity and relative price elasticities in Soviet and Eastern European

¹ Detailed information on the method of reconstruction of trade flows by trade regions can be found in Vaňous (1977), pp. iv-xiv. Complete list of primary sources of data can be found on pp. xxvii-xxxix. Updated information will be available in Vaňous (1980b).

foreign trade is presented in section IV. In addition, the problem of bringing intra-CMEA and East-West trade flows to a common denominator and its implications are discussed in the Appendix.

II. COMMODITY PATTERN OF SOVIET AND EASTERN EUROPEAN FOREIGN TRADE

In Tables 1 through 4, Soviet foreign trade with the four major trade regions—the CMEA Six, OCPEs, MDCs, and LDCs—is reconstructed by seven main commodity categories. The commodity disaggregation and coverage follows the 1962 version of the CMEA Trade Nomenclature (CTN), which is slightly different from its more recent 1971 version, and includes: Machinery and Equipment for Investment (CTN 1 minus Arms), Arms, Fuels (CTN 20 + 21 + 22 + 23), Non-Food Raw Materials (CTN 2 + 3 + 4 + 5 minus Fuels), Grain and Flour (CTN 700 + 82001 + 82002 + 82099), Other Food (CTN 6 + 7 + 8 minus Grain and Flour), and Industrial Consumer Goods (CTN 9). In addition, in the case of the Soviet imports from the OCPEs, imports of Cuban sugar (CTN 72306) are separated from Other Food. All data are in millions of current SDRs.²

Because of the overvaluation of the ruble vis-à-vis the dollar in the official Soviet foreign trade statistics, no attempt is made here to aggregate the Soviet trade with four major trade regions and present a "world total" for each commodity trade. The reader should be aware that 1 (accounting) SDRs worth of commodities in Soviet trade with the CMEA Six or with the OCPEs is not equivalent in value to 1 SDRs worth of commodities in Soviet trade with the MDCs and the LDCs. Any attempt to aggregate unadjusted trade flows across different regions amounts to "adding up potatoes and oranges, pound for pound" and will result in the calculation of world aggregates of dubious economic meaning. This is a reflection of two facts, namely that the average intra-CMEA price level has historically been set well

² The SDR unit is essentially the same as the U.S. dollar in its 1971 purchasing power in terms of other currencies. The key reason for using SDR units rather than dollars as units of measurement is that intra-CMEA trade, relatively the most important regional trade flow, recorded in SDR units does reflect changing prices in bloc trade but not the appreciation of the transferable ruble in terms of the dollar due to the declining value of the dollar in terms of an average basket of other currencies.

The following exchange rates between the national devisa currencies of the CMEA countries and the SDR were assumed for the period of 1970-1977 (in units of national currency per SDR):

Bulgarian leva	—1.17
Czechoslovak crown	—7.20
East German mark	—4.20
Hungarian devisa forint	—11.74
Polish zloty	—4.00
Romanian lei	—6.00
USSR ruble	—0.90.

The average rate of appreciation of the national devisa currencies of the CMEA Six vis-à-vis the dollar (1971=1,000) was 1.087 in 1972, 1.205 during 1973-1977, and 1.318 in 1978. This is slightly different from the average rate of appreciation of the SDR (as defined by the IMF) vis-à-vis the dollar. Consequently, what the writer calls the SDR is slightly different from the SDR as defined by the IMF.

Finally, the Soviet foreign trade data with the MDCs and the LDCs were slightly adjusted in order to align the ruble/dollar exchange rate used in the official Soviet foreign trade statistics with that prevalent in the CMEA Six. To offset the different rates of appreciation of the ruble vis-à-vis the dollar in comparison with the rate of appreciation of the national devisa currencies of the CMEA Six vis-à-vis the dollar, the USSR statistics were converted from rubles into SDRs by dividing the ruble statistics by a factor 0.9 and then multiplying them by the following correction factors: 1972=0.9989, 1973=1.0147, 1974=0.9869, 1975=1.0349, 1976=0.9905, 1977=1.0134, 1978 and 1979=1.0000. This procedure makes them fully comparable with the corresponding trade data for the CMEA Six.

The reader interested in more detailed discussion is urged to read the Appendix.

above the average world market price (wmp) level and that intra-CMEA and CMEA-OCPE relative foreign trade prices are distorted vis-à-vis the wmp's and favor the trade in manufactured goods relative to primary goods. Consequently, the proper aggregation of commodity flows across different trade regions cannot be undertaken without a detailed investigation of the patterns of both the average and relative price distortions in intra-CMEA and CMEA-OCPE trade and is not attempted here. A more detailed discussion of the overvaluation of the ruble vis-à-vis the dollar and its consequences is presented in the Appendix.

The data presented in Tables 1 through 4 require little comment and we will limit our remarks to point out only some of the most important trends or shifts in trade patterns. In the case of the Soviet trade with the CMEA Six, on the export side we notice the rapidly increasing importance of fuel exports and the virtual disappearance of food exports (both grain and other food). Because of the rapid increase in the Soviet prices of exported fuels starting in 1975 the share of fuels in total Soviet exports to Eastern Europe increased from 15.0 percent in 1970 to 37.5 percent in 1979. During the same period, the share of exports of grain and other food declined from 8.0 percent to

TABLE 1.—SOVIET TRADE WITH THE CMEA-6

[In millions of current SDRs]

Year	Machinery and equipment for investment	Arms	Fuels	Nonfood raw materials	Grain and flour	Other food	Industrial consumer goods	Total
Exports:								
1970	1,416.1	744.3	1,015.7	2,888.3	305.4	235.5	153.1	6,758.4
1971	1,660.1	662.6	1,167.5	2,947.9	431.1	208.6	163.5	7,241.3
1972	1,895.5	660.9	1,301.5	3,047.4	225.1	165.0	178.6	7,474.0
1973	2,250.1	729.8	1,442.6	3,194.3	223.4	161.7	199.0	8,200.9
1974	2,672.8	866.0	1,739.3	3,551.7	310.1	241.0	291.7	9,672.6
1975	2,879.3	1,099.5	3,473.5	4,840.4	271.8	234.1	386.1	13,184.7
1976	3,454.4	1,230.5	4,118.4	5,133.2	57.5	138.6	430.3	14,562.9
1977	4,117.5	1,418.3	5,195.4	5,438.3	224.3	137.5	431.0	16,962.3
1978	(4,480.0)	NA	6,275.5	NA	5.0	NA	NA	18,828.3
1979	(4,570.0)	NA	7,722.4	NA	169.0	NA	NA	20,609.5
Imports:								
1970	2,926.7	294.7	159.4	1,068.4	35.2	581.3	1,568.0	6,633.7
1971	3,079.6	307.3	193.4	1,111.9	33.4	676.1	1,856.8	7,258.5
1972	3,735.3	398.4	227.2	1,335.2	20.7	823.1	2,001.1	8,541.0
1973	4,197.2	485.2	233.9	1,279.8	48.5	760.5	1,986.9	8,992.0
1974	4,413.4	531.3	217.2	1,342.5	29.5	958.6	2,063.2	9,555.7
1975	5,729.8	510.3	464.5	1,811.6	184.7	1,278.3	2,589.3	12,568.5
1976	6,316.5	707.2	452.3	1,997.3	94.3	1,268.3	2,748.7	13,584.6
1977	7,266.9	878.2	457.1	2,200.9	29.3	1,479.1	3,079.3	15,390.8
1978	(10,130.0)	NA	552.2	NA	45.1	NA	NA	18,639.9
1979	(10,320.0)	NA	522.9	NA	53.7	NA	NA	19,414.5
Trade balance:								
1970	-1,510.6	449.6	856.3	1,819.9	270.2	-345.8	-1,414.9	124.7
1971	-1,419.5	355.3	974.1	1,836.0	397.7	-467.5	-1,693.3	-17.2
1972	-1,839.8	262.5	1,074.3	1,712.2	204.4	-658.1	-1,822.5	-1,067.0
1973	-1,947.1	244.6	1,208.7	1,914.5	174.9	-598.8	-1,787.9	-791.1
1974	-1,740.6	334.7	1,522.1	2,209.2	280.6	-717.6	-1,771.5	116.9
1975	-2,850.5	589.2	3,009.0	3,028.8	87.1	-1,044.2	-2,203.2	616.2
1976	-2,862.1	523.3	3,666.1	3,135.9	-36.8	-1,129.7	-2,318.4	978.3
1977	-3,149.4	540.1	4,738.6	3,237.1	195.0	-1,341.6	-2,648.3	1,571.5
1978	(-5,650.0)	NA	5,723.3	NA	-40.1	NA	NA	188.4
1979	(-5,750.0)	NA	7,199.5	NA	115.3	NA	NA	1,195.0

Source: 1970-77: Jan Vanous, Project CMEA-FORTRAM Data Bank of Foreign Trade Flows and Balances of the CMEA Countries, 1950-77 (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980), 1978-79: preliminary data from the 1978 and 1979 U.S.S.R. Foreign Trade Yearbooks.

(most probably) less than 2 percent. The share of the historically most important export commodity—non-food raw materials—gradually declined from 42.7 percent in 1970 to 32.1 percent in 1977. On the import side, the pattern has changed very little during the period 1970–1977. The share of imports of machinery and equipment for investment and of industrial consumer goods, which amounted to 44.1 and 23.6 percent of Soviet imports from the CMEA Six in 1970, represented 47.2 and 20.0 percent of total imports in 1977, respectively. The pattern of trade balances for individual commodity groups reveals that the USSR earns a growing surplus in trade in fuels, non-food raw materials and arms, which is offset by rising deficits in trade in the remaining commodities. Only the commodity category grain and flour exhibits a trend toward balanced (read zero) trade.

TABLE 2.—SOVIET TRADE WITH THE OCPEs

[In millions of current SDRs]

Year	Machinery and equipment for investment	Arms	Fuels	Nonfood raw materials	Grain and flour	Cuban sugar	Other food	Industrial consumer goods	Total
Exports:									
1970	576.7	106.5	201.7	418.7	122.7	-----	94.7	87.5	1,608.5
1971	578.3	209.4	229.1	433.8	104.4	-----	114.3	107.2	1,776.5
1972	623.7	128.8	229.2	416.9	78.7	-----	148.0	106.8	1,732.1
1973	659.8	124.8	339.9	416.2	104.2	-----	158.9	123.3	1,927.1
1974	831.8	110.9	540.7	630.8	167.1	-----	230.8	139.4	2,651.5
1975	940.1	148.4	739.6	627.8	186.3	-----	223.5	153.6	3,019.3
1976	1,263.6	136.4	870.7	805.7	220.8	-----	242.2	172.8	3,712.2
1977	1,407.4	205.6	1,129.2	824.8	271.2	-----	259.8	163.3	4,261.3
1978	(1,660.0)	NA	1,234.2	NA	219.2	-----	NA	NA	4,774.2
1979	(1,810.0)	NA	1,728.9	NA	289.4	-----	NA	NA	5,616.4
Imports:									
1970	85.6	-----	0	302.5	-----	404.8	94.4	115.3	1,002.6
1971	67.1	-----	0	366.4	-----	206.1	121.8	158.1	919.5
1972	67.3	-----	0	339.9	-----	146.1	129.4	241.2	923.9
1973	68.7	-----	1.6	407.3	-----	358.9	134.6	277.2	1,248.3
1974	130.8	-----	.3	540.1	-----	678.6	212.1	331.1	1,893.0
1975	210.2	-----	1.1	633.6	-----	1,493.7	218.1	394.4	2,951.1
1976	340.0	-----	.8	669.0	-----	1,553.1	206.8	427.7	3,197.4
1977	443.2	-----	.8	682.6	-----	1,861.5	282.8	417.2	3,688.1
1978	(550.0)	-----	1.0	NA	-----	2,352.4	NA	NA	4,408.9
1979	(500.0)	-----	.9	NA	-----	2,264.3	NA	NA	4,393.0
Trade balance:									
1970	491.1	106.5	201.7	116.2	122.7	-404.8	.3	-27.8	605.9
1971	511.2	209.4	229.1	67.4	104.4	-206.1	-7.5	-50.9	857.0
1972	556.4	128.8	229.2	77.0	78.7	-146.1	18.6	-134.4	808.2
1973	591.1	124.8	338.3	8.9	104.2	-358.9	24.3	-153.9	678.8
1974	701.0	110.9	540.4	90.7	167.1	-678.6	18.7	-191.7	758.5
1975	729.9	148.4	738.5	-5.8	186.3	-1,493.7	5.4	-240.8	68.2
1976	923.6	136.4	869.9	136.7	220.8	-1,553.1	35.4	-254.9	514.8
1977	964.2	205.6	1,128.4	142.2	271.2	-1,861.5	-23.0	-253.9	573.2
1978	(1,110.0)	NA	1,233.2	NA	219.2	-2,352.4	NA	NA	365.3
1979	(1,310.0)	NA	1,728.0	NA	289.4	-2,264.3	NA	NA	1,223.4

Source: 1970–77: Jan Vanous, Project CMEA–FORTRAM Data Bank of Foreign Trade Flows and Balances of the CMEA Countries, 1950–77 (Vancouver, B.C.: Project CMEA–FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978–79: Preliminary data from the 1978 and 1979 U.S.S.R. Foreign Trade Yearbooks.

As far as the Soviet trade with the OCPEs is concerned, fuels represent a steadily growing portion of Soviet exports and Cuban sugar a growing portion of Soviet imports. In 1970 fuels accounted for 12.5 percent of exports and Cuban sugar for 40.4 percent of imports; in 1979 the share of fuels in exports increased to 30.8 percent while the

TABLE 3.—SOVIET TRADE WITH THE MDCs

(In millions of current SDRs)

Year	Machinery and equipment for investment	Arms	Fuels	Nonfood raw materials	Grain and flour	Other food	Industrial consumer goods	Total
Exports:								
1970	91.0	13.1	706.4	1,324.9	22.7	156.3	79.0	2,393.4
1971	85.7	10.4	984.3	1,349.6	81.5	154.2	92.4	2,758.1
1972	99.0	10.3	886.0	1,451.5	24.7	123.5	114.2	2,709.2
1973	168.1	13.3	1,535.0	2,055.1	120.6	167.6	167.8	4,227.5
1974	184.9	14.9	3,201.1	2,770.5	277.7	224.2	188.3	6,861.6
1975	300.7	18.0	3,929.6	2,309.5	28.0	231.1	243.3	7,060.2
1976	333.2	19.8	5,248.9	2,551.3	0.2	203.2	265.0	8,621.6
1977	287.2	23.3	6,194.6	2,899.5	25.8	164.2	333.8	9,928.4
1978	(315.0)	NA	6,182.9	NA	10.5	NA	NA	9,667.8
1979	(400.0)	NA	(9,569.1)	NA	(50.5)	NA	NA	13,895.7
Imports:								
1970	1,104.1		7.8	1,154.0	122.7	106.3	327.4	2,822.3
1971	1,032.5		9.5	1,256.8	182.0	98.2	310.9	2,889.9
1972	1,247.0		7.7	1,339.4	817.8	108.0	298.9	3,818.8
1973	1,605.1		12.2	1,821.9	1,267.6	226.5	240.3	5,173.6
1974	2,109.8		18.3	3,515.3	496.0	242.3	352.6	6,734.3
1975	4,128.3		36.4	4,372.1	1,751.7	333.9	536.2	11,158.6
1987	4,745.8		50.2	4,021.2	2,142.9	416.9	534.3	11,911.3
1977	4,967.4		46.4	3,841.1	1,150.6	656.1	513.3	11,174.9
1978	(5,305.0)		58.4	NA	1,608.2	NA	NA	12,198.5
1979	(5,030.0)		(264.4)	NA	(2,411.5)	NA	NA	14,719.3
Trade balance:								
1970	-1,013.1	13.1	698.6	170.9	-100.0	50.0	-248.4	-428.9
1971	-946.8	10.4	974.8	92.8	-100.5	56.0	-218.5	-131.8
1972	-1,148.0	10.3	878.3	112.1	-793.1	15.5	-184.7	-1,109.6
1973	-1,437.0	13.3	1,522.8	233.2	-1,147.0	-58.9	-72.5	-946.1
1974	-1,924.9	14.9	3,182.8	-744.8	-218.3	-18.1	-164.3	127.3
1975	-3,827.6	18.0	3,893.2	-2,062.6	-1,723.7	-102.8	-292.9	-4,098.4
1976	-4,412.6	19.8	5,198.7	-1,469.9	-2,142.7	-213.7	-269.3	-3,289.7
1977	-4,680.2	23.3	6,148.2	-941.6	-1,124.8	-491.9	-179.5	-1,246.5
1978	(-4,990.0)	NA	6,124.5	NA	-1,597.7	NA	NA	-2,530.7
1979	(-4,630.0)	NA	(9,304.7)	NA	(-2,361.0)	NA	NA	-823.6

Note: During 1976-79 the U.S.S.R. also imported machinery, equipment, and pipes (included in nonfood raw material category) for the Orenburg pipeline project from four MDCs. These merchandise imports should be added to the reported total, but cannot be allocated to the 2 commodity groups they belong to. They amounted to SDR 347,900,000 in 1976, 734,900,000 in 1977, 216,000,000 in 1978, and 21,900,000 in 1979.

Source: 1970-77: Jan Vanous, Project CMEA-FORTRAM Data Bank of Foreign Trade Flows and Balances of the CMEA Countries, 1950-1977 (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978-79: preliminary data from the 1978 and 1979 U.S.S.R. Foreign Trade Yearbooks.

share of Cuban sugar in imports reached 51.5 percent.³ It is of interest to note that in spite of the poor Soviet grain harvests in 1972 and 1975, the USSR has continued to export significant amounts of grain, flour and other food to Cuba, North Korea, and Vietnam.

The most dramatic increase in the importance of fuel exports, primarily as a result of spectacular price increases (of about 600 percent

³ Soviet trade statistics reveal that Soviet payments for imports of sugar from Cuba are mostly disguised payments for Cuban mercenary services in various parts of Africa and Asia (Angola, Ethiopia, Mozambique, Yemen, etc.), i.e., payments for the cost of proxy intervention on behalf of the USSR. These activities began on a large scale in 1975 and Cuba was immediately rewarded by about 275 percent increase in the price of sugar paid by the USSR during the period of 1975-1977 (relative to 1970). In 1978 the USSR import price for Cuban sugar increased by 360 percent relative to 1970. During the same period, world market prices of sugar were falling rapidly and by 1978 they fell roughly to one quarter of their all time high 1974 level. If we take into account these relative price developments and the fact that already in 1970 the USSR paid about 66 percent more for imported Cuban sugar than it would have been required to pay on the world market, we can calculate the implicit subsidy element in Soviet imports of sugar which benefits the Cuban economy (currently running about 300 dollars per capita, or about 25 percent of the Cuban GNP). The writer estimates that in 1975 this implicit subsidy element was about SDR 390 million, and then it began to rise rapidly to SDR 900 million in 1976, SDR 1320 million in 1977, and SDR 1860 million in 1978. These estimates are very close to those made by Theriot and Matheson (1979), p. 560.

For a more general treatment of the problem of implicit trade subsidies and unconventional gains from trade see Marrese and Vanous (1980).

TABLE 4.—SOVIET TRADE WITH THE LDCs

[In millions of current SDRs]

Year	Machinery and equipment for investment	Arms	Fuels	Nonfood raw materials	Grain and flour	Other food	Industrial consumer goods	Total
Exports:								
1970	674.1	891.3	73.0	235.3	17.5	113.9	34.6	2,039.7
1971	689.7	779.5	97.3	249.7	44.6	130.8	38.6	2,030.2
1972	740.8	1,063.0	86.6	230.4	8.5	57.6	41.6	2,228.5
1973	814.5	1,934.8	76.8	396.8	5.8	45.9	36.1	3,310.7
1974	745.2	1,825.1	324.8	599.5	34.0	141.9	45.5	3,716.0
1975	923.9	1,847.5	388.0	473.9	12.6	105.4	54.9	3,806.2
1976	1,010.3	2,214.8	392.6	367.7	3	67.5	62.8	4,116.0
1977	1,189.5	3,737.5	527.1	413.9	3.7	62.6	75.0	6,009.3
1978	(1,315.0)	(3,700.0)	437.9	NA	5.7	NA	NA	6,362.6
1979	(1,475.0)	(3,700.0)	(862.6)	NA	(5.0)	NA	NA	7,018.3
Imports:								
1970	1.5	67.4	657.8	0	410.8	135.4	1,272.9	
1971	2.8	134.1	630.4	25.0	458.1	161.5	1,411.9	
1972	6.0	208.5	607.9	0	487.0	189.0	1,498.4	
1973	11.7	344.7	783.8	0	598.0	221.9	1,960.1	
1974	11.8	489.7	1,011.7	105.0	718.1	277.8	2,614.1	
1975	19.0	677.8	933.9	345.2	1,154.7	317.7	3,448.3	
1976	18.4	639.3	767.9	292.6	1,093.8	275.0	3,087.0	
1977	23.4	722.1	1,000.2	58.0	1,290.5	280.8	3,375.0	
1978	(35.0)	808.9	NA	236.2	NA	NA	3,145.8	
1979	(25.0)	(810.5)	NA	(165.1)	NA	NA	3,543.9	
Trade balance:								
1970	672.6	891.3	5.6	-422.5	17.5	-296.9	-100.8	766.8
1971	686.9	779.5	-36.8	-380.7	19.6	-327.3	-122.9	618.3
1972	734.8	1,063.0	-121.9	-377.5	8.5	-429.4	-147.4	730.1
1973	802.8	1,934.8	-267.9	-387.0	5.8	-552.1	-185.8	1,350.6
1974	733.4	1,825.1	-164.9	-412.2	-71.0	-576.2	-232.3	1,101.9
1975	904.9	1,847.5	-289.8	-460.0	-332.6	-1,049.3	-262.8	357.9
1976	991.9	2,214.8	-246.7	-400.2	-292.3	-1,026.3	-212.2	1,029.0
1977	1,166.1	3,737.5	-195.0	-586.3	-54.3	-1,227.9	-205.8	2,634.3
1978	(1,280.0)	(3,700.0)	-371.0	NA	-230.5	NA	NA	3,216.8
1979	(1,450.0)	(3,700.0)	52.1	NA	(-160.1)	NA	NA	3,474.4

Source: 1970-77: Jan Vanous, Project CMEA-FORTRAM Data Bank of Foreign Trade Flows and Balances of the CMEA Countries, 1950-1977 (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980). 1978-79: preliminary data from the 1978 and 1979 U.S.S.R. Foreign Trade Yearbooks.

between 1970 and 1979 in terms of SDRs), took place in Soviet exports to the MDCs. Between 1970 and 1979, the share of fuels increased from 29.5 to 68.9 percent. The share of non-food raw materials, formerly the most important Soviet export commodity, declined from 55.4 percent in 1970 to 29.2 percent in 1977. The most important imported commodity from the MDCs is machinery and equipment for investment; its share declined from 39.1 percent in 1970 to 34.2 percent in 1979. However, as a result of two major grain harvest failures in the 1970's, imports of grain and flour exhibit the most rapid growth. While in 1970 they amounted to mere 4.3 percent of total imports from the MDCs, in 1979 they represented 16.4 percent, and even reached the level of 24.5 and 18.0 percent in the two years immediately following harvest failures, namely 1973 and 1976. What is quite surprising is that since 1974 the USSR has had a trade deficit in every commodity category except fuels and arms (the latter being due to negligible exports to Finland), i.e., even in the commodity category non-food raw materials. However, since the USSR imports large amounts of steel and steel products (pipes) which are included in this category, the bulk of this deficit can be attributed to this factor. Nevertheless, Table 3 reveals the enormous dependence of Soviet imports on the revenue from fuel exports. Should the USSR find it necessary to start reducing fuel exports to the MDCs or begin large-scale oil imports

from the Middle Eastern OPEC countries, as some specialists predict will take place between 1982 and 1985, this would require the elimination of trade deficits in machinery and equipment, imports of those non-food raw materials with more or less adequate domestic substitutes, and ultimately also the elimination of deficits in grain and other food.⁴

The most fascinating aspect of Soviet exports to the LDCs is the importance of arms: between 1970 and 1979 their share in total exports increased from 43.7 to about 53 percent.⁵ During the same period, the

⁴ See, e.g., widely reported predictions of the CIA recently appearing in the press, and Bond and Levine (1979) who present some possible scenarios and simulations of the forthcoming Soviet energy crisis and its impact on the Soviet foreign trade sector (primarily trade with the Developed West) using the SRI-Wharton Soviet Econometric Model (SOVMOD). Also see Lee and Lecky (1979), pp. 581-599.

⁵ The arms exports to the LDCs reported in Table 9 include commercial transactions and exclude any gifts, grants, or military aid (items not included in the USSR foreign trade statistics), which are likely to be substantial as well.

At the present time, three types of estimates of the Soviet exports of arms to the LDCs are available, each relying on different methodology. Vaňous minimum estimate is calculated by subtracting the sum of reported exports to all individual LDCs (whether identified by commodity or not) included in the official Soviet foreign trade statistics from the reported LDC total. According to the information available to the author from internal CMEA sources, Soviet exports to the LDCs not identified by country represent exports of arms. In fact, in the internal version of the CMEA Foreign Trade Yearbook published by the CMEA Secretariat in Moscow, the reported Soviet exports and imports exclude arms, and the reported total Soviet exports to the LDCs equal the sum of exports to the individual LDCs that can be calculated from the USSR Foreign Trade Yearbook.

Vaňous maximum estimate of Soviet exports of arms to the LDCs assumes that in fact a small portion of the USSR-LDC arms trade is hidden in the country export statistics in the form of an "unidentified commodity residual." This estimate is obtained through the following series of steps. First, the author makes an estimate of total Soviet exports of arms. Next, Soviet exports of arms to the CMEA Six, to the OCPes and to Finland are estimated using a variety of techniques. The description of the first two steps of this procedure can be obtained from the author on request. Finally, Soviet exports of arms to the LDCs are assumed to be the difference between the total Soviet arms exports and Soviet arms exports to the above three areas. This estimate is the one reported in Table 4 above.

The third estimate is the CIA estimate reported by Ericson and Miller (1979), p. 214. The methodology of construction of this estimate is not known, but it is likely to be calculated as the sum of Soviet arms exports to individual LDCs estimated on the basis of reports by field agents and country desk specialists.

The three estimates for the period 1970-1979 are compared below (in millions of current dollars):

Year	Vaňous minimum	Vaňous maximum	CIA	Ratio of Vaňous maximum to minimum	Ratio of CIA to Vaňous minimum
1970.....	792.0	891.3	995	1.125	1.256
1971.....	694.3	779.5	865	1.123	1.246
1972.....	1,065.9	1,155.3	1,215	1.084	1.140
1973.....	2,148.3	2,330.9	3,130	1.085	1.457
1974.....	2,027.2	2,199.4	2,310	1.085	1.140
1975.....	1,893.4	2,227.2	1,845	1.176	.974
1976.....	2,319.4	2,669.4	2,575	1.151	1.110
1977.....	3,887.9	4,504.4	3,515	1.159	.904
1978.....	4,183.2	4,873.0	3,825	1.165	.914
1979.....	4,336.5	5,052.0	NA	1.164	NA

The comparison of Vaňous maximum and CIA estimates reveals that they are fairly close to each other for years 1970 through 1972, 1974 and 1976. Vaňous maximum estimate is well below that by CIA for 1973 (by 800 million dollars) and it exceeds the CIA estimates in 1975 (by about 380 million dollars) and in 1977 and 1978 (by about 990 and 1050 million dollars, respectively).

How can the above difference between Vaňous maximum and CIA estimates be reconciled? Firstly, the two estimates may not estimate the same thing. Consequently, we need to compare just what is included in the two estimates. Secondly, if CIA were right and Vaňous wrong, then Vaňous must underestimate Soviet exports of non-food raw materials to the LDCs reported in Table 4 by about SDR 310 million 1975 and SDR 810 and 800 million in years 1977 and 1978, respectively. Similarly, Vaňous would have to overestimate these exports by about SDR 670 million in 1973. It is immediately apparent that the latter possibility can be ruled out (exports cannot be negative). The former possibility can also be ruled out because it would imply under-reporting of Soviet exports of non-food raw materials on an unprecedented scale. Therefore, either Vaňous is right or the CIA should prove that the assumption underlying Vaňous minimum estimate is wrong and the LDC export residual not identified by country contains commodities other than arms.

share of civilian machinery exports declined from 33.0 to 21.0 percent. This trend requires little comment and indicates what is the Soviet idea of assistance to the economic development of the Third World. On the import side, we should note the rapidly rising importance of fuels; their share increased from 5.3 percent in 1970 to 22.9 percent in 1979. Between 1970 and 1977, the share of imports of manufactured commodities (machinery and industrial consumer goods combined) declined from the already low 10.8 to mere 9.0 percent. This indicates the degree of real Soviet support (as distinguished from vocal propaganda in international forums such as UNCTAD conferences) for the preferential trade treatment of the LDCs in order to encourage the industrialization of their backward economies.

Last but not the least, right in line with the classical 19th-century British imperialist tradition, the USSR runs a steadily growing overall trade surplus with the LDCs while incurring persistent overall trade deficits with the MDCs. During the period 1970-1979 the cumulative Soviet overall trade deficit with the MDCs was about SDR 14.5 billion, while the cumulative Soviet overall trade surplus with the LDCs was about SDR 15.3 billion. The cumulative Soviet arms exports to the LDCs during the same period amounted to about SDR 21.7 billion, indicating that in their absence the USSR would have had a cumulative overall trade deficit with the LDCs of about SDR 6.4 billion and a cumulative overall deficit with the entire dollar area of SDR 20.9 billion instead of a surplus of SDR 0.8 billion.

An interesting question that arises is to whether at least a part of the Soviet current trade surplus with the LDCs can be used to offset a portion of its current trade deficit with the MDCs. In the opinion of the writer, at least one third of the cumulative Soviet trade deficits incurred with the MDCs during 1970-1979 was offset by its surpluses in trade with the LDCs. This conclusion is based on the following reasoning. If we make an extreme assumption that all Soviet exports of civilian machinery to the LDCs, amounting to SDR 9.6 billion during 1970-1979, were sold for inconvertible currencies and on long-term credit, then still at least SDR 5.7 billion portion of the cumulative Soviet surplus with the LDCs could be used to offset about 39 percent of its cumulative deficit with the MDCs. However, in recent years (1974-1979), around one-half of the Soviet civilian machinery exports to the LDCs was sold to Iran, Iraq, and Libya, which are likely to pay in convertible currency. If we assume more realistically that about one-half of the Soviet exports of civilian machinery and about three-quarters of its exports of arms were sold for convertible currency, then at least SDR 5.1 billion portion of the cumulative Soviet trade surplus with the LDCs could be used to offset about 35 percent of its cumulative trade deficit with the MDCs.⁶

The commodity structure of foreign trade of the CMEA Six with the five main trade regions—the CMEA Six (intra-CMEA Six trade), USSR, OCPEs, MDCs, and LDCs—is presented in Tables 5 through 9 below. Five commodity categories are distinguished: Machinery and Equipment (CTN 1; includes both machinery for investment and arms

⁶ The CIA estimate of Soviet hard-currency receipts for exports of arms to the LDCs during 1970-1978 is reported in Ericson and Miller (1979), p. 214. Converted to SDRs, it amounts to about 6.3 billion dollars for the nine-year period, or about 46 percent of the cumulative Soviet overall trade deficit with the MDCs.

except in the case of CMEA Six-USSR trade), Fuels, Non-Food Raw Materials, Food (grain, flour, other food), and Industrial Consumer Goods. As in the Soviet case, no attempt is made to aggregate commodity trade flows across different trade regions in view of the ruble-dollar exchange rate problems.

The first Table, Table 5, presents the picture of intra-CMEA Six trade. As in 1970, when the share of machinery and equipment accounted for 53.4 percent of this trade, in 1977 machinery was by far the most important traded commodity accounting for 56.5 percent of intra-CMEA Six trade. The share of non-food raw materials remained virtually unchanged between 1970 and 1977 (it increased slightly from 19.4 to 20.4 percent), while the shares of the three remaining commodities slightly declined. Overall, intra-CMEA Six trade has been characterized by very stable pattern of commodity trade.

The trade of the CMEA Six with the USSR was discussed earlier from the Soviet point of view and requires no additional comment. The only difference between Tables 1 and 6 is that the former is based on the USSR foreign trade statistics, while the latter is based on the aggregation of foreign trade statistics of the six Eastern European countries. Minor differences in numbers (by definition Eastern European exports should equal Soviet imports and vice versa) are due to differences in recording practices (the USSR records trade on the basis of country of destination for exports and origin for imports, while all Eastern European countries record trade on the basis of country of sale for exports and purchase for imports), registration dates, and valuation.

TABLE 5.—INTRA CMEA-6 TRADE
[In millions of current SDRs]

Year	Machinery and equipment	Fuels	Nonfood raw materials	Food	Industrial consumer goods	Total
1970.....	2,620.8	303.0	953.9	421.1	610.4	4,909.2
1971.....	2,929.0	324.8	1,085.2	466.7	633.7	5,439.4
1972.....	3,280.1	362.2	1,288.7	486.1	738.5	6,155.6
1973.....	3,993.9	406.3	1,449.8	534.7	820.8	7,205.5
1974.....	4,650.4	408.2	1,648.6	638.0	911.6	8,256.8
1975.....	5,314.2	589.1	2,162.3	654.5	1,038.4	9,758.5
1976.....	6,420.6	645.2	2,392.2	938.8	1,107.8	11,504.6
1977.....	7,272.3	715.2	2,624.2	950.2	1,305.0	12,866.9

Note: The data presented in this table are an arithmetic average of the estimate of intra-CMEA-6 exports and imports, which should be equal by definition but are not equal because of minor statistical discrepancies.

Source: Jan Vanous, Project CMEA-FORTRAM Data Bank of Foreign Trade Flows and Balances of the CMEA Countries 1950-77 (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980).

There were no major structural shifts in trade of the CMEA Six with the OCPEs during the period under study. Machinery and equipment remained the most important commodity, accounting for 50.1 percent of total exports in 1970 and 42.6 percent in 1977. Because of higher rates of price increases the share of exports of non-food raw materials increased from 30.3 percent to 39.2 percent during the same period. On the import side, non-food raw materials and food accounted for 35.7 and 32.2 percent of total imports in 1970, and 39.8 and 24.5 percent in 1977, respectively. Primarily as a result of increased imports of machinery from Yugoslavia, the share of ma-

TABLE 6.—TRADE OF THE CMEA-6 WITH THE USSR

[In millions of current SDRs]

Year	Machinery and equipment for investment	Arms	Fuels	Non-food raw materials	Food	Industrial consumer goods	Total
Exports:							
1970	2,094.7	294.7	161.8	1,088.9	593.1	1,586.4	6,629.6
1971	3,087.9	307.3	195.1	1,150.6	683.3	1,859.8	7,284.0
1972	3,787.1	398.4	236.1	1,374.9	816.1	1,993.2	8,605.8
1973	4,226.2	485.2	223.1	1,308.0	793.8	1,982.2	9,018.5
1974	4,469.9	551.3	220.4	1,327.4	973.1	2,065.6	9,587.7
1975	5,817.0	510.3	470.5	1,857.7	1,328.5	2,561.7	12,545.7
1976	6,370.1	707.2	453.3	1,989.9	1,264.5	2,721.5	13,506.5
1977	7,482.2	878.2	460.3	2,267.8	1,438.0	3,061.4	15,587.9
Imports:							
1970	1,453.5	744.3	1,002.5	2,926.8	519.3	154.3	6,800.7
1971	1,670.4	662.6	1,144.1	3,051.0	609.6	154.0	7,291.7
1972	1,934.6	660.9	1,274.4	3,149.3	387.7	164.6	7,571.5
1973	2,259.5	729.8	1,398.9	3,246.0	356.7	192.4	8,183.3
1974	2,636.7	866.0	1,664.0	3,450.2	505.2	290.3	9,412.4
1975	2,912.6	1,099.5	3,378.2	4,774.2	507.8	379.6	13,051.9
1976	3,383.1	1,230.5	4,007.3	5,096.4	187.8	431.7	14,336.8
1977	4,139.7	1,418.3	5,073.2	5,651.2	353.2	433.6	17,069.1
Trade balance:							
1970	1,451.2	-449.6	-840.7	-1,837.9	73.8	1,432.1	-171.1
1971	1,417.5	-355.3	-949.0	-1,900.4	73.7	1,705.8	-7.7
1972	1,852.5	-262.5	-1,038.3	-1,774.4	428.4	1,828.6	1,034.3
1973	1,966.7	-244.6	-1,175.8	-1,938.0	437.1	1,789.8	835.2
1974	1,833.2	-334.7	-1,443.6	-2,122.8	467.9	1,775.3	175.2
1975	2,904.4	-589.2	-2,907.7	-2,916.5	820.7	2,182.1	-506.2
1976	2,987.0	-523.3	-3,554.0	-3,106.5	1,076.7	2,289.8	-830.3
1977	3,342.5	-540.1	-4,612.9	-3,383.4	1,084.8	2,627.9	-1,481.2

Source: Jan Vanous, Project CMEA-FORTRAM Data Bank of Foreign Trade Flows and Balance of the CMEA Countries, 1950-77 (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980).

TABLE 7.—TRADE OF THE CMEA-6 WITH THE OCPECS

[In millions of current SDRs]

Year	Machinery and equipment	Fuels	Nonfood raw materials	Food	Industrial consumer goods	Total
Exports:						
1970	482.4	27.5	292.0	61.5	99.6	963.0
1971	560.0	30.7	343.3	56.9	108.4	1099.3
1972	528.4	31.5	364.5	55.7	99.9	1080.0
1973	509.2	40.5	396.0	66.2	98.3	1110.2
1974	615.6	76.8	593.0	107.9	112.6	1505.9
1975	783.4	103.2	741.3	97.5	140.9	1866.3
1976	894.5	74.5	687.0	193.3	152.7	2002.0
1977	974.7	77.5	897.6	153.5	187.1	2290.4
Imports:						
1970	93.2	22.9	275.1	248.0	131.7	770.9
1971	119.2	27.9	337.1	289.4	148.0	921.6
1972	127.2	27.6	366.2	247.2	163.4	931.6
1973	185.8	29.2	397.7	291.3	165.6	1069.6
1974	206.0	36.4	641.1	473.2	204.4	1561.1
1975	280.6	37.3	607.0	426.6	256.7	1608.2
1976	285.7	51.2	651.0	412.8	225.8	1626.5
1977	321.2	46.1	725.4	447.8	284.0	1824.5
Trade balance:						
1970	389.2	4.6	16.9	-186.5	-32.1	192.1
1971	440.8	2.8	6.2	-232.5	-39.6	177.7
1972	401.2	3.9	-1.7	-191.5	-63.5	148.4
1973	323.4	11.3	-1.7	-225.1	-67.3	40.6
1974	409.6	40.4	-48.1	-365.3	-91.8	-55.2
1975	502.8	65.9	134.3	-329.1	-115.8	258.1
1976	608.8	23.3	36.0	-219.5	-73.1	375.5
1977	653.5	31.4	172.2	-294.3	-96.9	465.9

Source: Jan Vanous, Project CMEA-FORTRAM Data Bank of Foreign Trade Flows and Balances of the CMEA Countries, 1950-77 (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980).

TABLE 8.—TRADE OF THE CMEA-6 WITH THE MDCs

[In millions of current SDRs]

Year	Machinery and equipment	Fuels	Nonfood raw materials	Food	Industrial consumer goods	Total
Exports:						
1970.....	430.1	388.8	1,598.5	1,150.8	753.2	4,321.4
1971.....	563.0	481.4	1,597.6	1,191.1	897.1	4,730.2
1972.....	613.9	500.0	1,724.7	1,506.6	1,029.4	5,374.6
1973.....	755.0	674.8	2,301.0	2,029.9	1,278.5	7,039.2
1974.....	855.7	1,369.5	3,371.0	2,105.0	1,541.2	9,242.4
1975.....	1,053.8	1,769.1	2,637.3	1,851.9	1,614.2	9,226.3
1976.....	1,234.3	1,942.7	3,139.4	1,883.9	1,902.1	10,102.4
1977.....	1,378.0	1,990.3	3,095.7	1,864.6	2,137.1	10,465.7
Imports:						
1970.....	1,559.9	140.2	2,402.9	663.5	234.2	5,000.7
1971.....	1,844.7	157.9	2,618.9	651.0	281.8	5,554.3
1972.....	2,259.4	140.3	3,003.6	803.8	354.1	6,561.2
1973.....	2,901.8	183.4	4,422.5	1,022.7	575.7	9,106.1
1974.....	3,822.2	294.6	7,368.4	1,405.8	642.2	13,532.2
1975.....	4,814.0	474.2	6,936.7	1,599.6	577.1	14,401.6
1976.....	4,921.9	680.4	6,959.7	2,321.5	651.9	15,535.4
1977.....	5,287.6	689.4	7,012.0	1,860.5	704.8	15,554.3
Trade balance:						
1970.....	-1,129.8	248.6	-804.4	487.3	519.0	-679.3
1971.....	-1,281.7	323.5	-1,021.3	540.1	615.3	-824.1
1972.....	-1,645.5	359.7	-1,278.9	702.8	675.3	-1,186.6
1973.....	-2,146.8	491.4	-2,121.5	1,007.2	702.8	-2,066.9
1974.....	-2,966.5	1,074.9	-3,997.4	699.2	899.0	-4,296.8
1975.....	-3,760.2	1,294.9	-4,299.4	252.3	1,037.1	-5,475.3
1976.....	-3,687.6	1,262.3	-3,820.3	-437.6	1,250.2	-5,433.0
1977.....	-3,909.6	1,300.9	-3,916.3	4.1	1,432.3	-5,088.6

Source: Jan Vanous, Project CMEA-FORTRAM Data Bank of Foreign Trade Flows and Balances of the CMEA Countries, 1950-77 (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980).

TABLE 9.—TRADE OF THE CMEA-6 WITH THE LDCs

[In millions of current SDRs]

Year	Machinery and equipment	Fuels	Nonfood raw materials	Food	Industrial consumer goods	Total
Exports:						
1970.....	590.9	9.6	385.5	109.2	161.0	1,256.2
1971.....	658.9	13.0	417.1	109.5	175.3	1,373.8
1972.....	704.8	9.7	396.7	120.8	177.6	1,409.6
1973.....	700.2	12.7	455.8	153.6	220.6	1,542.9
1974.....	943.0	46.8	1,027.2	276.9	298.8	2,592.7
1975.....	1,465.0	75.4	962.6	351.3	350.7	3,205.0
1976.....	1,675.7	104.9	873.8	432.5	343.6	3,430.5
1977.....	2,010.1	114.8	1,040.3	592.3	418.2	4,175.7
Imports:						
1970.....	9.9	45.8	594.4	286.1	40.9	977.1
1971.....	15.2	65.6	617.5	276.9	43.6	1,018.8
1972.....	18.3	95.6	638.7	265.8	66.0	1,084.4
1973.....	14.7	178.0	685.9	337.8	85.5	1,301.9
1974.....	15.6	630.2	1,258.5	363.9	109.0	2,377.2
1975.....	14.4	658.5	1,282.8	359.8	102.0	2,417.5
1976.....	19.9	892.7	1,298.1	606.4	118.7	2,935.8
1977.....	16.6	979.0	1,528.8	750.9	126.1	3,401.4
Trade balance:						
1970.....	581.0	-36.2	-208.9	-176.9	120.1	279.1
1971.....	643.7	-52.6	-200.4	-167.4	131.7	355.0
1972.....	686.5	-85.9	-242.0	-145.0	111.6	325.2
1973.....	685.5	-165.3	-230.1	-184.2	135.1	241.0
1974.....	927.4	-583.4	-231.3	-87.0	189.8	215.5
1975.....	1,450.6	-583.1	-320.2	-8.5	248.7	787.5
1976.....	1,655.8	-787.8	-424.3	-173.9	224.9	494.7
1977.....	1,993.5	-864.2	-488.5	-158.6	292.1	774.3

Source: Jan Vanous, Project CMEA-FORTRAM Data Bank of Foreign Trade Flows and Balances of the CMEA Countries, 1950-77 (Vancouver, B.C.: Project CMEA-FORTRAM, Department of Economics, University of British Columbia, July 1980).

chinery in total imports increased from 12.1 percent in 1970 to 17.6 percent in 1977.

As in 1970, when non-food raw materials accounted for 37.0 percent of exports of the CMEA Six to the MDCs, in 1977 they remained the most important export commodity with a share of 29.6 percent. However, the fastest growing export commodity were fuels, the share of which increased from 9.0 to 19.0 percent. The shares of manufactured exports, represented by machinery and industrial consumer goods, increased from 10.0 to 13.2 percent and from 17.4 to 20.4 percent, respectively. Consequently, the share of food in exports declined from 26.6 percent in 1970 to 17.8 percent in 1977, primarily as a result of the imposition of restrictions on imports of food (from outside world) by the Common Market from 1975 on. The structure of imports of the CMEA Six from the MDCs changed very little during the period 1970-1977. The share of non-food raw materials slightly declined from 48.1 percent to 45.1 percent, while the share of machinery and equipment slightly increased from 31.2 to 34.0 percent. The time series of commodity trade balances indicate that the CMEA Six have persistent deficits in machinery and non-food raw material trade, surpluses in trade in fuels and industrial consumer goods, and increasingly fairly balanced food trade. Of the cumulative overall trade deficit of the CMEA Six with the MDCs of about SDR 25050 million incurred during the period 1970-1977 (and expected to have reached the level of about SDR 35 billion by the end of 1979), roughly SDR 3200 million is attributable to the disappearance of the Eastern European food export surplus (due to both the reduced export possibilities and the increased import requirements), about SDR 5100 million is due to the increased cost of non-food raw material imports between 1973 and 1977, and the remaining SDR 16750 million is due to increased imports of Western machinery and equipment from 1972/73 on.⁷

As far as the trade of the CMEA Six with the LDCs is concerned, little change appears to have taken place on the export side. Machinery and equipment (including arms) accounted for 47.0 percent of total exports in 1970 and 48.1 percent in 1977, followed by non-food raw materials with the respective shares of 30.7 and 24.9 percent. On the import side, non-food raw materials still remain the most important imported commodity; in 1970 their share was 60.8 percent and in 1977 it amounted to 44.9 percent. By far the most dramatic increase took place in the fuel category (primarily as a result of a 650 percent increase in their SDR price between 1970 and 1977); its share in total imports increased from 4.7 percent in 1970 to 28.9 percent in 1977. The share of manufactured imports which amounted to mere 5.2 percent declined even further to 4.2 percent. In this respect, the performance of the CMEA Six is even worse than that of the USSR. The pattern of trade balances of the CMEA Six with the LDCs reveals a continuation of the patterns observed already during the 1950's and 1960's; Eastern Europe earns surpluses in trade in manufacturers and incurs deficits in trade in all primary commodities, and she earns an overall trade surplus.

⁷ In this calculation, it is assumed that if Eastern European economies continued the pattern of behavior observed between 1970 and 1972 also during the remainder of the period under study, they would have been able to cover the cost of 60 percent of their non-food raw material imports by exports of goods in the same commodity category.

III. FOREIGN TRADE PRICES AND THE TERMS OF TRADE

In recent years, several authors have studied the trends in Soviet and Eastern European foreign trade prices and the terms of trade.⁸ Unfortunately, with the exception of studies on intra-CMEA (or rather the CMEA Six-USSR) price developments, these studies concentrate on analyzing the aggregate total export and import price indices of individual CMEA countries with socialist and capitalist countries and rely on the officially published Soviet and Eastern European price statistics.⁹ These studies do not represent an original statistical effort and are excessively aggregative. Moreover, the amount of the officially released detailed statistical information on foreign trade prices in the CMEA countries is extremely limited, Hungary being the only exception to this rule.

At the present time, overall export and import price indices with the world can be obtained from official sources for Bulgaria, Czechoslovakia, East Germany (years 1970 through 1976 only), Hungary, Poland, and the USSR. Aggregate price indices for trade with socialist and capitalist countries can be obtained only for Hungary, Poland, and the USSR; those available for Bulgaria, Czechoslovakia, and East Germany have to be obtained through tedious calculations and cannot be viewed as reliable. Only Hungary publishes ample regional trade price indices disaggregated by several commodity categories.¹⁰ Except for Hungary, very little is also known about the methods of construction and the commodity coverage of the officially published Soviet and Eastern European price indices; in most cases they appear to be Paasche unit value indices with shifting base weights. Only the methodology of construction of the Hungarian price indices is adequately described and they are known to be Fisher ideal price (not unit value) indices.

The author's aim in this section of the paper is to present an independently constructed and more detailed information on the trend in Soviet and Eastern European regional trade price indices, which could serve as an alternative estimate of price trends in CMEA trade. Because of limitations of space, we cannot undertake a comparison of our results with those of other researchers; this exercise is left to the interested readers-specialists.

Our estimates of Soviet and Eastern European aggregate export and import price indices and the terms of trade with main trade regions are presented in Tables 10 and 11 below. For each of the four main trade regions, the USSR price indices are based on the aggregation of seven commodity group price indices collected or constructed by the author, corresponding to the commodity disaggregation used in section II above. The CMEA Six price indices are based on the aggregation of five commodity group price indices for each of the five

⁸ See, e.g., Kohn and Lang (1977), Vaňous (1978), Tiraspol'sky (1978), Hewett (1978), Dietz (1979), Portes (1980), etc.

⁹ The latter group of price studies includes Vaňous (1978), Tiraspol'sky (1978), and Portes (1980).

¹⁰ See KAA (1978) and relevant sections of the Hungarian Foreign Trade Yearbooks.

main trade regions and they were also collected or constructed by the author.¹¹

As far as the disaggregate regional commodity price indices used in the construction of aggregate regional price indices are concerned, some of the disaggregate price indices for manufactures, namely machinery and equipment and industrial consumer goods, were based on adjusted unit values, deflated by a factor of 1.01 - 1.03 per annum in order to take account of improvements in quality and of the reduced unit weight as a result of technological improvements. Most of the disaggregate regional price indices for primary commodities were based on unadjusted unit values. Most of the collected disaggregate price indices used in the construction of aggregate price indices for

TABLE 10.—AGGREGATE SOVIET EXPORT AND IMPORT PRICE INDICES WITH 4 MAIN TRADE REGIONS AND TERMS OF TRADE

[Based on prices in rubles or SDRs]

Year	CMEA-6	OCPEs	MDCs	LDCs	World
Exports:					
1970	100.0	100.0	100.0	100.0	100.0
1971	101.1	102.6	113.9	104.5	104.1
1972	102.4	103.5	108.8	104.1	104.0
1973	102.3	107.0	135.2	110.0	110.7
1974	107.7	137.1	231.8	138.9	138.4
1975	147.5	148.1	244.7	147.3	164.6
1976	163.3	165.0	267.0	150.7	181.1
1977	176.1	176.3	292.0	162.7	194.1
Imports:					
1970	100.0	100.0	100.0	100.0	100.0
1971	99.5	102.6	104.6	102.8	101.2
1972	100.4	103.7	100.5	107.5	101.3
1973	101.1	121.1	110.5	144.4	108.8
1974	102.6	163.5	155.4	182.2	128.1
1975	129.9	209.6	172.3	187.1	155.3
1976	139.0	209.4	163.0	202.1	157.8
1977	143.3	223.3	171.6	241.5	165.6
Terms of Trade:					
1970	100.0	100.0	100.0	100.0	100.0
1971	101.5	100.0	108.9	101.6	102.8
1972	102.1	99.8	108.2	96.8	102.7
1973	101.2	88.4	122.3	76.2	101.7
1974	104.9	83.9	149.2	76.2	108.0
1975	113.6	70.7	142.0	78.8	106.0
1976	117.5	78.8	163.9	74.6	114.8
1977	122.9	78.9	170.2	65.8	117.2

Source: Calculation by the author on the basis of the disaggregate price data reconstructed by the author for the SRI / WEFA Project SEEMOD Data Bank.

¹¹ In the case of the CMEA Six, aggregate commodity price indices were based on the price and unit value data available for Czechoslovakia, Hungary, and Poland. The key sources of raw data on intra-CMEA foreign trade prices were: Hewett (1974), pp. 72, 73, 76-79; Hewett (1978), pp. 8 and 9; KAA (1978), pp. 18, 19, 21, 26, 31, 32, 35, 83; USSR Foreign Trade Yearbooks (for own calculation of fuel and grain trade price indices); Polish Foreign Trade Yearbooks (for own calculation of fuel trade price indices); East-West trade (including the trade with the LDCs), the key sources of data were: UNCTAD internal foreign trade price data bank (Laspeyres unit value indices for 13 SITC aggregates for the period 1962-1974); U.N. export price indices of machinery for key Western exporters (from the Monthly Bulletin of Statistics; covering the period 1970-1977); KAA (1978), pp. 18-20, 27-29, 33, 36, 83; USSR Foreign Trade Yearbooks (for own calculation of fuel and grain trade price indices), Polish Foreign Trade Yearbooks (for own calculation of fuels trade price indices). For the OCPEs, the key sources of data were: USSR Foreign Trade Yearbooks (for own calculation of fuel, grain, and Cuban sugar price indices); Yugoslav price indices (from the UNCTAD data bank; Hungarian Foreign Trade Yearbooks. In addition, numerous other sources of bits and pieces of price data were employed as well, which the limited space available here does not permit to list.

TABLE 11.—AGGREGATE EXPORT AND IMPORT PRICE INDICES OF THE CMEA-6 WITH 5 MAIN TRADE REGIONS AND TERMS OF TRADE

[Based on prices in rubles or SDRs]

Year	CMEA-6	U.S.S.R	OCPEs	MDCs	LDCs	World
Exports:						
1970	100.0	100.0	100.0	100.0	100.0	100.0
1971	100.1	99.5	100.6	107.4	101.0	101.6
1972	101.6	100.3	101.3	109.7	101.5	102.9
1973	103.1	101.1	104.0	125.6	108.0	107.9
1974	105.8	102.6	124.0	163.2	133.5	120.1
1975	123.9	129.6	138.5	170.5	135.4	137.0
1976	138.1	138.8	145.7	169.8	139.4	145.6
1977	143.2	143.3	152.3	179.4	148.3	151.2
Imports:						
1970	100.0	100.0	100.0	100.0	100.0	100.0
1971	100.1	101.0	101.4	105.0	102.1	101.9
1972	101.6	102.4	101.8	107.2	109.8	103.9
1973	103.1	102.3	109.8	124.7	140.4	111.0
1974	105.8	107.6	147.0	157.7	235.9	129.2
1975	123.9	147.1	150.2	165.9	239.8	149.9
1976	138.1	163.0	153.1	159.1	266.6	158.2
1977	143.2	175.5	164.4	167.9	314.6	168.2
Terms of trade:						
1970	100.0	100.0	100.0	100.0	100.0	100.0
1971	100.0	98.5	99.3	102.3	98.9	99.7
1972	100.0	98.0	99.5	102.3	92.4	99.1
1973	100.0	98.8	94.7	100.7	76.9	97.2
1974	100.0	95.3	84.4	103.5	56.6	92.9
1975	100.0	88.2	92.2	102.8	56.5	91.4
1976	100.0	85.2	95.1	106.7	52.3	92.0
1977	100.0	81.7	92.7	106.8	47.1	89.9

Source: Calculation by the author on the basis of the disaggregate price data reconstructed by the author for the SRI / WEFA Project SEEMOD Data Bank.

trade with the MDCs and the LDCs were of the Laspeyres type, most of the indices constructed by the author (particularly for fuel and grain trade) were of the Paasche type, and the remaining disaggregate price indices collected mostly for intra-CMEA trade were Fisher ideal price indices.¹²

The aggregate regional export price indices were calculated according to the formula:

$$PX_i = \frac{\sum_j X_{ij}}{\sum_j (X_{ij}/PX_{ij})}$$

i.e., they are Paasche price indices. In the above formula, PX_i is the aggregate export price index with region i , X_{ij} are exports of commodity j to region i in current prices, and PX_{ij} is the price of exports of commodity j to region i . Import price indices were calculated in the same fashion.

Concentrating on the Soviet terms of trade, we can see a substantial improvement in the terms of trade with the CMEA Six from 1975 on

¹² One may legitimately inquire whether the disaggregate price indices of Laspeyres, Paasche, and Fisher ideal type can meaningfully aggregated into one global index of any of the above three types. This is an acceptable procedure so long as there are no major changes in relative prices within a particular commodity category; in the complete absence of any relative price changes within a given commodity category (all prices change in the same direction and at the same rate), a sub-aggregate price index of any change in the same direction and at the same rate, an identical rate of change of prices. The important thing then is to define different commodity categories so that they contain commodities with a very similar behavior of prices. The writer feels that the best possible small-scale disaggregation was achieved by the choice of commodity categories: machinery and equipment for investment, arms, fuels, non-food raw materials, grain and flour, other food, and industrial consumer goods.

and with the MDCs from 1973/74 on. In the former case, this is a result of the introduction of the new formula for intra-CMEA price formation in 1975, while in the latter case the improvement in the terms of trade is mostly due to the rapidly rising prices of Soviet fuel exports.¹³ The deterioration of the Soviet terms of trade with the OCPEs and the LDCs can be explained by rapid increases in Soviet import prices of Cuban sugar from 1973 on (Cuban sugar accounts for 40-55 percent of the Soviet imports from the OCPEs), and by the higher proportion of fuels and non-food raw materials in Soviet imports from the LDCs than in Soviet exports to the LDCs, both of which were subject to large price increases from 1973 on.¹⁴

Before we embark on the discussion of the developments in Eastern European terms of trade, it is important to impress upon the reader that we treat Eastern Europe as if she were one country. Within Eastern Europe, there are large differences in trends in the terms of trade among individual countries, particularly as far as their trade with the MDCs and the LDSs is concerned. The reason for this are large differences in the commodity composition of exports and imports among these countries and substantial differences in the rate of change of prices of particular commodities.¹⁵

As far as the terms of trade of the entire Eastern Europe are concerned, they exhibit a decline with all regions except with the MDCs (naturally, the intra-CMEA Six terms of trade remained unchanged by definition). The terms of trade of the CMEA Six with the USSR declined in proportion to the improvement of the Soviet terms of trade, already discussed above. The decline of the CMEA Six terms of trade with the OCPEs is attributable to the higher proportion of manufactures in exports than in imports, and to the lower rate of price increases for manufactured relative to primary commodities. The improvement in the Eastern European terms of trade with the MDCs is due to the substantially higher proportion of fuels in Eastern European exports than in imports, and the fact that the fuel price inflation has greatly outpaced the inflation in prices of other commodities in recent years.¹⁶ The most dramatic decline in the Eastern European terms of trade appears to have taken place in their trade with the LDCs and is attributable to two factors, namely the high proportion of machinery in exports, which were characterized by relatively small price increases, and the high proportion of fuels and non-food raw materials in imports, which were characterized by rapid price increases.¹⁷

¹³ In 1975 the Soviet exports prices of fuels to the CMEA Six increased by 84 percent relative to 1974, while the prices of non-food raw materials increased by about 43 percent. At the same time, the Soviet import prices of machinery and equipment increased by about 20 percent, and those of industrial consumer goods by about 14 percent. Between 1970 and 1977 the Soviet export prices of fuels to the MDCs increased by 425 percent (535 percent for oil and oil products).

¹⁴ For the discussion of pricing of Cuban sugar, see footnote 3 above.

¹⁵ For the analysis of differences in trends in foreign trade prices and the terms of trade among individual CMEA countries, see studies cited in footnote 9.

¹⁶ Between 1970 and 1977 the price of exported fuels to the MDCs increased by about 270 percent, while the prices of all imported commodities except fuels increased only by 40-75 percent.

¹⁷ Between 1970 and 1977 the prices of exported Eastern European machinery to the LDCs increased only by about 37 percent, while the prices of imported fuels increased by 640 percent, prices of imported non-food raw materials by about 175 percent, and prices of imported food and raw materials for food by about 180 percent.

The availability of aggregate Paasche price indices allows us to calculate aggregate Laspeyres export and import quantity indices. In the case of the export quantity index, the formula is:

$$QX_i = \frac{\sum X_{ij} / \sum X_{ij}^{70}}{PX_i / PX_i^{70}}$$

In the above formula, QX_i is the aggregate export quantity index with region i , X_{ij}^{70} are exports of commodity j to region i in current prices in 1970, and PX_i^{70} is the base of the price index (=100). By dividing the import quantity index by the export quantity index we obtain the so-called gross barter terms of trade, which measure the *de facto* cost of real imports, i.e., they indicate the purchasing power of exports in terms of imports, or how much of real imports can be obtained for a given quantity of real exports. These terms of trade presented in Tables 12 and 13 matter to a central planner more than the net barter terms of trade presented in Tables 10 and 11 because they indicate how well off a country is rather than how well off it might have been.¹⁸

Tables 12 and 13 contain the Soviet and Eastern European export and import quantity indices and gross barter terms of trade with four and five main trade regions, respectively. One interesting finding from these tables is that the intra-CMEA price reform of 1975 did not lead to a more rapid growth of Soviet exports to Eastern Europe as one might have expected. Rather, Soviet exports to Eastern Europe stagnated during the period 1974–1976 and began to grow again only in 1977. This would seem to imply that the improvement in the Soviet net barter terms of trade with Eastern Europe of about 8.3 percent in 1975 and an additional 3.4 percent in 1976 was not sufficient to induce faster growth of Soviet exports. Alternatively, it may be argued that the USSR was not willing to run even greater trade surpluses with Eastern Europe, given either the limited ability of Eastern Europe to increase her exports to the USSR, or the limited ability of the Soviet economy to absorb more imports from Eastern Europe.¹⁹

Otherwise, both the USSR and Eastern Europe achieved the highest rate of growth of real exports with the LDCs and the highest rate of growth of real imports with the MDCs. On the other hand, in both cases, the slowest growth of real exports took place with the MDCs and the slowest growth of real imports with the LDCs. Thus the rate of growth of both the real exports and real imports is inversely related to the rate of growth of their prices, indicating that both the foreign demand for Soviet and Eastern European exports and the domestic demand for imports are sensitive with respect to relative prices.

The differences in the pattern of the net and gross barter terms of trade, the former presented in Tables 10 and 11 and the latter pre-

¹⁸ Hewett (1978), p. 17. The difference between the net and the gross barter terms of trade is that the former measure the purchasing power of a unit of exports for a unit of imports, while the latter measure the ratio of total real imports purchased to that of total real exports sold.

¹⁹ For more detailed discussion of this and related problems, see Hewett (1978), Kohn (1979), pp. 246–262; Dietz (1979), pp. 263–290; Kohn and Lang (1977), pp. 135–151.

sented in Tables 12 and 13, reflect the changing patterns in trade deficits and surpluses. If the respective 1970 trade balances remained in the same relative position, i.e., if both nominal exports and imports grew at the same rate, then both sets of terms of trade would

TABLE 12.—AGGREGATE SOVIET EXPORT AND IMPORT QUANTITY INDICES WITH 4 MAIN TRADE REGIONS AND GROSS BARTER TERMS OF TRADE

Year	CMEA-6	OCPEs	MDCs	LDCs	World
Exports:					
1970.....	100.0	100.0	100.0	100.0	100.0
1971.....	106.0	107.6	101.2	95.2	103.6
1972.....	108.0	104.0	104.0	105.0	106.2
1973.....	118.6	112.0	130.6	147.6	124.7
1974.....	132.9	120.2	123.7	131.2	129.3
1975.....	132.3	126.7	120.6	126.7	128.5
1976.....	132.0	139.9	134.9	133.9	133.8
1977.....	142.5	150.3	142.1	181.1	149.6
Imports:					
1970.....	100.0	100.0	100.0	100.0	100.0
1971.....	110.0	89.4	97.9	107.9	105.1
1972.....	128.2	88.9	134.6	109.5	124.4
1973.....	134.1	102.8	165.9	105.6	136.1
1974.....	140.4	115.5	153.5	112.7	138.4
1975.....	145.9	140.4	229.5	144.8	165.4
1976.....	147.3	152.3	258.9	120.0	171.7
1977.....	161.9	164.7	230.7	109.8	173.1
Gross barter terms of trade:					
1970.....	100.0	100.0	100.0	100.0	100.0
1971.....	103.8	83.1	96.7	113.3	101.4
1972.....	118.7	85.5	129.4	104.3	117.1
1973.....	113.1	91.8	127.0	72.2	109.1
1974.....	105.6	96.1	124.1	85.9	107.0
1975.....	110.3	110.8	190.3	114.3	128.7
1976.....	111.6	108.9	191.9	89.6	128.3
1977.....	113.6	109.6	162.4	60.6	115.7

Source: Author's own calculation on the basis of the data contained in tables 1 through 4 and 10.

TABLE 13.—AGGREGATE EXPORT AND IMPORT QUANTITY INDICES OF THE CMEA-6 WITH 5 MAIN TRADE REGIONS AND GROSS BARTER TERMS OF TRADE

Year	CMEA-6	U.S.S.R	OCPEs	MDCs	LDCs	World
Exports:						
1970.....	100.0	100.0	100.0	100.0	100.0	100.0
1971.....	110.7	110.4	113.5	101.9	109.3	108.5
1972.....	123.4	129.4	110.7	113.4	110.6	121.6
1973.....	142.4	134.6	110.9	129.7	113.7	132.9
1974.....	159.0	141.0	126.1	131.1	154.6	143.6
1975.....	160.4	146.0	139.9	121.1	188.4	146.6
1976.....	169.7	146.8	142.7	137.7	195.9	156.9
1977.....	183.0	164.1	156.2	135.0	224.1	166.0
Imports:						
1970.....	100.0	100.0	100.0	100.0	100.0	100.0
1971.....	110.7	106.2	117.9	105.8	102.1	107.5
1972.....	123.4	108.7	118.7	122.4	101.1	116.3
1973.....	142.4	117.6	126.4	146.0	94.9	131.1
1974.....	159.0	128.6	137.8	171.6	103.1	147.3
1975.....	160.4	130.5	138.9	173.6	103.2	149.0
1976.....	169.7	129.3	137.8	195.3	112.7	157.3
1977.....	183.0	143.0	144.0	185.3	110.7	163.4
Gross barter terms of trade:						
1970.....	100.0	100.0	100.0	100.0	100.0	100.0
1971.....	100.0	96.2	103.9	103.8	94.3	99.1
1972.....	100.0	84.0	107.2	107.9	91.4	95.6
1973.....	100.0	87.4	114.0	112.6	83.5	98.6
1974.....	100.0	91.2	109.3	130.9	66.7	102.6
1975.....	100.0	89.4	99.3	143.4	54.8	101.6
1976.....	100.0	88.1	96.6	141.8	57.5	100.3
1977.....	100.0	87.1	92.2	137.3	49.4	98.4

Source: Author's own calculation on the basis of the data contained in tables 5 through 9 and 11.

move identically.²⁰ In the case of the USSR, if we compare the two sets of terms of trade from Tables 10 and 12, we can see that its gross barter terms of trade with Eastern Europe improved dramatically in 1972 and 1973. This is a reflection of large Soviet trade deficits (SDR 1070 and 790 million, respectively) due to the increased imports of machinery to finance certain fuel and raw material investment projects (above all the Orenburg natural gas pipeline). However, during the period 1975–1977 the USSR ran substantial trade surpluses with Eastern Europe, which implied foregoing about one third of the potential terms-of-trade gains implied by the net barter terms of trade. Similarly, large Soviet borrowing in the West in 1975 and 1976 caused its gross barter terms of trade to greatly exceed its net barter terms of trade, and its huge surplus in trade with the LDCs in 1977 resulted in a large decline in its gross barter terms of trade with this region.

In the case of Eastern Europe, if we compare the two sets of terms of trade from Tables 11 and 13, we can see how heavy Eastern European borrowing in the West from 1973 on caused the Eastern European gross barter terms of trade to greatly exceed her net barter terms of trade. However, the most interesting finding is that although the Eastern European net barter terms of trade with the world were supposed to decline by 7 to 10 percent during 1974–1977 relative to 1970, the combination of borrowing in the West and in the USSR during this period helped to maintain the Eastern European gross barter terms of trade basically unchanged from their 1970 level. In short, during the period 1973–1977 Eastern European decisionmakers succeeded to offset the unfavorable price (net barter terms-of-trade) developments and postpone their full impact into the late 1970's and early 1980's.

IV. ACTIVITY AND PRICE ELASTICITIES IN SOVIET AND EASTERN EUROPEAN FOREIGN TRADE

Activity and relative price elasticities provide information about the percentage change in the quantity of exports or imports in response to a 1 percentage change in the level of the domestic economic activity (industrial production, investment, agricultural production, personal consumption, etc.) or a 1 percentage change in the level of relative export or import prices. Consequently, the knowledge of the magnitude of these elasticities helps us to understand how the foreign trade sector of an economy responds both to changes in the internal economic situation of a country as well as to external exogenous economic developments.

All elasticities presented below are estimates of relevant regression coefficients from log-linear equations of an econometric model of the foreign trade sector of the Soviet economy and of Eastern European economies estimated by the author for the SEEMOD Project.²¹ With the exception of the Western demand equations for Soviet and Eastern

²⁰ The gross barter terms of trade equal the net barter terms of trade only when trade is balanced or at least the percentage change in the value of exports and imports is equal. The former index will exceed the latter index if country's imports grow faster than her exports, i.e., if the country has a growing deficit or falling surplus. The former index will fall below the latter index if country's imports grow more slowly than her exports, i.e., if the country has a growing surplus or falling deficit.

²¹ For more detail, see Vaňous (1980c).

European exports, the dependent variables in the estimated equations were real exports or real imports, and the independent variables included real domestic economic activity (in few cases also real foreign economic activity), relative export and import prices (with respect to prices of other exported or imported commodities, or with respect to the price of exports or imports from another partner trade regions), dummy variables, bilateral balancing variables (for intra-CMEA trade only), and variables representing the availability of foreign exchange (for East-West trade only). In the case of the Western demand equations for Soviet and Eastern European exports, the dependent variable was the real Soviet (Eastern European) share in total imports of a particular commodity by the MDCs or by the LDCs. The independent variable was the relative price of Soviet (Eastern European) exports with respect to the price of imports by the MDCs and the LDCs from all regions of the world.

Activity elasticities of the demand for imports for five separate commodities are presented in Table 14 below. The number in parentheses appearing next to the estimate of the particular elasticity is its *t*-statistic. With few exceptions, there as well as the remaining elasticities were estimated from the data covering the period 1960-1977.

The elasticities of the demand for imports of machinery with respect to total machinery investment are mostly below unity, the Soviet elasticity of imports from the LDCs and the elasticity for intra-CMEA Six trade being two exceptions. Thus, contrary to the commonly held belief among most Western students of Soviet and Eastern European economies, there is a tendency for a long-term decline in the share of imported machinery in the total investment in machinery both in the USSR and in Eastern Europe. It is especially interesting that this finding also holds for imports of Western machinery.

The elasticities of the demand for imports of fuels with respect to the total industrial production are all well in excess of unity. The CMEA Six elasticity of imports from the USSR, estimated to be about 1.2, is of particular interest because it indicates the degree of Eastern European dependence on fuel imports from the USSR. However, this elasticity is a pseudo-estimate rather than a genuine estimate because it appears that at least in the 1970's it is more reasonable to assume that Eastern European imports of fuels from the USSR were supply- rather than demand-determined. Consequently, it may be preferable to interpret this elasticity as indicating that a 1 percent increase in the Soviet exports of fuels to Eastern Europe enables the gross industrial output in Eastern Europe to grow by about 0.8 percent. The stagnation of the domestic output of fuels in Eastern Europe combined with her limited ability to secure additional fuel imports from the USSR explain the relatively high magnitude of the CMEA Six elasticities of fuel imports from the MDCs and the LDCs. However, the Soviet activity elasticity of fuel imports from the LDCs is rather high as well and it perhaps signals the forthcoming bottleneck in the Soviet economy.

As far as the elasticities of the demand for imports of non-food raw materials are concerned, since the USSR is assumed to be capable to produce domestic substitutes for most of its imports of these goods, two elasticities were estimated in this case. The first elasticity is with

TABLE 14.—ACTIVITY ELASTICITIES OF SOVIET AND EASTERN EUROPEAN DEMAND FOR IMPORTS

Trade region	USSR		CMEA-6	
Machinery and equipment for investment (with respect to total investment in machinery and equipment):				
CMEA-6	0.95 (17.92)		1.16 (36.78)	
USSR	0.74 ² (3.99)		0.86 ² (3.88)	
OCPEs	0.91 (5.55)		0.72 (5.96)	
MDCs	3.57 (9.64)		0.93 (14.45)	
LDCs			0.51 (4.48)	
Fuels (with respect to total industrial production; net for the USSR and gross for CMEA-6):				
CMEA-6				(²)
USSR			1.24 (43.20)	
OCPEs			1.57 (19.89)	
MDCs	3.08 (2.64)		2.73 (13.50)	
LDCs	2.89 (2.77)		3.79 (3.98)	
Nonfood raw materials (with respect to total industrial production and net output of raw materials in the case of the USSR):				
CMEA-6				(²)
USSR			0.72 (4.54)	(²)
OCPEs	9.66 (2.99)	-10.33 (2.85)	0.54 (7.86)	
MDCs	10.84 (3.37)	-10.12 (2.81)	1.27 (26.10)	
LDCs	0.45 (2.33)		0.59 (5.32)	
Food (excluding grain for USSR) (with respect to net output of processed foods and weighted average of total net farm output in the case of the USSR; with respect to gross output of food industry and weighted average of gross plant output of agriculture in the case of CMEA-6):				
CMEA-6				(²)
USSR			0.42 (2.52)	(²)
OCPEs	1.86 (5.71)		0.54 (7.86)	(²)
MDCs	3.17 (2.96)	-3.59 (2.07)	1.92 (3.19)	-1.80 (1.78)
LDCs	4.27 (13.01)	-3.18 (6.89)	0.13 (0.76)	(²)
Industrial consumer goods (with respect to weighted average of soft goods and durables consumption in the case of the USSR; with respect to retail sales of non-food consumer goods in the case of CMEA-6):				
CMEA-6				(²)
USSR			1.11 (8.50)	
OCPEs	1.50 ² (5.00)		1.92 ² (4.33)	
MDCs	2.17 (5.53)		0.77 (4.46)	
LDCs	3.32 (14.66)		1.99 (18.00)	
			2.49 (18.97)	

¹ Not applicable.

² Because of the specification of the import demand function the elasticity had to be estimated indirectly and its t-statistic is greater or equal than the stated number.

³ Not available (function not estimated because imports are rationed and modeled as supply-determined).

⁴ Imports equal zero or are negligible, or a particular explanatory variable does not appear in the regression equation.

Definitions:

Weighted average of total net farm output in the USSR = $0.25 \text{ XAGT70} + 0.75 \text{ XAGT70-1}$.

Weighted average of gross output of agriculture in CMEA-6 = $0.25 \text{ XAGP} + 0.75 \text{ XAGP-1}$.

Weighted average of soft goods and durables consumption in the USSR = $0.776 \text{ CSG} + 0.224 \text{ CD}$.

Source: Jan Vanous, "An Econometric Model of Soviet and Eastern European Foreign Trade," paper prepared for the SRI/WEFA SEEMOD Project, June 1980.

respect to the total industrial production and the second elasticity is with respect to the domestic production of import substitutes. If the total industrial production and the domestic output of industrial raw materials were to grow at the same rate, a 1 percent increase in both outputs will cause the imports of non-food raw materials from the OCPEs to decline by 0.7 percent, from the MDCs to increase by 0.7 percent, and from the LDCs to increase by 0.4–0.5 percent. However, during the period 1960–1977 the Soviet total net industrial production grew at an average annual rate of 6.0 percent while the net output of raw materials grew only 5.3 percent and the gap between the two could widen even more, causing the rapid growth of imports of these materials in the early 1980's.

The CEMA Six elasticity of imports of non-food raw materials from the USSR should again be viewed as a pseudo-elasticity because

it is more reasonable to assume that during the 1970's the Eastern European imports of non-food raw materials from the USSR were supply- rather than demand-determined. Thus, this elasticity, which was estimated to be about 0.7, should be preferably interpreted as indicating that a 1 percent increase in Soviet exports of non-food raw materials will enable the gross industrial output in Eastern Europe to grow by 1.4 percent. The limited ability of Eastern Europe to secure additional imports of non-food raw materials from the USSR explains the relatively high CMEA Six activity elasticity of imports from the MDCs as well as the zero price elasticity of these imports (see below). It is also interesting to note the substantial difference between the CMEA Six elasticity of imports from the MDCs and that from the LDCs, which were estimated at 1.27 and 0.59, respectively. Perhaps this indicates the growing dependence of the economies of Eastern Europe on semifabricates and manufactured materials (such as chemicals) which are imported from the MDCs rather than on raw materials in their primary (raw) state which come mostly from the LDCs.

The elasticities of the demand for imports of food are quite high in the case of the USSR and relatively low for Eastern Europe. A 1 percent increase in both the net output of processed foods and the total net farm output in the USSR will result in a 1.9 percent increase in food imports from the OCPEs (excluding Cuban sugar imports), 0.4 decline in imports from the MDCs, and 1.1 percent increase in imports from the LDCs. A 1 percent increase in the gross output of food industry and the gross plant output of agriculture in Eastern Europe will result in a 0.4 percent increase in imports from the OCPEs, and a 0.1 percent increase in imports from both the MDCs and the LDCs. Consequently, the imported raw material content in Eastern European food production has a tendency to decline quite rapidly, while that for the USSR is probably closer to being constant.²²

The elasticities of the demand for imports of industrial consumer goods are all well above unity, the CMEA Six elasticity of imports from the OCPEs being the only exception. The elasticities of imports from the MDCs and the LDCs, which lie between 2.0 and 3.3, are of particular interest because they indicate increased sensitivity of Soviet and Eastern European central planners to consumer needs, which is in turn reflected in the growing proportion of high quality consumer goods in retail sales to consumers. The Soviet elasticity of imports from the CMEA Six of 1.4 indicates that Eastern European consumer goods are in greater demand by Soviet consumers than is Eastern European machinery by Soviet investors (its elasticity being only 0.95). The relatively high CMEA Six elasticity of imports from the USSR reflects more the Soviet insistence on greater sales of its consumer goods to Eastern Europe rather than a genuine Eastern European demand for Soviet consumer goods; the long-term Eastern European elasticity of imports from the USSR, as distinguished from the short-term elasticity presented here, is close to unity.

Estimates of relative price elasticities of the demand for imports are presented in Table 15 below. As in the previous work of the author,

²² If account is taken of the rising Soviet imports of grain from the MDCs and the LDCs, and rising imports of Cuban sugar, then the imported raw material content of the Soviet food production was rising very rapidly in the 1970's.

many of these elasticities are assumed to be zero because no meaningful estimates with the correct negative sign could be obtained and the relative price variable had to be dropped from the regression equation.²³ In the remaining cases, most estimates were not particularly stable and quite a few were not statistically significant. The import price elasticities do not exhibit any systematic pattern and thus are not discussed in any detail. The only general conclusion we make is that the Soviet and Eastern European import flows are considerably less sensitive to relative prices than those of developed market economies for which we have ample estimates. However, this finding is hardly surprising in view of the nature of the centrally planned economic system with its general lack of the profit motive and cost considerations, as well as the lack of behavioral flexibility and a very slow responsiveness to the changing economic conditions.

In view of the fact that some trade flows in the model of Soviet and Eastern European trade were modeled as supply-determined, in Table 16 we present estimates of the activity elasticities of the supply of exports of three "hard" commodities, namely fuels, non-food raw materials, and food.²⁴ This reflects the assumption that intra-CMEA trade in hard commodities as well as CMEA-OCPE trade in hard commodities is supply-determined. In addition, a possibility that all fuel exports and the Soviet food exports to all trade regions may be supply-determined was also tested.²⁵

The elasticities of the supply of exports of fuels from the USSR are of particular interest because they indicate that the Soviet oil export priorities are also based on political considerations rather than on economic calculation alone. This is illustrated by the inverse relationship between the magnitudes of the estimated elasticities and the rate of increase in export prices. In particular, the elasticity of exports to the CMEA Six is about 1.7 (1977/70 increase in price of exported fuels is 145 percent), to the OCPEs it is about 1.4 (in excess of 200 percent), to the MDCs it is about 1.0 (about 425 percent), and to the LDCs it is 0.6 (in excess of 400 percent).²⁶ Of the four elasticities estimated, it is particularly the elasticity of Soviet exports to the CMEA Six that is of interest because its magnitude indicates the growing burden of the Soviet fuel deliveries to Eastern Europe on the Soviet economy. Clearly, the virtually unchanged pattern of growth in the Soviet fuel

²³ Vaňous (1979), pp. 140-173, 225-226.

²⁴ In the parlance of economists studying the Soviet and Eastern European foreign trade, the relatively underpriced primary goods in intra-CMEA trade vis-à-vis the world market prices are called "hard" goods, while the relatively overpriced manufactures are called "soft" goods. Hard goods are assumed to be saleable within CMEA in "unlimited" quantities at the prevailing intra-CMEA foreign trade prices since there is persistent excess demand for them and their imports have to be rationed. These goods are also saleable in the West at world market prices without any significant discounts because they are not differentiated by quality or design and because CMEA exporters account only for a relatively small fraction of the supply of these goods on the world market.

²⁵ In the case of fuels, this was done in anticipation of the possibility of an energy crisis in the USSR and in Eastern Europe beginning in the early 1980's. In the case of the Soviet food exports, their volatility clearly indicates that they are responsive to the domestic supply rather than the Western demand conditions.

²⁶ This may appear to contradict the conclusion from Table 12 above about the stagnation of Soviet exports to Eastern Europe during 1974-1976 due to the slow growth of intra-CMEA foreign trade prices relative to those obtainable for Soviet exports in the West. However, the Soviet fuel exports to Eastern Europe appear to be an exception to the above statement; the USSR cannot afford at the present time to reduce the quantity of its oil exports there because of the likely grave consequences of such a step (recession in Eastern Europe, outbursts of consumer discontent, political instability, etc.).

exports to Eastern Europe between 1962 and 1977 cannot continue into the 1980's. It is generally believed that the Soviet fuel deliveries to Eastern Europe will level off in 1980/81 (particularly in the case of oil and oil products) and thus we may find that the relevant elasticity will rapidly move close to zero in the near future.²⁷ In the case of the CMEA

TABLE 15.—PRICE ELASTICITIES OF SOVIET AND EASTERN EUROPEAN DEMAND FOR IMPORTS

Trade region	USSR	CMEA-6
Machinery and equipment for investment:		
CMEA-6	-0.27 (1.30)—PM1UM	-0.46 (2.92)—PM23XX.
USSR	(¹)	-1.57 ² (2.57)—PM1XX.
OCPEs	(¹)	-1.20 (1.81)—PM1XM.
MDCs	-0.96 (4.25)—PX2UM	-0.50 (0.97)—PX14XM (lagged).
LDCs	(¹)	(¹).
Fuels:		
CMEA-6	(¹)	(¹).
USSR	(¹)	-0.11 (2.47)—PX14XU.
OCPEs	(¹)	-1.47 (10.01)—PX14XO.
MDCs	-1.50 (10.46)—PM14UM	-1.15 (5.05)—PX14XM.
LDCs	-0.79 (3.24)—PM14UM	-0.45 (1.53)—PX14XL.
Nonfood raw materials:		
CMEA-6	(¹)	(¹).
USSR	(¹)	-0.64 (2.67)—PX14XU.
OCPEs	(¹)	(¹).
MDCs	-0.97 (2.46)—PM20UM	(¹).
LDCs	(¹)	(¹).
Food (excluding grain for USSR):		
CMEA-6	(¹)	(¹).
USSR	(¹)	(¹).
OCPEs	(¹)	(¹).
MDCs	-1.65 (4.33)—PX124UM	-0.71 (1.93)—PX3XM.
LDCs	-0.96 (6.19)—PX14UL	(¹).
Industrial consumer goods:		
CMEA-6	(¹)	-0.25 (1.04)—PM4XM.
USSR	(¹)	(¹).
OCPEs	(¹)	-0.90 (2.15)—PM4XM.
MDCs	-1.27 (1.72)—PM4UE	(¹).
LDCs	(¹)	(¹).

¹ Not applicable.

² Because of the specification of the import demand function the elasticity had to be estimated indirectly and its t-statistic is greater or equal than the stated number.

³ Not available (function not estimated because imports are rationed and modeled as supply-determined).

⁴ Imports equal zero or are negligible, or a particular explanatory variable does not appear in the regression equation.

Note: The price appearing next to the estimate of the price elasticity is the price appearing in the denominator of the relative price expression in the regression equations (for definitions see below).

Definitions:

PM1XM = Price of imports of machinery and equipment by the CMEA-6 from the MDCs.

PM1XX = Price of imports of machinery and equipment in intra-CMEA-6 trade.

PM1UM = Price of imports of machinery and equipment by the USSR from the MDCs.

PM14UM = Price of imports of machinery and equipment and industrial consumer goods by the USSR from the MDCs.

PM20UM = Price of imports of nonfood raw materials by the USSR from the MDCs.

PM23XX = Price of imports of fuels, nonfood raw materials and food in intra-CMEA-6 trade.

PM4XM = Price of imports of industrial consumer goods by the CMEA-6 from the MDCs.

PM4UE = Price of imports of industrial consumer goods by the USSR from Eastern Europe.

PX124UM = Price of exports of all goods except grain and other food from the USSR to the MDCs.

PX14XL = Price of exports of machinery and equipment and industrial consumer goods from the CMEA-6 to the LDCs.

PX14XM = Price of exports of machinery and equipment and industrial consumer goods from the CMEA-6 to the MDCs.

PX14XO = Price of exports of machinery and equipment and industrial consumer goods from the CMEA-6 to the OCPEs.

PX14XU = Price of exports of machinery and equipment and industrial consumer goods from the CMEA-6 to the USSR.

PX14UL = Price of exports of machinery and equipment for investment and industrial consumer goods from the USSR to the LDCs.

PX1IUL = Price of exports of machinery and equipment for investment from the USSR to the LDCs.

PX2UM = Price of exports of fuels and nonfood raw materials from the USSR to the MDCs.

PX3XM = Price of exports of food from the CMEA-6 to the MDCs.

Source: Jan Vanous, "An Econometric Model of Soviet and Eastern European Foreign Trade," paper prepared for the SRI/WEFA SEEMOD Project, June 1980.

²⁷ See footnote 4.

TABLE 16.—ACTIVITY ELASTICITIES OF SOVIET AND EASTERN EUROPEAN SUPPLY OF EXPORTS

Trade region	USSR		CMEA-6	
Fuels (with respect to net output of energy in the case of the USSR; with respect to net output of fuels and gross output of all industry in the case of CMEA-6):				
CMEA-6.....	1.72 (32.66)	1.10 (4.44)		-0.27 (4.50) ⁽¹⁾
USSR.....				
OCPEs.....	1.36 (14.45)	0.58 (1.63)		
MDCs.....	0.96 (7.58)	0.94 (4.81)		
LDCs.....	0.60 (4.93)			-0.69 (3.46) ⁽¹⁾
Nonfood raw materials (with respect to net output of industrial materials in the case of the USSR; with respect to gross output of fuels and nonfood raw materials in the case of CMEA-6):				
CMEA-6.....	1.39 (33.83)			0.78 (18.02)
USSR.....				0.62 [‡] (2.75)
OCPEs.....	1.32 [‡] (4.60)			1.33 [‡] (3.26)
Food (excluding grain for USSR) (with respect to weighted average of total net farm output and net output of processed foods in the case of the USSR; with respect to gross output of food industry in the case of CMEA-6):				
CMEA-6.....	2.80 (2.25)	-2.39 (2.47)		1.21 (17.43)
USSR.....				1.40 [‡] (5.40)
OCPEs.....	1.93 (6.54)			1.54 (9.01)
MDCs.....	1.40 (3.73)			
LDCs.....	6.15 (2.32)	-5.28 (2.15)		

- ¹ Imports equal zero or are negligible, or a particular explanatory variable does not appear in the regression equation.
[‡] Not applicable.
[‡] Because of the specification of the import demand function the elasticity had to be estimated indirectly and its t-statistic is greater or equal than the stated number.
^{*} Not available (function not estimated because exports are modelled as demand-determined).

Source: Jan Vanous, "An Econometric Model of Soviet and Eastern European Foreign Trade," paper prepared for the SRI/WFA SEEMOD Project, June 1980.

Six, real exports to the USSR and to the LDCs showed a declining trend with a sudden upward shift in 1971 in the former case, and in 1974 in the latter case, and this is reflected in the negative gross industrial output elasticities (representing the growing domestic fuel needs).²⁸

Among the elasticities of the supply of exports of non-food raw materials, the Soviet elasticity of exports to the CMEA Six is of greatest interest. It, too, illustrates the growing burden of the Soviet export deliveries to Eastern Europe on the Soviet economy. The estimated elasticity of about 1.4 may be more relevant for the period 1960-1974 than for the latter half of the 1970's and the 1980's. A downward shift in exports took place in 1975 and although they began to grow again in 1976 and 1977, we may reasonably expect the elasticity to decline to unity or below for the rest of the 1970's and early 1980's.

As far as the elasticities of the supply of exports of food are concerned, they are mostly close to or exceed unity. A 1 percentage increase in the total net farm output and the net output of processed foods in the USSR will result in a 0.4 percent increase in exports to the CMEA Six, 1.9 percent increase to the OCPEs, 1.4 percent increase to the MDCs, and 0.9 percent increase to the LDCs. The Soviet supply elasticity of exports to the CMEA Six is a reflection of the new pattern of intra-CMEA specialization, involving the virtually complete phasing out of Soviet food exports to Eastern Europe and increasing Soviet food imports, which are to be exchanged for additional supplies of Soviet non-food raw materials. The high supply elasticity of exports to

²⁸ These upward shifts in the supply function of fuels were caused by changes in Polish export policies as a result of the Soviet pressure in the former case and the large Brazilian-Polish deal for deliveries of Polish coking coal to insure fuel supplies for the Brazilian steel industry in the latter case.

the OCPEs is a reflection of political considerations on the part of the Soviet leadership; Soviet exports of grain, flour, and other food to the OCPEs (Cuba, North Korea, and Vietnam) are less sensitive to grain harvest failures and are less likely to be curtailed even during a serious food crisis than exports to the remaining three regions. In the case of the CMEA Six, the elasticity of exports to the USSR, estimated at 1.4, is a short-run elasticity which reflects the effect of bilateral balancing of food exports for imports of non-food raw materials and limited imports of food from the USSR; the long-run elasticity is close to unity.

Finally, in Table 17, we present estimates of the elasticities of the Western demand for Soviet and Eastern European exports with respect to their price. The first important finding is that 19 out of 20 estimated elasticities have the correct negative sign and only 4 are not statistically significant, including the single positive elasticity estimate. In the case of the USSR, 8 out of 10 estimated elasticities are well in excess of unity, indicating that a 1 percent decline in the Soviet export price will result in a 1.5–3.0 percent increase in the real Soviet export share in a particular market. The relatively low fuel export elasticity on the MDC market is probably more relevant to the period 1960–1973 when the world oil market was highly competitive. Since 1974 the degree of competitiveness substantially declined and Soviet exports of fuels should more properly be modeled as supply-determined; in any case, during the latter period one would expect the price elasticity to be substantially higher as the Western buyers would have eagerly snapped up the relatively lower-priced Soviet oil exports. Soviet exports of machinery and equipment for investment to the LDCs appear to be completely insensitive with respect to relative prices, indicating the limited growth potential in this market. On the whole, the relatively high estimates of price elasticities in the case of the USSR indicate that the key way to achieve a greater penetration of Western markets is through price-cutting or improvements in the quality of Soviet manufactured exports while holding their price unchanged (which *de facto* amounts to hidden price-cutting).

In contrast to the USSR, with the exception of machinery and equipment, the export elasticities of the CMEA Six on the MDC market appear to be well below unity, indicating a limited potential for a rapid expansion of Eastern European exports to the MDCs. Surprisingly, the implication is that the greatest potential for export ex-

TABLE 17.—PRICE ELASTICITIES OF WESTERN DEMAND FOR SOVIET AND EASTERN EUROPEAN EXPORTS

Commodity group	U.S.S.R	CMEA-6
MDCs:		
Machinery and equipment.....	-1.95 (1.32)	-2.11 (6.22)
Fuels.....	-0.93 (3.91)	-0.74 (6.09)
Nonfood raw materials.....	-1.76 (8.12)	-0.34 (0.73)
Food (excluding grain for USSR).....	-2.15 (8.45)	-0.56 (1.72)
Industrial consumer goods.....	-1.95 (2.59)	-0.89 (9.81)
LDCs:		
Machinery and equipment.....	0.17 (0.34)	-1.32 (5.74)
Fuels.....	-2.97 (4.15)	-1.31 (4.94)
Nonfood raw materials.....	-1.86 (4.87)	-1.22 (5.10)
Food (excluding grain for USSR).....	-2.94 (4.52)	-1.59 (4.84)
Industrial consumer goods.....	-1.51 (2.06)	-1.44 (4.32)

Source: same as Table 13.

pansion is in the category machinery and equipment and the export pricing strategy generally suggested for the USSR could be used in this case as well. The generally low estimates of the Eastern European price elasticities on the MDC market relative to those for the USSR may perhaps be explained by the fact that in the case of primary commodities Eastern Europe offers less attractive exports (coal vs. Soviet oil and natural gas; manufactured foodstuffs vs. Soviet raw materials for food; steel, chemicals, non-metallic minerals, etc. vs. Soviet non-ferrous metals and ores, lumber, cotton, etc.). In the case of the MDC demand for industrial consumer goods, the fact that the USSR is a relatively new entrant in the market while Eastern Europe is a more "established" exporter and may have exhausted most of her initial growth potential may explain why the Soviet price elasticity is twice as high as that for the CMEA Six. On the other hand, all CMEA Six price elasticities on the LDC market are in the 1.2-1.6 range, indicating a relatively greater export growth potential in this market than in the MDC market. Nevertheless, it is interesting to note that the Eastern European export growth potential in the MDC machinery market still looks superior to that in the LDC market due to the substantially higher price elasticity in the former market, namely 2.1 vs. 1.3 on the LDC market.

APPENDIX

NOTE ON THE RUBLE-DOLLAR EXCHANGE RATE

There are several serious problems with the conversion of Soviet and Eastern European ruble trade flows (essentially intra-CMEA trade flows and CMEA trade flows with the OCPEs except for Cuba and Yugoslavia) into dollars. To begin with, at the official exchange rates the ruble as well as the national devisa currencies excluding the Hungarian forint are greatly overvalued vis-a-vis the dollar.²⁹ Based on the limited evidence relying on the Hungarian data, during the period 1970-1979 the average degree of overvaluation of the ruble vis-a-vis the dollar ranged from 55 to 70 percent. This is apparent from the data presented in Table 18, upon dividing the CMEA assumed realistic ruble-dollar exchange rate by the official Soviet ruble-dollar exchange rate.³⁰

²⁹ At the present time only Hungary uses the realistic exchange rate also as the official exchange rate. The Hungarian devaluation of the ruble vis-a-vis the dollar in 1976 helps to explain the curious development in the official Hungarian foreign trade statistics supplied to the U.N. for publication in its "Commodity Trade" series, which are reported in dollars. In 1975 Hungary reported total exports of 7178 million dollars, of which 2038 million dollars went to developed economies, 545 million to developing economies, and 4595 million to centrally planned economies. In 1976 total Hungarian exports were only 5528 million dollars, of which 2102 million went to developed economies, 576 million to developing economies, and 2850 million to centrally planned economies. Similar development also took place in imports. Contrary to the initial impression, the Hungarian commercial relations with centrally planned economies did not collapse in 1976. Rather the Hungarians merely devalued the ruble vis-a-vis the dollar by about 45 percent and abolished the meaningless concept of devisa forint (artificial accounting unit used only in foreign trade), henceforth reporting their foreign trade statistics in domestic forints.

Interestingly enough, the CMEA (particularly the Soviet) bureaucrats in the Moscow headquarters were not exactly pleased with the Hungarian policy steps. The 1977 CMEA Statistical Yearbook (p. 323) reports 47 percent increase in Hungarian exports and 39 percent increase in Hungarian imports (denominated in rubles) in 1976 relative to 1975. This truly spectacular trade performance of Hungary in 1976 was created by the CMEA bureaucrats in order to hide the Hungarian devaluation of the ruble. They found it preferable to assume unchanged forint-ruble exchange rate and inflated the Hungarian foreign trade statistics with the dollar area instead.

³⁰ The assumed CMEA realistic ruble-dollar exchange rate is essentially the Hungarian realistic exchange rate corrected for year 1975. The reason for the correction in 1975 is the following. During the period 1970-1975 the Hungarians operated with an effective exchange rate of Ft 40=R 1. In 1976 this rate was reduced to Ft 35=R 1 in order to offset the impact of inflationary price increases in intra-CMEA (ruble) trade. However, this adjustment should have taken place one year earlier since as Table 15 in this paper indicates, the Soviet export prices to the CMEA Six increased by 37 percent in 1975 and only about 11 percent in 1976, while the Soviet import prices from the CMEA Six increased by about 27 percent in 1975 and mere 7 percent in 1976.

The above problem is aggravated by the fact that the average degree of the overvaluation of the ruble vis-a-vis the dollar need not at all be typical for the trade in different commodities. This is the consequence of relative price distortions in intra-CMEA and CMEA-OCPE trade vis-a-vis the world market prices. Consequently, no simple uniform adjustment or correction can be easily made in order to bring ruble and dollar trade flows to a common denominator.

TABLE 18.—REALISTIC AND OFFICIAL RUBLE-DOLLAR EXCHANGE RATES

[Rubles per \$1]

Year	Czechoslovakia (realistic)	Hungary (realistic)	CMEA (corrected realistic rate)	USSR (official)	Eastern European average ex- cluding Hungary (official)
1970	1.563	1.500			
1971	1.536	1.500	1.500	0.900	0.900
1972	1.595	1.381	1.500	.900	.900
1973	1.553	1.200	1.380	.829	.828
1974	1.337	1.169	1.200	.736	.747
1975	NA	1.098	1.170	.757	.747
1976	NA	1.188	1.250	.721	.747
1977	NA	1.169	1.190	.754	.747
1978	NA	1.139	1.170	.737	.747
1979	NA	1.112	1.140	.683	.684
			1.110	.656	.667

Source: Czechoslovakia: Author's own calculation on the basis of data in Klacek (1973), p. 744 and various other Czechoslovak sources. Hungary: Author's own calculation on the basis of KAA (1978), p. 83. USSR: U.N. Monthly Bulletin of Statistics, Trade Conversion Factors, December 1980. CMEA: Based on the Hungarian realistic rate corrected for year 1975 (see footnote 30). Eastern Europe: Author's own calculation from U.N. Monthly Bulletin of Statistics, Trade Conversion Factors, December 1980.

Finally, a somewhat less serious problem is the fact that CMEA ruble-dollar exchange rates are not uniform across countries and therefore these countries use inconsistent cross-exchange exchange rates. This is apparent from the data presented in Table 10. Although during 1970-78 (only 1970-1976 for Hungary) the Soviet ruble and the Eastern European national devisa currencies were supposed to be fixed at their 1970 relative value with respect to each other, these currencies appreciated with respect to the dollar at different rates, neither corresponding exactly to the rate of appreciation of the USSR ruble (to which they were supposed to be linked) nor to the rate of appreciation of the SDR (as defined by the IMF) vis-a-vis the dollar. Hence, it is not even clear what is the exact official CMEA ruble-dollar exchange rate.

TABLE 19.—AVERAGE RATES OF APPRECIATION OF SOVIET AND EASTERN EUROPEAN CURRENCIES VIS-A-VIS THE U.S. DOLLAR

Year	Bulgaria (leva)	Czecho- slovakia (koruna)	East Germany (mark)	Hungary (forint)	Poland (zloty)	Romania (lei)	USSR (ruble)	SDR
1970	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000
1971	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00000	1.00298
1972	1.08330	1.08598	1.08527	1.08603	1.08696	1.08499	1.08565	1.08571
1973	1.20579	1.23221	1.20690	1.25013	1.20482	1.20724	1.22241	1.19213
1974	1.20619	1.23275	1.20690	1.28306	1.20482	1.20724	1.18934	1.20264
1975	1.20858	1.28912	1.20690	1.36670	1.20482	1.20724	1.24757	1.21415
1976	1.21103	1.24787	1.20690	1.44335	1.20482	1.20724	1.19376	1.15452
1977	1.23392	1.27386	1.20690	1.44623	1.20482	1.20724	1.22137	1.16752
1978	1.31600	1.32926	1.20690	1.58382	1.26342	1.31610	1.31704	1.25200
1979	1.35316	1.35497	1.20690	1.68644	1.29492	1.34228	1.37318	1.29200

Source: Author's own calculation on the basis of the U.N. Trade Conversion Factors reported in the Monthly Bulletin of Statistics, December 1980; KAA (1978), p. 83; IMF statistics.

What caused the overvaluation of the ruble and other national devisa currencies vis-a-vis the dollar? The single most important cause of their overvaluation is the fact that at official exchange rates the average intra-CMEA price level has historically exceeded the world market price level.²¹ For example, one study

²¹ The reasons for this are discussed in detail in Marer (1972), pp. 2-22.

estimates that in 1963 CMEA prices of all traded commodities on the average exceeded the world market prices by 19 percent.³² A modified estimate, which corrects for the difference in the quality of manufactures traded within CMEA and in the West, puts the average 1963 intra-CMEA price level at least 37 percent above the world market price level.³³ Additional evidence, implying an average overvaluation of the ruble vis-a-vis the dollar of 67-74 percent in 1970 and 54-77 percent in 1974 is presented in Table 18. Both the Czechoslovak and the Hungarian realistic ruble-dollar exchange rates are essentially based on the average cost of earning a unit of foreign exchange in terms of the domestic currency.³⁴

Why is it so difficult to correct for the overvaluation of the ruble vis-a-vis the dollar? As some authors have suggested, the only correct way of bringing intra-CMEA and East-West trade to a common (dollar) denominator is to revalue intra-CMEA physical trade flows at world market prices.³⁵ Specifically, intra-CMEA trade flows have to be adjusted by proportionately deflating or inflating the official trade flows (shown in national devisa currencies) according to whether the actual price levels were above or below world market price levels for each main commodity category. This is an enormous task requiring a vast amount of time and data and thus can rarely be undertaken.³⁶

What are the consequences of the overvaluation of the ruble vis-a-vis the dollar? First of all, the use of an unrealistic exchange rate provides an incorrect signal about relative costs to exporting, importing, as well as production enterprises in the economy. Exports to the East and imports from the West are made to look unduly attractive, creating an incentive for potential surpluses in intra-CMEA trade (actual intra-CMEA trade balances of individual countries are typically fairly close to zero) and for deficits in East-West trade. Secondly, if one recalculated the trade balances within CMEA for various pairs of countries at world market prices, in many cases one would find that trade would no longer be bilaterally balanced. Such revaluation would benefit mainly the USSR since it tends to export the relatively underpriced fuels and non-food raw materials in exchange for the relatively overpriced manufactures; it would consequently have just the opposite effect for East Germany, Czechoslovakia, Poland, and Hungary—large net exporters of manufactures.³⁷ Moreover, such calculation in the case of the Soviet trade with Eastern Europe would disclose the pattern of implicit trade subsidies granted to individual countries in return for certain services (political allegiance, military alliance, etc.). Finally, the unrealistic ruble exchange rate renders the official trade data of the CMEA countries incomparable with those of market economies. In particular, the information on the territorial composition of trade is distorted since the relative importance of "ruble area" trade is overstated, the importance of the "dollar area" trade is understated, and the total absolute amount of trade is overstated.³⁸

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³² Marer (1972), p. 12.

³³ Vaňous (1979), p. 39.

³⁴ Naturally, the marginal cost of earning a unit of foreign exchange would be more relevant for the estimation of a realistic exchange rate but such information is hard to come by. Moreover, since we calculate the implicit ruble-dollar exchange rate, it is possible that the results of the calculation would not be overly different whether we use the data on the average or the marginal cost of the ruble and the dollar in terms of the domestic currency (this would certainly hold if the supply curve for rubles and the supply curve for dollars both have the same slope).

The data for Czechoslovakia are from Klacek (1973), p. 744 and various other Czechoslovak sources; the data for Hungary were calculated by the writer on the basis of information published in KAA (1978), p. 83.

³⁵ See, e.g., Marer (1972), pp. 60-61, and Marrese and Vaňous (1980).

³⁶ The work on the conversion of the USSR foreign trade with each of the six Eastern European countries during 1960-1978 to a world market price level is currently being undertaken by Michael Marrese (Northwestern University) and the author.

³⁷ Marer (1972), p. 61.

³⁸ E.g., Marer (1972), pp. 60-61, points out that: "... if trade flows were valued at more realistic "adjusted dollar prices" throughout CMEA, the one-third to two-fifth share of Western countries in the total trade of the CMEA members (as revealed by the official statistics) would increase to about 45 percent in imports and close to 50 percent in exports, with corresponding reductions in the share of CPEs in the total."

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EASTERN EUROPE: THE HARD CURRENCY DEBT

By Joan Parpart Zoeter*

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I. SUMMARY

Eastern Europe's¹ hard currency debt to the West² has continued to grow rapidly in spite of efforts in the past few years to curb imports and boost exports. By end-1979, net debt to the West had climbed to \$49.3 billion, compared with a level of \$18.7 billion at end 1975. Rising

*Office of Economic Research, National Foreign Assessment Center, Central Intelligence Agency. This paper draws heavily on Ron Miller's estimates of East European debt and debt burden. For a more complete discussion of the estimates and of the methodology used to derive them, see *Estimating Soviet and East European Hard Currency Debt*, National Foreign Assessment Center, 1980. The author wishes also to express her appreciation to George Lowden, Office of Economic Research, CIA, for his help in compiling many of the statistics presented here. This paper was completed in April 1980.

¹ Bulgaria, Czechoslovakia, East Germany, Hungary, Poland, and Romania.

² Calculated from trade with all non-Communist countries throughout this paper (see appendix A). The data are from East European foreign trade statistics.

world market prices, slack demand in the West, and continued high grain imports have added greatly to the borrowing required to help fuel economic growth. Thus, Eastern Europe has met with only limited success in reducing its trade deficit with non-Communist countries and—because of rising interest payments—even less success in narrowing the current account imbalances.

The next few years will be difficult ones for the East Europeans. In order to keep new borrowing down, they will have to carefully monitor imports from the West while attempting to maximize exports. Since economic growth depends to an important degree on imports of Western goods, further curbs on imports will damage the economic health of the East European countries. Although all of the countries appear ready to accept at least some slowdown in economic growth, they will be hard pressed to hold down their imports from the West since Soviet deliveries of energy are expected to level off and Soviet supplies of other industrial materials will at best grow very little. At the same time, maintaining a modicum of growth in consumer welfare will be necessary in order to minimize consumer discontent.

II. LARGE DEFICITS CONTINUE

Except for Bulgaria—and in 1979, Hungary—the East European countries have had little success in their attempts to narrow trade deficits with non-Communist countries. Since 1975, all the countries have tried to curb imports. Bulgaria—presumably under strong pressure from Moscow and, in any case, the least dependent on Western trade—has by far been the most successful. Efforts to cut imports have had to be relaxed at times, however, because of the need (a) for Western grain and other feedstuffs (especially in the case of Poland and East Germany) due to poor harvests; (b) to replenish depleted inventories of industrial materials; and (c) in the case of Romania, to satisfy rapidly rising oil import requirements. At the same time, rising world prices for many imported goods and continued slow growth in Western markets have continued to favor larger trade deficits.

East European nominal imports from non-Communist countries rose less than 9 percent a year in 1976–78 but roughly 15 percent in 1979 (see Table 1). Romania—whose imports rose 22 percent a year in 1976–79—accounted for nearly two-fifths of the increase in total East European imports from non-Communist countries. Roughly half of the increase in Romanian imports was the result of the rise in imports of OPEC oil at sharply increased prices, from \$400 million (5 million tons) in 1975 to about \$2.2 billion (16 million tons) in 1979.³ Bulgaria, on the other hand, held import growth to less than 2 percent a year, and Polish imports increased by less than 5 percent a year. Real East European imports rose roughly 2 percent a year in 1976–79; Bulgaria and Poland reduced real imports substantially.⁴

³ Romanian exports of petroleum products to non-Communist countries have grown considerably more slowly than imports, turning Romania from a net oil exporter of 600,000 tons in 1975 to a net importer of about 8 million tons in 1979.

⁴ Our estimates of the real growth of East European foreign trade are based on OECD indices which take into account both price changes and fluctuations in other Western currencies vis-a-vis the US dollar.

TABLE 1.—EASTERN EUROPE: TRADE WITH NON-COMMUNIST COUNTRIES¹

[In millions of U.S. dollars]

	1970	1975	1976	1977	1978	1979
Total Eastern Europe:						
Exports.....	5,640	15,076	16,739	18,278	20,786	25,456
Imports.....	6,027	20,633	22,610	23,462	26,365	30,268
Balance.....	-386	-5,557	-5,871	-5,184	-5,579	-4,812
Bulgaria:						
Exports.....	414	937	1,058	1,270	1,547	2,310
Imports.....	436	1,498	1,288	1,285	1,401	1,603
Balance.....	-22	-561	-230	-15	146	707
Czechoslovakia:						
Exports.....	1,141	2,379	2,329	2,746	3,079	3,600
Imports.....	1,131	2,745	2,927	3,372	3,503	4,120
Balance.....	10	-366	-598	-626	-424	-520
East Germany:³						
Exports.....	1,261	3,062	3,643	3,557	3,950	4,500
Imports.....	1,560	4,187	5,234	5,080	5,100	5,900
Balance.....	-298	-1,125	-1,591	-1,523	-1,150	-1,400
Hungary:⁴						
Exports.....	767	1,691	1,945	2,185	2,535	3,361
Imports.....	863	2,390	2,461	3,005	3,849	3,880
Balance.....	-96	-699	-516	-820	-1,314	-519
Poland:						
Exports.....	1,282	4,123	4,441	4,882	5,499	6,335
Imports.....	1,134	6,796	7,375	7,034	7,392	8,095
Balance.....	148	-2,673	-2,934	-2,152	-1,893	-1,760
Romania:						
Exports.....	775	2,884	3,323	3,638	4,176	5,350
Imports.....	903	3,017	3,325	3,686	5,120	6,670
Balance.....	-128	-133	-2	-48	-944	-1,320

¹ Imports and exports are on an f.o.b. basis.² Provisional estimates.³ Data for 1975-78 are partly estimates. The official West German Deutschmark/U.S. dollar rate was used to convert intra-German trade in East German marks to U.S. dollars. Using the East-German mark/U.S. dollar rate understates the value of trade. East Germany converts West German marks into East German marks at parity, but actually the East German mark is worth less than the West German mark.⁴ Hungarian imports on an f.o.b. basis for 1970, 1976-78 are from CEMA yearbooks.

Source: Official East European foreign trade statistics.

Western data indicate that East European imports of machinery and equipment rose 6 percent a year in 1976-78, with only Bulgaria and Poland reducing such imports. Commodity breakdowns of trade with all non-Communist countries are available only for Czechoslovakia, Hungary, and Poland (see Appendixes B, C, and D). Imports of agricultural products and foodstuffs accounted for nearly three-fourths of the total increase in the value of Polish imports from non-Communist countries in 1976-79, with imports of fuels and chemicals also rising substantially. Polish purchases of Western machinery and equipment dropped by nearly one-fifth. On the other hand, purchases of Western machinery and equipment accounted for nearly one-half of the rise in Czechoslovak imports in 1976-78 and for more than one-third of the increase in Hungarian imports. Czechoslovakia also in-

creased imports of agricultural products substantially, and Hungary boosted imports of both agricultural products and chemicals.

Efforts to raise exports met with only limited success. Eastern Europe continued to face slack demand in many Western markets, and bottlenecks created by restrictions on imports of industrial materials probably hampered export production in some of the countries. Even so, the value of East European exports rose 13 percent a year in 1976-78 and about 22 percent in 1979. Bulgaria enjoyed the fastest growth as exports increased—from a small base—by 18 percent a year in 1976-78 and jumped by 49 percent in 1979. East European exports climbed by roughly 7 percent a year in real terms in 1976-79, although Czechoslovakia, East Germany, and Poland achieved rates of less than 4 percent a year.

Machinery and equipment accounted for more than one-third of the rise in Polish exports to the non-Communist countries in 1976-79 and metallurgical products for nearly one-fifth. Much of the rise in exports of metallurgical products was the result of price increases for copper and silver in 1979. Exports of coal, on the other hand, grew quite slowly as domestic demand outpaced production. Machinery and equipment also accounted for more than one-third of the increase in Czechoslovak exports in 1976-78, with exports of manufactured goods and wood and wood products accounting for another third. The rise in Hungarian exports was fairly evenly distributed among several categories.

For the area as a whole, the deficit on trade with non-Communist countries averaged \$5.5 billion a year in 1976-78—the same as in 1975. According to preliminary data, the deficit dropped to \$4.8 billion in 1979 as Bulgaria achieved a large surplus and Hungary cut its deficit by three-fifths. East German and Romanian trade deficits increased appreciably in 1979, and the Polish trade gap narrowed somewhat. Because of rising interest payments, Eastern Europe's current account deficit fell only slightly in 1979, to an estimated \$7.6 billion.⁵

In addition to their current account deficits with non-Communist countries, the East Europeans ran imbalances on credits extended to both the developed West and the LDCs. Drawings on East European credits and grants to the LDCs averaged at least \$400 million a year in 1976-78.⁶ (The actual totals could have been substantially higher as the estimates are based on incomplete information.) LDC repayments to Eastern Europe presumably were much smaller than drawings, since most of these credits are very long term. On the positive side, some of the East European countries—notably Czechoslovakia—have realized surpluses on sales of military equipment not recorded in their trade statistics. Total East European deliveries of military equipment to the LDCs averaged an estimated \$320 million in 1976-78.⁷

⁵ Because insufficient data are available on East European invisibles, I have made very rough estimates for the purpose of analyzing East European balance of payments.

⁶ *Communist Aid Activities in Non-Communist Less Developed Countries, 1978*, National Foreign Assessment Center, FR 79-10431U, September, 1979, p. 11.

⁷ *Ibid.*, p. 2.

III. DEBT MOUNTS

Borrowing required to cover East European deficits pushed the net debt up from \$18.7 billion at yearend 1975 to \$49.3 billion at the end of 1979.⁸ Poland's debt totaled \$20.0 billion. East Germany, Hungary, and Romania had debts of \$8.4 billion, \$7.3 billion, and \$6.7 billion, respectively (Table 2). Bulgaria curbed the growth of its debt the most. Romania—after allowing little growth in its debt in 1975–76—incurred sizeable increases in 1977–79 as the 1977 earthquake and 1978 drought, dwindling oil reserves, and soaring OPEC oil prices in 1979 raised import requirements. Poland—which accounted for two-fifths of the total rise in East European net debt in 1976–79—managed to slow down the growth considerably but still incurred a 170-percent rise.

TABLE 2.—EASTERN EUROPE: ESTIMATED NET HARD CURRENCY DEBT TO THE WEST AT YEAREND
(In millions of U.S. dollars, yearend)

	1971	1975	1976	1977	1978	1979 ¹
Total debt.....	4, 927	18, 657	25, 297	32, 860	42, 265	49, 260
Bulgaria.....	723	2, 257	2, 756	3, 169	3, 710	3, 730
Czechoslovakia.....	160	827	1, 434	2, 121	2, 513	3, 070
East Germany.....	1, 205	3, 548	5, 047	6, 159	7, 548	8, 440
Hungary.....	848	2, 195	2, 852	4, 491	6, 532	7, 320
Poland.....	764	7, 381	10, 680	13, 532	16, 972	20, 000
Romania.....	1, 227	2, 449	2, 528	3, 388	4, 990	6, 700

¹ Provisional estimates.

Most of the increase in Eastern Europe's debt originated in private borrowing from commercial banks (see Appendix E). Estimated gross liabilities to commercial banks rose from \$15.9 billion at yearend 1975 to \$40.5 billion at yearend 1979, and their share in total East European gross debt rose from 69 percent to 74 percent.⁹ Czechoslovakia in particular substantially increased its dependence on borrowing from commercial banks, which grew from 38 percent of total debt in 1975 to 68 percent in 1979. Hungary continued to rely on commercial banks for nearly all of its borrowing, whereas only 55 percent of Romanian debt was in the form of private credits from banks at yearend 1979.

East European assets with Western banks dropped by \$540 million between yearend 1975 and yearend 1977—to \$3.8 billion. They then rose to roughly \$5.5 billion at yearend 1979. These assets represented only about two months worth of East European merchandise imports from non-communist countries, ranging from about 1½ months for Poland to four months for Bulgaria. Net liabilities

⁸ Because the U.S. dollar has depreciated considerably vis-à-vis most developed Western currencies in recent years, the growth of Eastern Europe's hard currency debt to the West in 1976–79 would be substantially less if exchange rate fluctuations vis-à-vis dollar were taken into account. In the case of Poland, for example, the net hard currency debt at year end 1979 would have been \$15.8 billion (instead of \$20.0 billion) in terms of 1975 U.S. dollars.

⁹ According to U.S. Treasury and Federal Reserve Statistics, U.S.-based banks and their major foreign branches held \$4,330 million in net claims against Eastern Europe at the end of 1979, up from \$1,188 million at yearend 1975. About three-fourths of these claims were held by the foreign branches. Net claims against Poland were \$1.642 billion at a yearend 1979; Hungary, \$924 million; East Germany, \$782 million; Bulgaria, \$473 million; Romania, \$380 million; and Czechoslovakia, \$129 million.

to Western commercial banks rose from \$11.6 billion at yearend 1975 to roughly \$35.0 billion at yearend 1979.

A large part of the commercial bank borrowing was on a direct bank-to-bank basis whereby the East Europeans obtained time deposits and short-term credits. Syndicated loans have also been of great importance in East European borrowing. For Hungary and Poland, this type of financing accounted for about one-third and one-sixth of total gross liabilities to commercial banks at yearend 1978. Most of the syndicated loans can be used for balance-of-payments purposes even when tied to specific East European development projects. They generally carry repayment periods of between six and eight years with grace periods of three to four years. Spreads over LIBOR on syndicated loans obtained in 1979 ranged between 0.5 percent to 0.75 percent for all countries except Poland and between 0.75 percent and 1.375 percent for Poland. East European liabilities to commercial banks also include some non-recourse paper, although much of this is believed to be held outside of commercial banks.^{9a}

Other forms of East European commercial debt rose at only one-fourth the rate of total debt and fell from 15 percent of total East European gross debt at yearend 1975 to 9 percent at yearend 1978.¹⁰ Poland's non-bank commercial debt dropped by nearly one-fifth in 1977-78 as Western lenders became increasingly reluctant to buy Polish paper. In an attempt to support the value of their paper, the Poles themselves in 1978 limited the transferability of paper carrying the Bank Handlowy guarantee to a one-time transaction.¹¹

Eastern Europe's debt on Western government-backed export credits remained relatively small, accounting for only 13 percent of total gross debt at yearend 1979 (see Appendix F). Only Poland sharply increased its use of such credits, pushing the share in its total gross debt up from 14 percent in 1975 to 21 percent in 1979. A greatly increased share of Poland's Western government-backed credits was used for imports of commodities such as steel and chemicals as well as for grain and other agricultural products. Poland's use of officially-backed credits for purchases of Western machinery and equipment presumably fell since imports of such goods dropped during the period. For other East European countries, the share of debt on government-backed credits dropped somewhat and by yearend 1979 ranged from nil for Hungary to about 12 percent each for Czechoslovakia and Romania.

Only Poland and East Germany made much use of other official credits, but even for these two countries such credits represented less than 5 percent of total gross debt at end-1979. In the case of Poland, this category of debt consisted mainly of DM 1 billion (\$500 million at the 1978 DM/\$ rate) owed on a West German official financial credit drawn down in 1975-77. The West German interest-free swing credit—which has a ceiling of DM 850 million—accounted for most of East Germany's debt on official credits.

^{9a} Non-recourse, or a *forfait*, financing is a form of supplier's financing whereby the institution accepting bills or notes from an exporter for discount absorbs the risks of collecting payment from the importer.

¹⁰ Other types of commercial debt include promissory notes and other supplier credits held by institutions other than banks and by banks outside of the BIS reporting area.

¹¹ "Poland Has Begun to Reschedule," *Euromoney*, December 1979, pp. 30, 32.

Romania—the only East European member of the IMF—has benefited from sizeable low-interest long-term World Bank project credits and IMF standby arrangements and compensatory credits. By the end of 1979 Romania owed \$418 million to the World Bank and \$392 million to the IMF.¹² These two sources of financing accounted for about 16 percent of Romania's end-1979 gross debt, up from 7 percent in 1975.

In determining Eastern Europe's net debt, we have taken account only of assets held in Western banks. The East Europeans could also have domestic reserves; the Romanians, for example, are known to have significant gold reserves. Total Hungarian reserves as of yearend 1978 were about \$1.9 billion, of which about one-half consisted of assets in Western commercial banks.¹³ The East Europeans also are owed considerable amounts on trade and development credits extended to both the LDCs and the developed West. In 1971–78, gross drawings on East European credits and grants to the LDCs totalled an estimated \$2.2 billion.¹⁴ Although a large portion of these credits presumably will be repaid in goods rather than in hard currency, they still help assure future supplies for the East Europeans.

Our estimates of East European hard currency debt apply only to the West. In addition, these countries owe substantial amounts of hard currency to the CEMA banks. At yearend 1978 Eastern Europe as a group owed about \$1.9 billion net hard currency to the International Investment Bank (IIB), up from \$411 million at yearend 1975.¹⁵ Poland owed an estimated \$480 million at yearend 1978, and Bulgaria, East Germany and Hungary about \$350 million each.¹⁶ Most East European obligations to the IIB were incurred in financing their share of the Orenburg pipeline, for which they will be repaid in deliveries of Soviet natural gas. In addition, some of the East European countries probably have obtained hard currency credits from the International Bank for Economic Cooperation (IBEC) and from the USSR and other members of CEMA. Moscow, which provided hard currency credits to Bulgaria in the 1960s and to Poland in the early 1970s, very likely has provided hard currency credits since then to help these countries in particularly difficult times. Some CEMA countries may also have borrowed in the Euromarkets on behalf of other countries.

¹² Romania's drawings from the IMF totaled SPD 135.0 million in 1973–75, SDR 261.6 million in 1976–78, and SDR 41.3 million in 1979 (through Nov.), for a total of SDR 437.9 million. Of this, reserve tranche drawings made up SDR 47.5 million; credit tranche drawings ordinary, SDR 206.6 million; and compensatory drawings, SDR 183.8 million. Of the total of SDR 246.8 million in IMF credits outstanding at yearend 1979, SDR 91.6 million was on credit tranche drawings ordinary and SDR 153.8 million on compensatory credits. Source: *International Financial Statistics*, International Monetary Fund, March 1980, pp. 12–19.

¹³ The figure for total reserves is for gold, currency and foreign exchange holdings, and sight accounts as reported in the *Economic Bulletin of the National Bank of Hungary*, June 1979, page 25.

¹⁴ See *Communist Aid Activities to Non-Communist Less Developed Countries*, 1978, National Foreign Assessment Center, ER79–10412U, September 1979, page 11.

¹⁵ See Ron Miller, *op. cit.*, p. 12.

¹⁶ *Ibid.*, p. 12.

IV. THE DEBT BURDEN

The various measures of debt burden for the six East European countries (Appendixes G through K) all show that the burden for all but Bulgaria and Romania has increased substantially since 1975.¹⁷ Using the ratio of repayments on medium- and long-term debt to merchandise exports as the criterion of burden shows that Poland is worse off with a debt service ratio of 95 percent in 1979 (up from 30 percent in 1975) followed by East Germany, 55 percent (25 percent); Bulgaria, 36 percent (33 percent); Hungary 36 percent (19 percent); Romania, 24 percent (23 percent); and Czechoslovakia, 22 percent (14 percent).¹⁸ (The assumption when using this measure of debt service is that the East Europeans have no difficulty in rolling over their short-term debt.)

Because of the differences in maturity structure, a somewhat different picture emerges when debt—rather than debt service payments—is related to merchandise exports (see Appendix I). Poland still shows by far the heaviest burden, with gross debt nearly 3.5 times exports in 1979. But Hungary shows a debt burden about the same as East Germany's, i.e., nearly 2.5 times exports. Bulgaria—with a debt/export ratio of 2—comes next. And Czechoslovakia and Romania—with debts not substantially exceeding exports—remain at the bottom.

In terms of the maturity structure of medium- and long-term debt, Poland—and East Germany—with an estimated one-half of their end-1978 liabilities falling due in 1979–80 are in the worst position. A large part of the meteoric rise in Poland's debt service ratio since 1976—when only 36 percent of medium- and long-term debt fell due in the next two years—has resulted from the dramatic worsening of the maturity structure.

In large part this has been due to Poland's use of an increasing share of its officially-backed export credits to import commodities (grain, steel, chemicals, etc.) for which terms are considerably shorter than on credits for imports of machinery and equipment. The maturity structure of East Germany's medium- and long-term debt, on the other hand, has not changed much since 1975. East Germany has long had a considerably smaller share of long-term (five years or over) debt than the other East European countries because much of its debt consists of medium-term credits from commercial banks and from West Germany. It has a relatively small amount of longer-term Western government-backed credits. Hungary and Romania, on the other hand, had only 25 percent and 30 percent, respectively, of their end-1978 medium- and long-term debt falling due in 1979–80. Hungary's medium- and long-term borrowing has consisted of long-term syn-

¹⁷ Of course, the relative debt burdens would change to the extent that one East European country has borrowed on behalf of another.

¹⁸ These ratios would be lower if rough estimates for earnings from exports and invisibles were used as the denominator. In the case of Poland, the debt service ratio would then be roughly 78 percent in 1979; for East Germany, 43 percent; for Romania, 22 percent; and for Czechoslovakia, 20 percent.

licated loans. Romania has depended heavily on long-term officially-backed credits for the purchase of machinery and equipment and on even longer term World Bank project credits. Bulgaria and Czechoslovakia fall in between, with less than two-fifths of their year-end 1978 medium- and long-term liabilities coming due in 1979-80. Czechoslovakia has managed to improve its maturity structure since 1975, in part because of the increased use of long-term syndicated loans.

Looking at the maturity structure of medium- and long-term debt, however, is not enough. We must examine the magnitude of short-term debt. As Lawrence Brainard has pointed out, the East Europeans would face "great risks . . . in the case of payments difficulties since short-term debt would dry up very rapidly and would probably force a payments moratorium."¹⁹ Of the East European countries, Bulgaria, Czechoslovakia, and Hungary are estimated to have more than two-fifths of their total gross debt in short-term liabilities (see Appendix J). About three-tenths of East Germany's debt is short-term, Romania's less than one-fourth, and Poland's about one-sixth. If short-term obligations were taken into consideration, Hungary would have had a debt service ratio of about 155 percent in 1979; Poland, about 140 percent; Bulgaria and East Germany, 125 percent; and Czechoslovakia and Romania, about 66 percent and 50 percent, respectively. Of course, Western banks probably would not call in all of the short-term debt but rather would continue to roll it over. In fact, it appears that at the present time, bankers tend to find short-term lending more attractive than longer-term lending. Thus although a large short-term debt does not now present a serious problem for the East Europeans, should banker attitudes change those countries which rely most heavily on this type of financing would be in serious trouble.

Ron Miller has provided another interesting measure of the debt burden by relating new financing to debt service (see Appendix K). This measure shows that for all of the East European countries except Czechoslovakia and Romania the ratio of debt service to drawings increased considerably on average between 1975-76 and 1977-79. Bulgaria—which devoted nearly 90 percent of new financing to servicing its debt in 1977-79—was in the worst position. Then came Poland with a debt service to drawings ratios of almost 80 percent. Best off was Romania, which gave up one-half of drawings to debt service.²⁰

Still another interesting perspective on the debt burden has been offered by Lawrence Brainard. He compared increases in net debt with imports of machinery and equipment.²¹ Brainard's thesis is that if investments financed by Western credits—for which imports of Western machinery and equipment are a proxy—"are timely and productive and lead to exports (or import savings), foreign exchange will be generated in future years to repay the debt associated with such investments. If, however, foreign credits are being used to purchase con-

¹⁹ Lawrence J. Brainard, "East Europe's Indebtedness: policy choices," *Money and Finance in the East and West*, edited by C. T. Saunders, (Volume 4 in the East-West European Economic Interaction Workshop Papers of the Vienna Institute for Comparative Economic Studies) Springer-Verlag, Vienna and New York, 1978, page 90.

²⁰ A high debt service to financing ratio is not always a bad thing. It may indicate that a country is curbing imports—and import credits—to slow the growth of its debt. e.g., Hungary in 1979 and Romania in 1975-76.

²¹ Lawrence J. Brainard, *op cit*, page 88.

sumption goods or raw materials such as oil then future debt service will be harder to manage." Brainard's comparison—which relies on Western data on exports of machinery and equipment (SITC 7) to Eastern Europe—shows that in 1970-75 only in East Germany and Poland did the growth of net debt exceed imports of machinery and equipment (by 30 percent and 10 percent, respectively). Our calculations—also based on Western trade data—indicate that—except for Bulgaria—the ratio of the increase in the value of net debt to imports of machinery and equipment has increased substantially:²²

	1972-75	1976-78
Bulgaria.....	155	127
Czechoslovakia.....	33	69
East Germany.....	114	127
Hungary.....	96	192
Poland.....	125	167
Romania.....	50	98

V. OUTLOOK

Eastern Europe's struggle to slow the rise in its hard currency debt without sacrificing economic growth and improvements in consumer welfare will continue for several years. In general, priority is to be given to insuring or—in the case of Poland—restoring external financial equilibrium. Hungary and Poland project little or no economic growth, while the other four appear prepared to accept slower growth.

The East Europeans will, however, be hard pressed to curb their imports from the non-Communist countries. Because deliveries of Soviet energy are expected to level off and Soviet exports of other industrial materials at best will grow slowly, Eastern Europe will require increasing amounts of Western oil and other materials.²³ The expected continued rise in OPEC oil prices will compound the difficulties. Additional poor harvests—likely in at least some of the years—could keep the need for imported agricultural products high, especially for Poland and East Germany. Although imports of machinery and equipment could be reduced for a time without much effect on economic growth, several of the countries have so far shown not much inclination to cut imports.

The outlook for increasing exports is dim as Western demand will probably remain sluggish and protectionism strong. Moreover, East European exports of chemicals, textiles, and steel will meet increasing competition, especially from the LDCs.

²² Czechoslovak, Hungarian, and Polish data on imports of Western machinery and equipment generally show higher values for these imports than do Western data because in many cases re-exports and transshipments as well as exports of technology are not reflected in Western reporting on exports to Eastern Europe (see "Reconciliation of Soviet and Western Trade Data: The United States as a Case Study," by Damian T. Gullo, Economic Commission, Congress of the United States, Vol. 2, October 10, 1979, pp. 526-550.) Thus, although the East European data on imports of Western machinery and equipment show the same general trends as shown above, they give lower ratios for the increase in net debt to imports of machinery and equipment. Using Polish data, for example, shows a rise in the ratio of net debt growth to imports of machinery and equipment of from 97 in 1972-75 to 131 in 1976-78 and to 153 in 1979.

²³ See Robin Watson, "The Linkages Between Energy and Growth Prospects in Eastern Europe", in this compendium.

Although a slowdown in economic growth could free up some products for export, bottlenecks created by injudicious cuts in imports could seriously hamper export capacity. Imported Western plant is not likely to produce the hoped-for significant gains in export capability because of lags in completion which not only will delay the beginning of production for export but also—in some instances—will render the products obsolete before they even hit Western markets. Moreover, the East Europeans may have to divert some hard currency exports to the USSR to cover deficits created by worsening terms of trade.

Thus, although Eastern Europe probably will meet with some success in cutting its trade deficits over the next few years, sharp reductions are unlikely for most of the countries. Burgeoning interest payments will make it even more difficult to cut the current account deficit, especially if interest rates remain at their present high level. Even if current account deficits are reduced, borrowing needs will remain high—and for some countries will rise substantially—as repayment obligations continue to mount. For most of the countries, the burden of the debt will become increasingly onerous. Poland in particular should continue to experience serious balance-of-payments problems for several years and will have to continue its scramble for financing and de facto rescheduling—such as the recent juggling of its 1980 obligations on French government-backed debt.²⁴

Moscow probably will continue to provide some assistance to the East Europeans—especially those it perceives to be threatened by political instability. Such aid probably would consist mainly of above-plan deliveries of raw materials and permission to continue running deficits in trade with the USSR. The Soviets also might extend some hard currency credits, but these are unlikely to be large.

APPENDIX A

THE TRADE DATA

We have decided for the purposes of this paper to use East European trade with all non-Communist countries instead of trade with the developed West only. There are several reasons for this:

(a) An increasing share of East European trade with the LDCs is on a multilateral—i.e., hard currency settlements—basis. In fact, Hungarian data on trade with the “convertible” area indicate that nearly all trade with non-Communist countries is included. In the case of Bulgaria, which runs a large surplus with LDCs, some 87 percent of exports to the LDCs and 53 percent of imports were supposedly on a multilateral basis in 1978. Bulgaria ran a surplus of \$574 million with these countries in 1978 and a small deficit with its bilateral LDC partners.

(b) There has been a significant shift in the reporting of some of the East European countries. Poland, for example, which used to report most of its Western crude oil as coming from Western Europe, now shows it coming mainly from the OPEC countries. Thus, more recent data on trade with the developed West are not comparable with earlier data.

(c) It is appropriate to use trade with all non-Communist countries for projections of East European trade since the bulk of Eastern Europe's energy imports from the West come from the LDCs and since the share of multilateral trade with the LDCs is expected to continue to grow.

²⁴ See “Poland Has Begun to Reschedule,” *Euromoney*, December 1979, pages 20, 2 and “The Agreement that the French Keep Under Lock and Key,” *Euromoney*, March 1980 pp. 112, 116, 117.

We do not attempt to break out Eastern Europe's trade with its multilateral LDC partners. In the first place, the completeness of the reporting on trade with individual LDCs varies among the East European countries. East German data is particularly poor in that not only are a lot of the LDCs omitted, but only turnover is reported. Moreover, for all of the East Europeans, some of the trade with the multilateral LDC partners is on a barter basis. Conversely, part of the trade with bilateral LDC partners may be on a hard currency settlement basis.

APPENDIX B

CZECHOSLOVAKIA: EXPORTS TO NON-COMMUNIST COUNTRIES BY COMMODITY

[In millions of U.S. dollars]

	1970	1975	1976	1977	1978
Total.....	1, 113	2, 379	2, 329	2, 746	3, 079
Food, live animals, beverages and tobacco.....	100	254	154	202	280
Crude materials, inedible, except fuels.....	92	166	181	235	288
Of which: Wood, lumber and cork.....	51	109	124	166	205
Mineral fuels, lubricants and related materials.....	49	192	195	228	202
Of which: Coal, coke, and briquettes.....	32	132	112	110	119
Chemicals.....	64	171	158	208	223
Manufactured goods.....	357	653	667	728	783
Of which:					
Textile yarn, fabrics, madeup articles, and related products.....	54	144	143	161	168
Iron and steel.....	184	292	299	328	352
Machinery and transport equipment.....	329	673	690	816	936
Other.....	122	270	283	329	365

CZECHOSLOVAKIA: IMPORTS FROM NON-COMMUNIST COUNTRIES BY COMMODITY

	1, 131	2, 745	2, 927	3, 372	3, 503
Total.....	1, 131	2, 745	2, 927	3, 372	3, 503
Food, live animals, beverages and tobacco.....	197	380	560	619	599
Of which: Grain.....	31	20	141	37	72
Crude materials, inedible, except fuels.....	230	522	482	597	512
Of which: Textile fibers.....	86	178	156	237	155
Mineral fuels, lubricants and related materials.....	10	34	28	81	46
Of which: Petroleum and petroleum products.....	9	34	26	79	71
Chemicals.....	164	446	444	439	470
Manufactured goods.....	120	345	311	338	410
Machinery and transport equipment.....	325	806	858	1, 035	1, 171
Other.....	86	210	243	263	295

Source: Facts on Czechoslovak Foreign Trade, 1971, 1977, 1979.

APPENDIX C

HUNGARY: EXPORTS TO NON-COMMUNIST COUNTRIES BY COMMODITY

[In millions of U.S. dollars]

	1970	1975	1976	1977	1978
Total.....	797	1, 691	1, 945	2, 213	2, 536
Food, live animals, beverages, and tobacco.....	246	457	449	561	689
Of which: Meat and meat products.....	62	177	175	219	267
Crude materials, inedible, except fuels.....	91	119	164	175	222
Petroleum and petroleum products.....	15	90	115	138	126
Chemicals.....	56	131	175	209	253
Manufactured goods.....	218	372	473	460	473
Of which:					
Textile yarn, fabrics, made up articles and related products.....	42	78	96	108	118
Iron and steel.....	101	153	222	181	169
Machinery and transport equipment.....	85	310	333	374	409
Articles of apparel and clothing accessories.....	27	85	102	126	149
Other.....	59	129	134	171	215

HUNGARY: IMPORTS FROM NON-COMMUNIST COUNTRIES BY COMMODITY¹

Total.....	888	2,464	2,551	3,088	3,916
Food, live animals, beverages, and tobacco.....	174	365	399	572	567
Crude materials, inedible, except fuels.....	154	245	270	275	348
Mineral fuels, lubricants, and related materials.....	15	156	112	93	164
Of which: Petroleum and petroleum products.....	8	151	105	93	157
Chemicals.....	132	492	524	601	753
Manufactured products.....	210	530	513	614	785
Of which:					
Textile yarn, fabrics, madeup articles and related products.....	48	117	129	167	185
Iron and steel.....	45	141	104	105	144
Machinery and transport equipment.....	153	558	608	770	1,081
Other.....	50	117	124	163	219

¹ Imports are on a c.i.f. basis.

Source: Külkereskedelmi statisztikai évkönyv, Budapest, Hungary, 1975, 1978.

APPENDIX D

POLAND: EXPORTS TO NON-COMMUNIST COUNTRIES BY COMMODITY

[In millions of U.S. dollars]

	1970	1975	1976	1977	1978	1979
Total.....	1,282	4,123	4,441	4,882	5,499	6,461
Of Which:						
Fuels and power.....	194	1,209	1,154	1,156	1,233	1,478
Machinery and equipment.....	200	966	1,107	1,334	1,550	1,826
Industrial materials.....	469	1,219	1,302	1,480	1,790	NA
Of which:						
Metallurgical products.....	165	299	338	390	502	723
Chemicals.....	113	431	359	403	403	465
Light industry products.....	87	279	352	381	429	513
Agricultural products and foodstuffs.....	405	680	832	859	964	1,064

POLAND: IMPORTS FROM NON-COMMUNIST COUNTRIES BY COMMODITY

Total.....	1,134	6,796	7,375	7,034	7,392	8,109
Of which:						
Fuels and power.....	12	368	459	469	424	722
Machinery and equipment.....	269	2,494	2,575	2,360	2,381	1,973
Industrial materials.....	569	2,883	2,839	2,721	2,833	N/A
Of which:						
Metallurgical products.....	169	1,258	1,180	1,015	959	1,037
Chemicals.....	196	1,002	996	1,067	1,205	1,517
Light industry products.....	100	310	322	318	286	420
Agricultural products and foodstuffs.....	280	1,042	1,492	1,474	1,728	1,985

Sources: Polish Central Statistical Office: Rocznik Statystyczny Handlu Zagranicznego, 1979, and Biuletyn Statystyczny No. 2, February 1980.

APPENDIX E

EASTERN EUROPE: POSITIONS VIS-A-VIS WESTERN BANKS¹

[In millions of U.S. dollars]

	End 1975		End 1976		End 1977		End 1978		End 1979	
	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets	Liabilities	Assets
Eastern Europe	15,608	4,376	20,297	4,054	25,033	3,835	33,669	4,634	40,490	5,470
Bulgaria	2,033	383	2,433	442	2,866	538	3,422	553	3,640	770
Czechoslovakia	426	305	1,035	428	1,532	495	2,000	693	2,750	950
East Germany	4,000	1,640	4,423	809	5,227	986	6,712	1,346	7,800	1,700
Hungary	2,830	940	3,772	1,197	5,135	1,614	6,880	941	7,400	700
Poland	5,230	633	7,698	803	8,894	435	11,963	872	15,100	1,100
Romania	1,089	475	986	375	1,379	217	2,692	229	3,800	250

¹ These estimates represent the East European countries' positions with Western banks as reported to the Bank for International Settlements (BIS) plus an estimated allocation of the residual in BIS reporting on the U.S.S.R. and Eastern Europe plus estimates of their positions with Austrian banks prior to 1977 less estimates of Western government-backed credits included in the BIS statistics.

APPENDIX F

EASTERN EUROPE: ESTIMATED STRUCTURE OF HARD CURRENCY DEBT TO WEST AT YEAREND¹

[In millions of U.S. dollars]

	1971	1975	1976	1977	1978	1979
Eastern Europe:						
Gross debt	6,072	23,033	29,351	36,695	46,899	54,730
Commercial debt	3,554	19,516	24,494	30,119	38,881	45,530
Government-backed export credits	1,912	2,470	3,466	4,850	5,936	6,940
Other officially-backed debt	606	853	988	1,142	1,272	1,315
IBRD, IMF	0	194	403	584	810	945
Bulgaria:						
Gross debt	743	2,640	3,198	3,705	4,263	4,500
Commercial debt	442	2,453	2,878	3,397	3,935	4,180
Government-backed export credits	208	111	236	262	269	270
Other officially-backed debt	93	76	84	51	59	50
Czechoslovakia:						
Gross debt	485	1,132	1,862	2,616	3,206	4,020
Commercial debt	284	926	1,575	2,290	2,798	3,550
Government-backed export credits	201	206	287	326	408	470
East Germany:						
Gross debt	1,408	5,188	5,856	7,145	8,894	10,140
Commercial debt	855	4,485	5,043	6,140	7,729	8,800
Government-backed export credits	418	403	493	635	745	850
Other officially-backed debt	135	300	320	370	420	490
Hungary:						
Gross debt	1,071	3,135	4,049	5,655	7,473	8,020
Commercial debt	968	3,081	3,998	5,596	7,380	7,900
Government-backed export credits	103	54	51	59	93	120
Poland:						
Gross debt	1,138	8,014	11,483	13,967	17,844	21,000
Commercial debt	420	6,547	9,159	10,393	13,430	16,000
Government-backed export credits	370	1,091	1,849	2,921	3,700	4,400
Other officially-backed debt	348	376	475	653	714	700
Romania:						
Gross debt	1,227	2,924	2,903	3,605	5,219	6,950
Commercial debt	585	2,024	1,841	2,306	3,606	5,100
Government-backed export credits	612	605	550	647	721	830
Other officially-backed debt	30	101	109	68	79	75
IMF, IBRD	0	194	403	584	810	945

¹ Repayments on medium and long-term debt plus interest on total debt as a share of merchandise exports to non-Communist countries.

APPENDIX G

EASTERN EUROPE: ESTIMATED DEBT SERVICE RATIOS¹

[In percent]

	1972	1975	1976	1977	1978	1979
Bulgaria.....	36	33	39	45	47	36
Czechoslovakia.....	10	14	15	17	20	22
East Germany.....	18	25	29	37	46	55
Hungary.....	14	19	21	25	36	36
Poland.....	15	30	42	59	79	95
Romania.....	27	23	18	19	21	24

¹ Repayments on medium- and long-term debt plus interest on total debt as a share of merchandise exports to non-Communist countries.

APPENDIX H

EASTERN EUROPE: ESTIMATED REPAYMENTS AND INTEREST ON HARD CURRENCY DEBT TO THE WEST

[In millions U.S. dollars]

	1972	1975	1976	1977	1978	1979
Repayments on medium- and long-term debt:						
Bulgaria.....	128	149	233	336	352	405
Czechoslovakia.....	95	236	250	297	350	425
East Germany.....	208	468	708	867	1,113	1,450
Hungary.....	62	120	172	218	287	400
Poland.....	200	730	1,213	1,968	2,869	4,000
Romania.....	247	460	420	496	528	700
Interest on total debt:						
Bulgaria.....	54	164	181	236	372	425
Czechoslovakia.....	39	88	106	161	281	350
East Germany.....	93	307	350	435	725	1,050
Hungary.....	78	204	230	330	624	800
Poland.....	74	481	655	919	1,467	2,040
Romania.....	90	207	174	203	351	575

APPENDIX I

EASTERN EUROPE: GROSS DEBT AS A SHARE OF EXPORTS

[In percent]

	1972	1975	1976	1977	1978	1979
Bulgaria.....	198	282	302	292	276	199
Czechoslovakia.....	46	48	80	95	104	112
East Germany.....	95	169	161	201	225	239
Hungary.....	140	185	208	259	295	244
Poland.....	87	194	259	286	324	334
Romania.....	99	101	87	99	125	131

APPENDIX J

EASTERN EUROPE: ESTIMATED SHORT-TERM DEBT AS A SHARE OF TOTAL GROSS HARD CURRENCY DEBT
[In percent]

	Yearend 1976	Yearend 1978
Bulgaria.....	38	43
Czechoslovakia.....	28	45
East Germany.....	32	31
Hungary.....	50	49
Poland.....	12	15
Romania.....	22	22

APPENDIX K

EASTERN EUROPE: DEBT SERVICE AS A SHARE OF WESTERN FINANCING¹

[In percent]

	1972	1975	1976	1977	1978	1979
Bulgaria.....	46	29	52	68	80	112
Czechoslovakia.....	56	101	36	44	67	61
East Germany.....	85	31	77	60	64	76
Hungary.....	37	29	37	30	43	106
Poland.....	44	30	40	65	64	83
Romania.....	125	97	149	58	41	52

¹ Repayments on medium- and long-term debt plus interest on total debt as a share of drawings on medium- and long-term credits plus additions to short-term debt

PROJECTED CMEA HARD CURRENCY DEBT LEVELS UNDER SELECTED TRADE GROWTH ASSUMPTIONS

By Allen J. Lenz and Robert C. Teal.*

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FOREWORD

This paper was first drafted in early 1977 and has since been annually updated.

The initial 1977 version projected an end 1980 Soviet-East European debt ranging from \$59 to \$67 billion, depending on the import and export growth assumptions utilized. At the time, this range seemed high to many observers. However, with end 1979 Soviet/EE debt now estimated at about \$65 billion and, given the prospects of further debt growth this year, the 1977 projections of 1980 debt now appear to have been on the low side.

INTRODUCTION AND PURPOSE

The rapid growth in trade during the 1970s between the communist countries of Europe and the Industrialized Western countries has been imbalanced, with Western exports significantly exceeding imports from the communist countries. Given this imbalance, a significant part of total trade growth has been fueled by heavy infusions of Western credit, resulting in rapid growth of CMEA hard currency debt.¹

*U.S. Department of Commerce.

¹The CMEA countries included in this analysis are: U.S.S.R., Bulgaria, Czechoslovakia, German Democratic Republic, Hungary, Poland, Romania, and Cuba. For purposes of this paper Yugoslavia, is not considered a communist country or part of Eastern Europe.

Looking to the future, if there is to be continued growth in CMEA-Western trade, it will have to be supported either by Western imports expanding more rapidly than exports to the communist countries, or by continued expansion of Eastern debt, or by some combination of these two tendencies.

The objectives of this paper are:

To analyze the past and likely future roles of Western credit in supporting an expanding East-West trade.

To provide some crude estimates of future debt growth under selected trade growth assumptions.

This paper does not focus on U.S. credit and trade relations with the Eastern countries. Rather, it examines the import/export/debt relationships of individual CMEA countries with Western countries as a group.

As part of this examination, statistics detailing the East-West trade imbalance and the growth of Eastern debt over recent years are provided and the role of credit in making possible the growth of East-West trade during the 1970s is analyzed.

The division of Eastern debt between official credit agencies and commercial banks, and the effects of changes in Western interest rates are briefly noted.

General comments are offered on credit as a factor in future East-West trade and on Western motivations to allow continued expansion of Eastern debt in order to permit continued Western surpluses on trade with the communist countries.

Finally, to provide a useful frame of reference for assessing future trade and debt growth possibilities, using a simple arithmetic model, individual country debt is projected to 1983 and 1985 under various import and export growth rate assumptions. Alternatively, export growth rates required to stabilize debt levels by 1983 and 1985 are calculated vis-a-vis various import growth rate assumptions.

THE ROLE OF CREDIT IN RECENT EXPANSIONS OF EAST-WEST TRADE

Table 1 displays 1973-1979 hard currency export and import volumes for the Soviet Union, the communist countries of Eastern Europe, and Cuba. The hard currency trade deficit of the group over the 5-year 1975-79 period was about \$50.1 billion.

Table 2 details the growth of CMEA country hard currency debt over the 1971-79 period. By end 1979, the net debt of the East European countries was about \$49 billion, with about two-fifths of the total (\$19.5 billion) held by Poland. Net Soviet debt, excluding debt of the CMEA banks, is estimated at \$10.2 billion.

However, an assessment of CMEA debt must also include borrowing by the CMEA's International Investment Bank (IIB) and its International Bank for Economic Cooperation (IBEC). The hard currency debt of these banks has now reached about \$5.5 billion, equivalent to about one-twelfth of the net obligations of the CMEA countries.

Because of its CMEA membership and the increasingly strong economic links between the USSR and Cuba, any assessment of bloc debt also should include Cuban debt, which has now reached about

\$2.7 billion, raising the total of the CMEA countries shown in table 2 to \$67.7 billion at end 1979.²

Table 3 summarizes export, import and debt growth for the 1975-79 period. Poland's debt growth was equivalent to about 42 percent of its hard currency imports during these years; Hungarian debt growth was about 36 percent of its imports, with comparable figures of 24 percent for the GDR and 30 percent for Eastern Europe as a whole.

By contrast, Soviet debt growth during the 1975-79 period was equivalent to only about 10 percent of its hard currency imports. However, if the CMEA banks' (IIB and IBEC) debt growth is added to the Soviet total (lending to these banks is often considered "Soviet risk" by Western banks) the amount increases to some 15 percent. Overall, Soviet/EE/Cuban/CMEA bank hard currency debt growth was equal to about 24 percent of their hard currency imports during the period.

COMPOSITION OF CMEA DEBT

Estimates of the composition of CMEA debt are provided in table 4. Available statistics do not permit a totally accurate description of the distribution of CMEA borrowing between direct loans from Western official export credit agencies, private sector credits backed by Western government guarantees, and private commercial lending lacking such guarantees. The estimates provided in table 4, however, indicate significant differences in the borrowing strategies of individual CMEA countries.

The Soviet Union relies most heavily on official credits, with about 45 percent of its gross debt in this category. However, its commercial bank debt of \$9.5 billion is offset in significant measure by \$7.0 billion of commercial assets deposited in Western banks. Interest costs on Soviet debt to commercial banks, which "float" with changes in Western interest rates, are thus substantially offset by interest income on deposits in Western banks, where deposit interest rates similarly vary with the market.

At the opposite extreme, Hungary has virtually no official credits. Poland has about one-fourth of its net debt in officially backed credits, but each of the remaining countries of Eastern Europe owes 75 percent or more of its debt to commercial lenders, for the most part private banks. This distribution is important since, while official credits by Western government agencies are made with relatively longer maturities and at lower, fixed interest rates, commercial bank loans are generally shorter term and "float" with generally more expensive market rates; e.g., Eurodollar rates recently reached new highs.

The effects of floating interest rates on the cost of servicing debts, can be significant. Table 5 summarizes the interest costs of each of the CMEA countries for its end 1979 debt at various average interest rate levels. For example, with a debt of \$19.6 billion, a 1 percent increase in the average interest rate now costs Poland almost \$200 million annually in additional interest payments.

² Other CMEA countries not included in this analysis are The People's Republic of Viet Nam and Mongolia. PRV debt, though still small at \$300 million is growing, while Mongolian debt is negligible. Yugoslavian debt of about \$9.3 billion is also excluded.

CREDIT AS A FACTOR IN FUTURE EAST-WEST TRADE

Although the Soviet Union achieved in 1978 a current account surplus on the basis of significant income from "invisibles" (arms sales, gold sales and earnings from shipping and other sources), exports of goods will continue to provide the basic source of hard currency earnings for the other CMEA countries. While Bulgaria has recently achieved a surplus on its hard currency trade, most observers see the CMEA countries as unlikely to make really significant gains in exports to the West over the next few years. If this view is correct, most of the CMEA countries will continue to require a further expansion of their borrowing from the West to make possible a continued growth of imports from the West.

There are, of course, no defined limits on Western willingness to lend or on CMEA willingness to borrow. The limits in each instance are determined by a host of ever changing economic and political factors. It appears, however, that, as a group, the CMEA countries have, as yet, by no means exhausted their borrowing capabilities. Nevertheless, it is equally clear that Eastern debt has reached a level where it now does constrain the rate of future growth of the trade.

Given their persistent problems of unemployment, the Industrialized Western countries have welcomed the continued unbalanced expansion of East-West trade. Increased exports have been an important reason for both extending official export credits and expanding commercial bank lending to the communist countries.

Continued Western policies to mitigate unemployment and other domestic economic problems partly through a continuation of generous export credit policies may postpone the need for Eastern hard currency trade surpluses that would stabilize growth of Eastern debt.

Ultimately, however, CMEA imports must be paid for by exports to the West. Indeed, although targets change with the passage of time, Western banker credit worthiness assessments generally assume (either explicitly or implicitly) stabilization in the debt of individual communist countries, or a reduction in growth to more modest levels, in the relatively near term.

With the possible exception of the Soviet Union, which accrues significant surpluses on "invisibles" and Bulgaria, which has achieved recent surpluses on its hard currency trade, a reduction of communist country debt clearly would necessarily require that current Western trade surpluses be replaced by CMEA trade surpluses and Western deficits. It is perhaps less obvious, however, that merely stabilizing Eastern debt, or even slowing its rate of growth, could also require Western trade deficits.

The willingness of Western governments to accept trade deficits with the communist countries is uncertain. The only alternative, however, is a continued expansion of Eastern debt to the West.

Using estimates of 1979 trade levels as a base, table 6 shows the annual growth in exports and/or debt required to achieve balance in the current accounts of individual CMEA countries.

Based on their large income from "Invisibles," the Soviets are estimated to have generated a significant current account surplus of about \$3.8 billion, with Bulgaria accumulating a surplus of nearly \$500

million. These surpluses may be somewhat tenuous. Uncertainties in the gold market could reduce Soviet earnings in that area, though this seems unlikely now. Some portion of arms sales may be supported by long-term credits, adding little to current Soviet cash income. Similarly, though Bulgaria has an overall surplus on its non-CMEA trade, it runs a substantial deficit with the developed West. Though there is little evidence on the subject, some portion of Bulgaria's surplus on its LDC trade also may employ long-term credits. If so, this could leave Bulgaria with a continued need to expand borrowing from the West.

For the remaining CMEA countries, however, the need for a continued expansion of borrowing is clear. For Eastern Europe as a whole the 1979 gap between the cost of imports and interest on debt and income from exports of goods and services totalled \$8.4 billion, an amount equal to about 33 percent of 1979 exports. The huge \$3.3 billion Polish hard currency shortfall was equivalent to over 51 percent of Poland's 1979 exports (this calculation assumes an average interest rate on outstanding debt of 12 percent; a lower average interest rate would, of course reduce the shortfall); Romania's nearly 38 percent; Hungary's over 37 percent; the GDRs nearly 32 percent.

It is, of course, extremely unlikely that these countries can quickly balance their current account by expanding exports. Clearly then, at least for the next few years debt must continue to grow if their imports are to grow, or even to continue at recent levels.

PROJECTIONS OF EASTERN DEBT-EXPORT GROWTH UNDER VARIOUS ASSUMPTIONS

Future levels of trade and debt will be determined by ever changing economic and political factors and cannot be accurately projected. Estimates inevitably are only as valid as the assumptions on which they are based and the assumptions frequently turn out to be incorrect.

Nevertheless, some useful insights can be obtained by noting the effect on debt levels of projections of future exports and imports under selected assumptions.

The limitations on the trade and debt projections in this paper include:

Since most of the CMEA countries do not publish statistics concerning their hard currency debt, Western estimates of end 1979 debt levels must be utilized.

Similarly, available statistics on CMEA country hard currency trade are often inadequate, requiring use of estimates in some instances.

Data concerning "invisibles" transactions of the CMEA countries are especially inadequate, again forcing extensive use of estimates.

Information on the composition of communist country debt between official credits and commercial bank loans is frequently lacking; similarly, there is little information on the division of commercial bank debt between various currencies. Both factors create problems in determining an average interest cost, since not only are there wide disparities between official and commercial bank lending rates, but there are often very sig-

nificant differentials between, for example, Eurodollar and Deutschmark borrowing rates.

Projections three to five years into the future are quite sensitive to the assumed lending interest rates; however, interest costs on most commercial bank loans "float" with money market rates that may change frequently, and cannot be accurately foreseen. Since the dollar is the unit of value for trade accounting, changes in its value against other key trading currencies, e.g. the DM and the yen, necessarily distort valuations of trade and debt.

Trade data for recent years reflect the effects of continuing inflation. Increases in the dollar value of trade do not necessarily reflect real increases in physical volume. Thus, projections of future trade levels, either implicitly or explicitly, are also in part estimates of future inflation rates. Actual rates may, of course, vary significantly from the assumed rates.

To be most useful, projections of future debt levels must be in current dollars, i.e., including the inflationary component, since debts are settled in current dollars, rather than on a real value basis. However, any projections of future levels which incorporate inflationary growth will seem larger viewed from the current perspective than they would at a future date. This is because future inflation of Eastern export prices may act to reduce the amount of real resources (i.e., the physical volume of exports) required to settle a specific debt.

In the following sections, individual CMEA country trade and debt levels are projected to 1983 and 1985 under various assumptions. For each country, trade and debt levels are projected by extrapolating export and import growth rates for the 1975-79 period. Other projections are also made using export and import growth rates selected by the authors. Additionally, the export growths required to stop debt growth by end 1983 and end 1985 are calculated for various import growth rate assumptions.

In addition to the more general problems of projections noted above, the reader should be aware of the following:

The model used in the projections which follow is simplistic, focusing on varying extrapolations of recent export and import growth rates to derive debt levels. While a country's recent export/import performance is probably the best single indicator of its near term future performance, exports and imports are affected by many factors that may dramatically alter future trends.

For the reasons noted above extrapolations of 1975-79 trends thus may be of limited value. The additional export/import growth rate assumptions selected for use in this paper for the most part do not vary widely from the 1975-79 averages. Thus, rampant future inflation could make the selected assumptions far too low, resulting in 1983 and 1985 debt levels that might be much higher, in dollar terms, than those projected.

Because of limited data availability and the relatively stable and minor role of services and other "invisibles" in most CMEA country trade accounts (the U.S.S.R. is of course, a notable exception), our projections simply hold constant the estimated 1979 levels of "invisibles less interest on debt."

Similarly, the projections hold constant throughout the projection period the assumed interest rate. However, each projection, excepting Cuba, has been done using two different average interest rate assumptions, 10 percent and 12 percent.

Notwithstanding the above limitations, projections under various stated assumptions can provide useful insights into future East-West trade and financial relationships. The projections which follow should not be viewed as forecasts of debt or trade performance. Rather, they are arithmetic calculations of resulting debt/import/export growth that would occur under the assumptions specified.

U.S.S.R.

Although the U.S.S.R.'s 1979 hard currency trade deficit was the smallest since 1974 (see table 1), it was still substantial at \$2.1 billion. However, gold and arms sales, shipping, tourism and other services provide an "invisibles surplus" of nearly \$7.5 billion (excluding interest on hard currency debt), resulting in a current account surplus, including interest on debt, of approximately \$3.8 billion. Reflecting its overall trade performance, Soviet debt is estimated to have declined from a 1977 high of \$11.2 billion to \$10.2 billion at end 1979.³

Soviet hard currency exports and imports over the 1975-79 period have increased at nearly parallel rates; 21.2 percent annually for exports, 20.6 percent for imports. The export growth, however, has been very largely due to quantum jumps in the price of oil, a commodity that has provided over 40 percent of Soviet export earnings in recent years. Future price increases could further spur earnings from oil exports, even in the face of predicted declines in tonnage of Soviet oil available for export. But, if tonnage declines are sharp enough, oil earnings will diminish, or even disappear, notwithstanding future price increases.

There are also uncertainties concerning future Soviet "Invisibles" earnings. The \$2.3 billion 1979 earnings from Soviet gold sales could change markedly, depending on the price of gold and Soviet sales strategy. Arms sales, another major income producer, may remain high, but are not immediate cash producers if the sales are on long-term credits.

Assuming, however, that Soviet hard currency oil sales can continue for the next several years, that modest progress can continue on expanding exports in other commodity areas, and that invisibles earnings can continue at or near the 1979 level, the U.S.S.R. will have considerable flexibility with respect to its hard currency trade and debt policy during the early 1980s. The current debt level could be further reduced; exports could be reduced; imports could be increased; or some combination of these three strategies could be followed.

Unless the Soviets anticipate future declines in export capabilities (e.g., from loss of ability to export oil), there would otherwise seem to be little economic rationale for them to reduce further their current modest debt level in an era of persistent, strong Western inflation which tends to subsidize borrowers at the expense of lenders. This is

³ The data used in this section do not include the \$5.5 billion CMEA bank debt, often considered by Western banks to be "Soviet risk."

particularly true of Soviet debt since such a large portion of it is in long-term credits from Western government credit agencies at relatively low, fixed interest rates.

While their oil exports may decline in the next few years, the Soviets will likely continue their efforts to increase exports of non-oil products. Expansion of Soviet exports of manufactured goods is an objective they have seen as requiring a long time to accomplish and one in which they will likely persevere. However, increased exports of non-oil products could not compensate for an elimination of oil export revenues in the next several years.

Nevertheless, barring a series of agricultural disasters and an early demise of oil export capabilities, Soviet imports seem unlikely to be severely restricted by a hard currency shortage over the next few years. Immediate and near-term export income prospects look good, and the U.S.S.R. could probably borrow significant additional amounts if it wished to do so. Factors which might mitigate a further expansion of Soviet imports in the next few years could, however, include the following:

- Soviet anticipation of a coming hard currency shortage stemming from a decline or elimination of oil exports.

- An ultra conservative approach to borrowing based on—

- Ideology.

- Anticipation of a need to use financial resources to support CMEA bloc requirements.

- Political and economic prestige and strength perceived by the Soviets as emanating from a stable or declining debt position.

- Inability to absorb efficiently an increased volume of capital equipment imports from the West.

- A return to more autarkic policies.

In sum, the Soviets could pursue a variety of options in their approach to trade with the West over the next several years and could accomplish significant increases in imports without incurring inordinate debt.

For example, if invisibles earnings were maintained at the 1979 level, maintaining roughly equal export and import growth rates would allow consistent large annual reductions in outstanding debt, reducing it to zero before 1983. Alternatively, imports increasing at 20 percent per annum, with exports declining to a 15 percent annual growth rate, would result in an end 1983 debt unchanged from the 1979 \$10.2 billion level, assuming 10 percent annual interest on debt cost (see table 7).

A further drop in the export growth rate to 10 percent, while maintaining an import growth rate of 20 percent per annum would yield an end 1983 debt of \$23.8 billion, a relatively modest level for an economy of the U.S.S.R.'s size.

BULGARIA

Bulgaria has consistently improved its hard currency trade balance over each of the last five years, progressing from a 1975 deficit of \$561 million to a 1979 surplus of over \$700 million. Over the five year period, Bulgaria's exports increased at an annual rate of 20.2 percent, while import growth was held to an average of only 4.4 percent yearly.

Continuation of recent Bulgarian trade trends, coupled with its "invisibles" earnings (Bulgaria has an invisibles surplus if interest on hard currency debt is excluded), would permit Bulgaria either to reduce sharply its debt in the next few years or, alternatively, to slow export growth rates, while simultaneously increasing import growth rates.

Simply extrapolating recent Bulgarian trends and applying surpluses to repayment of debt could eliminate Bulgarian debt in 1982. However, continuation of the widely divergent recent export/import growth rates for several more years would probably not be possible for Bulgaria to achieve and, in any event, would not be a desirable policy for an underdeveloped economy such as Bulgaria to follow. Apart from the stimulus to economic growth that may result from expanding capital goods imports from the West, the motivation to employ import restraint in order to reduce debt is minimal in an era of high Western inflation, which tends to result in wealth transfer from lender to borrower.

Little of Bulgaria's hard currency trade strategy for the early 1980s is known. Bulgaria, for political or other reasons, might actually take steps to reduce its debt to the West. However, a more reasonable strategy for Bulgaria would appear to be to slow growth of its exports somewhat, while significantly increasing import growth rates, though not to levels that would inordinately increase Bulgarian debt or go beyond the limits of Bulgaria's ability to absorb efficiently imports of machinery, equipment and technology.

Table 8 presents various alternative export/import/debt scenarios. The model indicates that if Bulgarian imports were held to the recent 4.4 percent growth rate, exports could actually decline 2.1 percent per year through 1983, at which time the 1979 current account surplus would be eliminated and debt would have been reduced to about \$2.8 billion, assuming average annual interest costs of 12 percent.

More realistic scenarios, however, are probably those which assume expanded imports. For example, one possible realistic scenario could call for export growth of about 5 percent per annum, with imports growing at a 15 percent rate. This combination would reduce debt to \$2.9-\$3.2 billion by end 1983. In other alternative scenarios, if the annual export growth rate remained at 5 percent, while imports grew at only 10 percent, 1983 Bulgarian debt would decrease to \$1.8-\$2.1 billion by end 1983.

Increasing the growth of imports at a 20 percent rate while holding exports at the 5 percent rate would raise 1983 debt to the \$4.1 to \$4.5 billion range, depending on the interest rate. However, Bulgaria might not be able to absorb effectively import increases at a 20 percent annual rate for even a few years.

CZECHOSLOVAKIA

Recent Czechoslovak export and import growth rates have been similar (9.4 and 9.3 percent respectively). However, given a \$500 million 1979 trade deficit, a small deficit on invisibles, and the cost of interest on current debt (\$319 million at 10 percent, \$383 million at 12 percent; about 88 percent of Czechoslovakian debt is held by commercial banks, making 12 percent probably a low-sided estimate of Czechoslovakia's current interest cost), extrapolation of the previous

five years' export and import trends leads to continued growth of Czechoslovakia's debt, which would reach \$7.9 or \$8.3 billion in 1983, for respective 10 and 12 percent interest rate assumptions (see table 9).

Assuming imports continue to grow at the recent average 9.3 annual rate, Czechoslovakia's exports would have to grow at over 14 percent per year to stem further debt growth by end 1983.

GERMAN DEMOCRATIC REPUBLIC

At \$8.6 billion, GDR hard currency debt, roughly 87 percent of which is held by commercial banks, is second only to Poland in Eastern Europe. At about \$1 billion, its invisibles earnings are significant, but not sufficient to overcome a \$1.4 billion 1979 trade deficit, let alone to cover annual interest costs of \$860 million to \$1 billion for an assumed 10-12 percent interest cost range.

Extrapolation of recent (1975-79) trade performance (8.3 percent annual growth on exports, 7.6 percent on imports) leads to continued debt growth through 1985, reaching \$15.4 billion in 1983 under a 10 percent interest assumption; \$16.4 billion assuming 12 percent interest costs. (See table 10).

If imports were to continue to increase at the recent 7.6 percent annual rate, exports would have to increase more than 14 percent annually to stem debt growth by end 1983 with debt peaking then at a level of about \$12 billion.

HUNGARY

Over 98 percent of Hungary's gross hard currency debt is held by Western commercial banks. Exports grew during the 1975-79 period at a 14.8 percent annual rate, imports at 10.2 percent, with a 1979 trade deficit of about \$519 million and an end-year net debt of about \$7.3 billion.

Although the 1979 trade deficit was not large, Hungary has no significant positive balance from invisibles earnings and interest on existing debt is now significant (over \$700 million at 10 percent, nearly \$900 million at 12 percent) so that under an extrapolation of current trends and an assumption of 10 percent interest costs, debt would continue to grow through 1983, to \$10.9 billion (see table 11). Given a 12 percent interest rate, debt would continue to grow through 1983, reaching \$11.7 billion.

It may, however, be difficult for Hungary to continue an export growth rate of nearly 15 percent through 1983, while holding imports down as it has done in recent years. A reduction of the export growth rate to 10 percent with imports increasing at 5 percent annually would yield 1983 debt levels of \$10.6 billion and \$12.7 billion, for respective 10 and 12 percent interest cost assumptions.

A scenario assuming annual export growth of 12 percent and import growth of 3 percent may correspond quite closely with current Hungarian plans. Under these assumptions end 1983 Hungarian debt would be \$8.8 billion or \$9.5 billion for 10 and 12 percent interest assumptions. Continuation of this scenario through 1985 would result in \$6.7 and \$8.1 billion debt levels, not markedly different from the end-1979 level of \$7.3 billion.

POLAND

About one-fourth of current Polish debt is held by governmental official credit agencies. Further, a substantial portion of the official credits (about \$1 billion in U.S. CCC credits) is at essentially commercial money market rates. The great majority of Polish debt is thus subject to commercial interest rates which fluctuate with the money market. Polish interest costs are, therefore, clearly high. As of mid-May, the Eurodollar LIBOR rate was about 11¼ percent, down sharply from recent 20 percent levels, and the Polish borrowing rate has ranged from 1 to 1½ percent above LIBOR in recent years. However, a large portion of Polish borrowing is in Deutsche Marks (DM) and other currencies which carry relatively lower interest rates. In consideration of these facts plus the potential for declines in future interest rates, separate projections utilizing 12 and 10 percent were prepared.

Extrapolating Poland's 1975-79 hard currency export and import average growth rates to 1983 (see table 12) yields an end-1983 debt of \$32.3 billion, assuming a 10 percent average interest rate; the alternative \$34.6 billion figure resulting from a 12 percent interest rate is a good indication of the sensitivity of financing requirements to the interest rate.

Carrying the projections two years farther, yields end 1985 debt levels of \$38.3 billion and \$42.6 billion and would result in a minor trade surplus of \$160 million. Debt would, of course, continue to grow beyond 1985, since the 1985 annual interest cost on outstanding debt would be about \$3.5 billion at 10 percent; \$4.6 billion at 12 percent.

Alternatively, if imports were to continue to increase at the 1975-79 annual rate of 6.8 percent annually, exports would have to grow 16.5 percent per annum to arrest debt growth by end 1983 if a 10 percent interest cost is assumed. If interest costs are increased to 12 percent, a 17.6 annual growth in exports would be required to arrest debt growth by end 1983.

To end debt growth by end 1985, annual export growth rate requirements drop by about 2.8 points, to 13.8 and 14.7 percent, respectively.

If historical inflation rates continue, a 6.8 percent increase in imports by dollar value may provide no real import growth, and could represent a decline in real terms. However, a third scenario, assuming a 5 percent annual import growth and 15 percent export growth, (pushing imports below the historical trend and exports above those actually achieved) may, nevertheless, be useful.

This scenario results in a 1983 trade surplus of \$1.2 billion, but not enough to arrest debt growth, given interest charges of \$2.6 billion at 10 percent. \$3.3 billion at 12 percent.

A fourth scenario assumes zero growth in imports. If inflation continues this would clearly constitute a decline in real terms and, at some point, a reduction in imports will not only imperil long-term economic growth prospects and run the risk of creating domestic difficulties, but actually inhibit Poland's near-term export capacity and, hence, be counterproductive.

Nevertheless, assuming such a drastic reversal in Poland's trade trends and a 12 percent annual interest cost, Poland's debt would continue to grow through 1983, topping out at about \$25.2 billion before

beginning to decline. If the average interest rate were 10 percent, debt would peak at end 1982, at about \$23.7 billion.

Viewed another way, assuming zero import growth, the annual export growth rate required to arrest debt growth by end 1983 would be 10.3 percent where the annual interest on debt is 10 percent, and 11.6 percent where interest costs are at the 12 percent rate.

ROMANIA

Only a small portion, about 13 percent, of total Romanian debt is in the form of official export credits with low, fixed interest rates in the 7 to 8 percent range. A 12 percent annual average interest cost could therefore actually understate current Romanian interest rate levels.

During the 1975-79 period, Romania's non-CMEA imports increased more rapidly than its exports, with respective annual rates of 16.3 and 14.1 percent, culminating in a \$1.3 billion 1979 trade deficit. If these historical trends were to continue the 1983 trade deficit would reach \$3.1 billion, while end 1983 Romanian debt would reach nearly \$20 billion, and \$32.7 billion by end 1985, even assuming interest costs were only at 10 percent (see table 13).

The historical trends may reflect increasing Romanian crude oil imports, partly to support Romania's own consumption and partly to support the reexport of refined products and other manufactures, such as chemicals, that require crude oil inputs.

However, Western credit is unlikely to support for long such rapid expansion of imports over exports. If Romanian imports were to continue to grow at 16.3 percent per annum through 1983 Romanian exports would have to increase by over 23 percent per annum, an unlikely performance, to arrest debt growth by end 1983 at a level of over \$12 billion.

Assuming that imports were to grow at 10 percent annually with export growth at 15 percent, end 1983 debt would reach \$13.4 billion at 10 percent interest, and \$14.3 billion at 12 percent. In both situations a trade deficit of over \$400 million would be incurred in 1983 and debt growth would persist into future years.

Alternatively, if import growth were held to 10 percent annually, export growth of 17.2 percent annually would be required to arrest debt growth by 1983.

CUBA

Cuba's extreme hard currency export dependency on sugar makes it vulnerable to both fluctuations in annual production and erratic world market prices. High prices in 1975 were primarily responsible for peak export earnings that year of over \$1.6 billion (see table 1), but export growth over the 1975-79 period has actually been negative (-4.8 percent) and imports have followed this trend (-2.2 percent).

Given Cuba's already relatively large hard currency debt (\$2.7 billion, three times its 1979 exports) its future import plans will necessarily closely parallel an export performance that is likely to be erratic, mirroring market price swings.

Given the unpredictability of Cuban exports, table 14 provides two import growth rates and the matching export growth rates that would be required to arrest debt growth in 1983 and 1985.

For example, were Cuban hard currency imports to grow at 10 percent, exports would have to grow at 14.7 percent annually to stabilize

the debt by end-1983 at a level of \$3.3 billion. The 1983 export level of \$1.56 billion in this scenario, although below the 1975 record high level of \$1.65 billion, would require exports of 2.5-3 million tons of sugar at 18 to 22 cents per pound. Exports and prices in this range are perhaps achievable for brief periods, but unlikely to persist over the multi-year period required for Cuba to stem growth of its hard currency debt while increasing imports 10 percent annually through 1983.

TABLE 1.—SOVIET AND EE HARD CURRENCY TRADE WITH NON-CMEA COUNTRIES,¹ 1973-79

[In millions of U.S. dollars]

	1973	1974	1975	1976	1977	1978	1979	Total 1975-79	Average annual compound growth rates and 1974 to end 1979
U.S.S.R.:									
Exports.....	4,790	7,470	7,835	9,721	11,345	13,157	19,524	61,582	21.7
Imports.....	6,547	8,448	14,257	15,316	14,645	16,951	21,593	82,762	20.6
Trade balance.....	(1,757)	(978)	(6,422)	(5,595)	(3,300)	(3,794)	(2,069)	(21,180)	
Bulgaria:									
Exports.....	679	921	937	1,058	1,270	1,547	2,310	7,122	20.2
Imports.....	682	1,292	1,498	1,288	1,285	1,401	1,603	7,075	4.4
Trade balance.....	(3)	(371)	(561)	(230)	(15)	146	707	47	
Czechoslovakia:									
Exports.....	1,776	2,301	2,379	2,329	2,745	3,079	3,600	14,132	9.4
Imports.....	1,955	2,637	2,745	2,927	3,373	3,503	4,120	16,668	9.3
Trade balance.....	(179)	(336)	(366)	(598)	(628)	(424)	(520)	(2,536)	
German Democratic Republic:									
Exports.....	2,230	3,014	3,062	3,643	3,395	3,950	4,500	18,550	8.3
Imports.....	3,004	4,082	4,187	5,234	4,895	5,100	5,900	25,316	7.6
Trade balance.....	(774)	(1,068)	(1,125)	(1,591)	(1,500)	(1,150)	(1,400)	(6,766)	
Hungary:									
Exports.....	1,407	1,688	1,691	1,945	2,185	2,535	3,361	11,717	14.8
Imports.....	1,452	2,390	2,464	2,551	3,081	3,849	3,880	15,825	10.2
Trade balance.....	(45)	(702)	(773)	(606)	(896)	(1,314)	(519)	(4,108)	
Poland:									
Exports.....	2,729	3,683	4,123	4,441	4,882	5,499	6,335	25,280	11.5
Imports.....	3,800	5,820	6,796	7,375	7,074	7,392	8,095	36,732	6.8
Trade balance.....	(1,271)	(2,147)	(2,673)	(2,934)	(2,192)	(1,893)	(1,760)	(11,452)	
Romania:									
Exports.....	1,804	2,762	2,884	3,323	3,638	4,176	5,350	19,371	14.1
Imports.....	1,846	3,132	3,017	3,325	3,686	5,120	6,670	21,818	16.3
Trade balance.....	(42)	(370)	(133)	(2)	(48)	(944)	(1,320)	(2,447)	
Total EE (excluding U.S.S.R.):									
Exports.....	10,425	14,369	15,076	16,739	18,115	20,786	25,456	96,172	12.1
Imports.....	12,739	19,363	20,707	22,700	23,394	26,365	30,268	123,434	9.3
Trade balance.....	(2,314)	(4,994)	(5,631)	(5,960)	(5,279)	(5,579)	(4,812)	(27,262)	
Cuba:									
Exports.....	499	1,153	1,649	787	788	799	900	5,123	-4.8
Imports.....	519	1,064	1,879	1,586	1,393	974	950	6,782	-2.2
Trade balance.....	(20)	89	(230)	(599)	(605)	(175)	(50)	(1,659)	
Total CMEA:									
Exports.....	15,714	22,992	24,560	27,447	30,248	34,742	45,880	162,877	14.8
Imports.....	19,805	28,875	36,843	39,602	39,432	44,290	52,811	212,978	12.8
Trade balance.....	(4,091)	(5,883)	(12,283)	(12,155)	(9,184)	(9,548)	(6,931)	(50,101)	

¹ Trade data include developed and less developed countries.

Source: "Handbook of Economic Statistics, 1979", National Foreign Assessment Center, ER79-10274, August 1979.

TABLE 2.—THE GROWTH OF CMEA NET HARD CURRENCY DEBT 1971-79

[In millions of dollars]

	1971	1972	1973	1974	1975	1976	1977	1978	1979
U.S.S.R.....	582	555	1,166	1,654	7,541	10,114	11,230	11,217	10,200
Bulgaria.....	723	909	997	1,360	2,257	2,756	3,169	3,710	3,850
Czechoslovakia.....	160	176	273	640	827	1,434	2,121	2,513	3,190
German Democratic Republic.....	1,205	1,229	1,876	2,592	3,548	5,047	6,159	7,548	8,640
Hungary.....	848	1,055	1,696	1,537	2,195	2,852	4,491	6,532	7,320
Poland.....	764	1,150	2,213	4,120	7,381	10,680	13,352	16,972	19,590
Romania.....	1,227	1,204	1,495	2,483	2,449	2,528	3,388	4,990	6,730
Total EE (excluding U.S.S.R.)....	4,927	5,723	8,550	12,732	18,657	25,297	32,680	42,265	49,320
IIB/IBEC.....	478	1,240	1,454	1,789	2,790	3,457	4,154	4,617	5,500
Cuba.....	NA	500	600	700	1,000	1,300	2,200	2,600	2,700
Total CMEA.....	NA	8,018	11,770	16,875	29,898	40,168	50,264	60,699	67,720

Source: "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980.

TABLE 3.—ESTIMATED SOVIET AND CMEA COUNTRY END 1979 HARD CURRENCY DEBT LEVELS AND "DEBT TO EXPORT" AND "DEBT GROWTH TO IMPORT" RATIOS

[In millions of dollars]

	Hard currency exports		Hard currency imports		Hard currency debt		End 1979 debt/X ratio	1975-79 debt growth/1975-79 M (percent)
	1975-79	1979	1975-79	1979	Growth 1975-79	End 1979		
U.S.S.R.....	61,582	19,524	82,762	21,593	8,546	10,200	0.52	10.3
Bulgaria.....	7,122	2,310	7,075	1,603	2,490	3,850	1.67	35.2
Czechoslovakia.....	14,132	3,600	16,668	4,120	2,550	3,190	1.89	15.3
German Democratic Republic.....	18,550	4,500	25,316	5,900	6,048	8,640	1.92	23.9
Hungary.....	11,717	3,361	15,825	3,880	5,783	7,320	2.18	36.5
Poland.....	25,280	6,335	36,732	8,095	15,470	19,590	3.09	42.1
Romania.....	19,371	5,350	21,818	6,670	4,247	6,730	1.26	19.5
Total EE.....	96,172	25,456	123,434	30,268	36,588	49,320	1.94	29.6
Total U.S.S.R./EE.....	157,754	44,980	206,196	51,861	45,134	59,520	1.32	21.9
IIB/IBEC.....					3,711	5,500		
Cuba.....	6,755	900	8,365	950	2,000	2,700	3.0	23.9
Total CMEA.....	164,509	45,880	214,561	52,811	50,845	67,720	1.48	23.7

Sources: "Handbook of Economic Statistics, 1979," National Foreign Assessment Center, ER79-10274, August 1979
 "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980

TABLE 4.—COMPOSITION OF CMEA DEBT END 1979

[In millions of dollars]

	U.S.S.R.	Bulgaria	Czechoslovakia	German Democratic Republic	Hungary	Poland	Romania	Total EE	IIB/IBEC	CUBA	Total CMEA
Commercial debt.....	9,500	4,178.0	3,550	8,800.0	7,700.0	15,400	5,150.0	44,778.0	5,500.0	1,900	61,678
Owed to U.S. banks.....	1,100	683.8	175	1,100.9	788.2	1,515	287.5	4,550.4	66.3		
Officially backed debt.....	7,700	322.0	470	1,340.0	120.0	5,090	905.0	8,247.0		1,000	16,947
Guaranteed export credits.....			470	850.0	120.0		830.0				
Other borrowing.....							835.0	835.0			835
Gross debt.....	17,200	4,500.0	4,020	10,140.0	7,820.0	20,490	6,890.0	53,860.0	5,500.0	2,900	79,460
Commercial asset.....	7,000	650	830	1,500.0	500.0	900	160.0	4,540.0		200	11,740
Net debt.....	10,200	3,850.0	3,190	8,640.0	7,320.0	19,590	6,730.0	49,320.0	5,500.0	2,700	67,720

Source: "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980.

TABLE 5.—ANNUAL INTEREST COSTS OF END 1979, CMEA COUNTRY DEBT UNDER VARIOUS ASSUMED, AVERAGE INTEREST RATES

(In millions of dollars)

	U.S.S.R.	Bul- garia	Czecho- slovakia	German Demo- cratic Republic	Hun- gary	Poland	Ro- mania	IB/IBEC	Cuba
Assumed rate:									
9.....	918	347	287	778	659	1,763	606	495	243
10.....	1,020	385	319	864	732	1,959	673	550	270
12.....	1,236	462	383	1,037	878	2,351	808	660	324
14.....	1,428	539	447	1,210	1,025	2,743	942	770	378
16.....	1,632	616	510	1,382	1,171	3,134	1,077	880	432
Cost of 1 percent increase in average rate.....	102	39	32	86	73	196	67	55	27

Source: "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980.

TABLE 6.—ESTIMATED ANNUAL SOVIET AND EAST EUROPEAN DEBT/EXPORT GROWTH REQUIREMENTS UNDER STEADY STATE 1979 LEVELS OF IMPORTS

	U.S.S.R.	Bul- garia	Czecho- slovakia	German Demo- cratic Republic	Hun- gary	Poland	Ro- mania	Total EE	Cuba	Total CMEA
Imports (1979 levels)....	21,593	1,603	4,120	5,900	3,880	8,095	6,670	30,238	950	52,811
Less X (1979).....	19,524	2,310	3,600	4,500	3,361	6,335	5,350	25,456	900	45,880
Less invisibles (shipping, tourism, gold, arms)....	7,480	250	(50)	1,000	150	850	100	2,300	75	9,855
Plus interest on debt at end 1979 levels ¹	1,570	462	383	1,037	878	2,351	808	5,919	270	7,759
Required growth of X/ debt to balance dollar accounts.....	(3,841)	(495)	953	1,437	1,247	3,261	2,028	8,431	245	4,835
Percent of 1979 exports...	(19.7)	(21.4)	26.5	31.9	37.1	51.5	37.9	33.1	27.2	10.5

¹ Interest amounts were calculated assuming an average rate of 12 percent, except for the U.S.S.R. estimated at 10 percent. Soviet interest includes that payable on CMEA debt.

Sources: "Handbook of Economics Statistics, 1979," National Foreign Assessment Center, ER-79-10274, August 1979. "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980.

TABLE 7.—U.S.S.R.: PROJECTED END 1983 AND END 1985 HARD CURRENCY TRADE AND DEBT LEVELS UNDER SELECTED TRADE GROWTH AND INTEREST RATE ASSUMPTIONS

Year	Assumptions			Balancing export growth rate	End year amounts (in millions of dollars)					Debt to export ratio
	X growth rate	M growth rate	Interest rate		Ex- port	Im- ports	Trade balances	In- terest	Debt	
1983.....	21.2	20.6	10	-----	42,129	45,667	(3,549)	(216)	(6,312)	-----
1985.....	21.2	20.6	10	-----	61,885	66,435	(4,550)	(1,040)	(14,366)	-----
1983.....	15.0	20.0	10	-----	34,148	44,775	(3,148)	645	10,242	0.30
1985.....	15.0	20.0	12	-----	34,148	44,775	(10,268)	838	10,968	.32
1983.....	15.0	20.0	10	-----	45,160	64,476	(19,316)	1,825	31,908	.71
1985.....	15.0	20.0	12	-----	45,160	64,476	(19,316)	2,312	33,413	.74
1983.....	10.0	20.0	10	-----	28,585	44,775	(16,190)	1,375	23,839	.83
1985.....	10.0	20.0	12	-----	28,585	44,775	(16,190)	1,725	24,809	.87
1983.....	10.0	20.0	10	-----	34,588	64,476	(29,889)	4,103	67,542	1.95
1985.....	10.0	20.0	12	-----	34,588	64,476	(29,889)	5,111	70,113	2.03
1983.....	10.0	15.0	10	-----	28,585	37,766	(9,181)	518	7,404	.26
1985.....	10.0	15.0	12	-----	28,585	37,766	(9,181)	685	8,091	.28
1983.....	10.0	15.0	10	-----	34,588	49,946	(15,358)	1,265	21,795	.63
1985.....	10.0	15.0	12	-----	34,588	49,946	(15,388)	1,628	23,077	.67

Sources: Based on calculations using debt data derived from "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980, and trade data derived from "Handbook of Economic Statistics, 1979," National Foreign Assessment Center, ER79-10274, August 1979.

TABLE 8.—BULGARIA: PROJECTED END 1983 AND END 1985 HARD CURRENCY TRADE AND DEBT LEVELS UNDER SELECTED TRADE GROWTH AND INTEREST RATE ASSUMPTIONS

Year	Assumptions			Balancing export growth rate	End year amounts (in millions of dollars)					Debt to export ratio
	X growth rate	M growth rate	Interest rate		Ex- port	Im- ports	Trade balances	In- terest	Debt	
1983	20.2	4.4	10		4,822	1,904	2,918	(97)	(4,240)	
	20.2	4.4	12		4,822	1,904	2,918	(94)	(4,094)	
1983		4.4	12	-2.1	2,124	1,904	219	355	2,844	1.34
	5.0	15.0	10		2,808	2,804	4	289	2,921	1.04
	5.0	15.0	12		2,808	2,804	4	375	3,241	1.15
		15.0	10	6.8	3,009	2,804	205	260	2,400	.80
1985		15.0	12	7.3	3,060	2,804	257	330	2,575	.84
	5.0	15.0	10		3,096	3,708	(612)	324	3,926	1.27
	5.0	15.0	12		3,096	3,708	(612)	439	4,457	1.44
		15.0	10	8.7	3,812	3,708	104	150	1,294	.34
1983		15.0	12	8.9	3,858	3,708	150	211	1,571	.41
	5.0	20.0	10		2,808	3,324	(516)	352	4,142	1.48
	5.0	20.0	12		2,808	3,324	(516)	452	4,483	1.60
		20.0	10	11.4	3,557	3,324	233	247	2,238	.63
1985		20.0	12	11.8	3,605	3,324	281	316	2,423	.67
	5.0	20.0	10		3,096	4,787	(1,691)	535	7,322	2.37
	5.0	20.0	12		3,096	4,787	(1,691)	697	7,949	2.57
		20.0	10	13.4	4,920	4,787	134	114	874	.18
	20.0	12	13.6	4,960	4,787	173	170	1,165	.23	

Source: Based on calculations using debt data derived from "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980, and trade data derived from "Handbook of Economic Statistics, 1979," National Foreign Assessment Center, ER79-10274, August 1979.

TABLE 9.—CZECHOSLOVAKIA: PROJECTED END 1983 AND END 1985 HARD CURRENCY TRADE AND DEBT LEVELS UNDER SELECTED TRADE GROWTH AND INTEREST RATE ASSUMPTIONS

Year	Assumptions			Balancing export growth rate	End year amounts (in millions of dollars)					Debt to export ratio
	X growth rate	M growth rate	Interest rate		Ex- port	Im- ports	Trade balances	In- terest	Debt	
1983	9.4	9.3	10		5,157	5,880	(723)	644	7,852	1.52
	9.4	9.3	12		5,157	5,880	(723)	805	8,291	1.61
1983		9.3	10	14.2	6,142	5,880	262	513	5,430	.88
		9.3	12	14.7	6,233	5,880	353	633	5,603	.90
	9.4	9.3	10		6,172	7,025	(853)	947	11,323	1.83
	9.4	9.3	12		6,172	7,025	(853)	1,215	12,238	1.98
1985		9.3	10	12.9	7,456	7,025	432	662	6,906	.93
		9.3	12	13.2	7,590	7,025	566	829	7,225	.95
	10.0	5.0	10		5,271	5,008	263	504	5,328	1.01
	10.0	5.0	12		5,271	5,008	263	636	5,719	1.09
1985		5.0	10	10.1	5,287	5,008	289	500	5,261	.99
		5.0	12	10.6	5,388	5,008	380	616	5,422	1.01
	10.0	5.0	10		6,378	5,521	856	537	5,102	.80
	10.0	5.0	12		6,378	5,521	856	710	5,819	.91
	5.0	10	8.8	5,974	5,521	453	630	6,528	1.09	
	5.0	12	9.2	6,104	5,521	582	787	6,814	1.12	

Source: Based on calculations using debt data derived from "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980, and trade data derived from "Handbook of Economic Statistics, 1979," National Foreign Assessment Center, ER79-10274, August 1979.

TABLE 10.—GERMAN DEMOCRATIC REPUBLIC: PROJECTED END 1983 AND END 1985 HARD CURRENCY TRADE AND DEBT LEVELS UNDER SELECTED TRADE GROWTH AND INTEREST RATE ASSUMPTIONS

Year	Assumptions			Balancing export growth rate	End year amounts (in billions of dollars)					Debt to export ratio
	X growth rate	M growth rate	Interest rate		Export	Imports	Trade balances	Interest	Debt	
1983	8.3	7.6	10		6,190	7,909	(1,718)	1,332	15,366	2.48
	8.3	7.6	12		6,190	7,909	(1,718)	1,678	10,384	2.65
1985		7.6	10	14.1	7,620	7,909	(288)	1,140	11,831	1.55
		7.6	12	14.8	7,824	7,909	(85)	1,414	12,287	1.57
1983	8.3	7.6	10		7,261	9,156	(1,896)	1,771	20,375	2.81
	8.3	7.6	12		7,261	9,156	(1,896)	2,299	22,350	3.08
1985		7.6	10	12.5	9,110	9,156	(46)	1,354	13,943	1.53
		7.6	12	13.1	9,395	9,156	238	1,712	14,737	1.57
1983	10.0	5.0	10		6,588	7,171	(583)	1,170	12,456	1.89
	10.0	5.0	12		6,588	7,171	(583)	1,482	13,419	2.04
1985		5.0	10	11.3	6,912	7,171	(259)	1,127	11,651	1.69
		5.0	12	12.1	7,117	7,171	(55)	1,396	12,088	1.70
1983	10.0	5.0	10		7,972	7,907	65	1,298	13,217	1.66
	10.0	5.0	12		7,972	7,907	65	1,717	14,964	1.88
1985		5.0	10	9.8	7,883	7,907	(24)	1,319	13,530	1.72
		5.0	12	10.4	8,163	7,907	257	1,664	14,276	1.75

Source: Based on calculations using debt data derived from "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980, and trade data derived from "Handbook of Economic Statistics, 1979," National Foreign Assessment Center, ER79-12074, August 1979.

TABLE 11.—HUNGARY: PROJECTED END 1983 AND END 1985 HARD CURRENCY TRADE AND DEBT LEVELS UNDER SELECTED TRADE GROWTH AND INTEREST RATE ASSUMPTIONS

Year	Assumptions			Balancing export growth rate	End year amounts (in millions of dollars)					Debt to export ratio
	X growth rate	M growth rate	Interest rate		Exports	Imports	Trade balances	Interest	Debt	
1983	14.8	10.2	10		5,838	5,722	115	1,017	10,921	1.87
	14.8	10.2	12		5,838	5,722	115	1,287	11,747	2.01
1985		10.2	10	16.4	6,162	5,722	440	976	10,148	1.64
		10.2	12	17.2	6,334	5,722	612	1,212	10,547	1.67
1983	14.8	10.2	10		7,693	6,949	744	1,147	11,720	1.52
	14.8	10.2	12		7,693	6,949	744	1,513	13,229	1.72
1985		10.2	10	14.6	7,602	6,949	653	1,166	12,019	1.58
		10.2	12	15.2	7,844	6,949	895	1,475	12,723	1.62
1983	10.0	5.0	10		4,921	4,716	205	995	10,593	2.15
	10.0	5.0	12	12.4	5,369	4,716	653	1,188	10,283	1.92
1985		5.0	10		5,954	5,200	755	1,460	12,725	2.14
		5.0	12	10.51	6,121	5,200	922	1,414	12,125	1.98
1983	12.0	3.0	10		5,289	4,367	922	894	8,757	1.66
	12.0	3.0	12		5,289	4,367	922	1,137	9,541	1.80
1985		3.0	10		6,634	4,633	2,001	806	6,712	1.01
		3.0	12		6,634	4,633	2,001	1,093	8,052	1.21

Source: Based on calculations using debt data derived from "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980, and trade data derived from "Handbook of Economic Statistics, 1979," National Foreign Assessment Center, ER79-10274, August 1979.

TABLE 12.—POLAND; PROJECTED END 1983 AND END 1985 HARD CURRENCY TRADE AND/DEBT LEVELS UNDER SELECTED TRADE GROWTH AND INTEREST RATE ASSUMPTIONS

Year	Assumptions			Balancing export growth rate	End year amounts (in millions of dollars)					Debt to export ratio
	X growth rate	M growth rate	Interest rate		Ex- port	Im- ports	Trade balances	In- terest	Debt	
1983	11.5	6.8	10		9,791	10,532	(740)	2,907	32,269	3.3
	11.5	6.8	12		9,791	10,532	(740)	3,671	34,550	3.5
		6.8	10	16.5	11,656	10,532	1,124	2,668	27,770	2.4
1985		6.8	12	17.6	12,124	10,532	1,592	3,310	28,849	2.4
	11.5	6.8	10		12,173	12,013	160	3,538	38,304	3.1
	11.5	6.8	12		12,173	12,013	160	4,629	42,595	3.5
1983		6.8	10	13.8	13,770	12,013	1,757	3,194	32,929	2.4
		6.8	12	14.7	14,434	12,013	2,421	4,037	34,812	2.4
	15.0	5.0	10		11,080	9,840	1,240	2,639	27,341	2.5
1985	15.0	5.0	12		11,080	9,840	1,240	3,345	29,531	2.7
	15.0	5.0	10		14,653	10,848	3,805	2,721	25,681	1.8
	15.0	5.0	12		14,653	10,848	3,805	3,626	29,585	2.0
1983	15.0	0	10		11,080	8,095	2,985	2,371	22,650	2.04
	15.0	0	12		11,080	8,095	2,985	3,020	24,748	2.23
	15.0	0	10		14,653	8,095	6,558	1,982	14,792	1.01
1985	15.0	0	12		14,653	8,095	6,558	2,714	18,327	1.25

Source: Based on calculations using debt data derived from "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980, and trade data derived from "Handbook of Economic Statistics, 1979," National Foreign Assessment Center, ES79-10274, August 1979.

TABLE 13.—ROMANIA: PROJECTED END 1983 AND END 1985 HARD CURRENCY TRADE AND DEBT LEVELS UNDER SELECTED TRADE GROWTH AND INTEREST RATE ASSUMPTIONS

Year	Assumptions			Balancing export growth rate	End year amounts (in millions of dollars)					Debt to export ratio
	X growth rate	M growth rate	Interest rate		Ex- port	Im- ports	Trade balances	In- terest	Debt	
1983	14.2	16.3	10		9,099	12,202	(3,103)	1,539	19,935	2.19
	14.2	16.3	12		9,099	12,202	(3,103)	1,920	20,921	2.30
		16.3	10	23.4	12,411	12,202	208	1,142	12,253	.99
1985		16.3	12	23.9	12,602	12,202	400	1,411	12,674	1.01
	14.2	16.3	10		11,687	16,505	(4,637)	2,563	32,729	2.80
	14.2	16.3	12		11,687	16,505	(4,637)	3,256	34,924	2.99
1983		16.3	10	21.4	17,084	16,505	580	1,550	16,373	.96
		16.3	12	21.7	17,384	16,505	880	1,946	17,187	.99
	15.0	10.0	10		9,357	9,766	(408)	1,190	13,394	1.43
1985	15.0	10.0	12		9,357	9,766	(408)	1,495	14,263	1.52
		10.0	10	17.2	10,080	9,766	315	1,099	11,679	1.16
		10.0	12	17.7	10,271	9,766	505	1,357	12,063	1.17
1985		10.0	10		12,375	11,816	559	1,461	15,417	1.25
	15.0	10.0	12		12,375	11,816	559	1,903	17,100	1.38
	15.0	10.0	10	15.2	12,500	11,816	684	1,436	15,011	1.20
		12	15.6	12,787	11,816	970	1,800	15,726	1.23	

Source: Based on calculations using debt data derived from "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980, and trade data derived from "Handbook of Economic Statistics, 1979," National Foreign Assessment Center, ER79-10274, August 1979.

TABLE 14.—CUBA: PROJECTED END 1983 AND END 1985 HARD CURRENCY TRADE AND DEBT LEVELS UNDER SELECTED TRADE GROWTH AND INTEREST RATE ASSUMPTIONS

Year	Assumptions			Balancing export growth rate	End year amounts (in millions of dollars)					Debt to export ratio
	X growth rate	M growth rate	Interest rate		Ex- port	Im- ports	Trade balances	In- terest	Debt	
1983			10	14.7	1,557	1,391	166	323	3,311	2.13
			15	10	1,821	1,662	159	326	3,353	1.84
1985			10	10	1,896	1,683	213	363	3,705	1.95
			15	10	2,404	2,197	207	371	3,797	1.58

Source: Based on calculations using debt data derived from "Estimating Soviet and East European Hard Currency Debt," National Foreign Assessment Center, ER80-10327, June 1980, and trade data derived from "Handbook of Economic Statistics, 1979," National Foreign Assessment Center, ER79-10274, August 1979.

EASTERN EUROPE'S UNCERTAIN FUTURE: THE OUTLOOK FOR EAST-WEST TRADE AND FINANCE

By Lawrence J. Brainard*

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1. INTRODUCTION

Since early this year, political and economic uncertainties have emerged that pose new questions about the outlook for East-West trade and finance. In response to Soviet military involvement in Afghanistan, President Carter acted to limit U.S. grain exports and technology sales to the Soviet Union. The reaction in Japan and Western Europe to the Afghan developments was more restrained and slower to develop. Actions were taken, however, that did affect economic and financial relations, such as the suspension of government credit facilities for new Soviet projects by Japan and the United Kingdom. Though these measures and the U.S. policies restricting trade are apt to be relaxed in the future, they do raise the possibility that East-West commercial relations could stagnate or even lose ground during the next few years.

Two aspects of these trends raise issues relevant to prospects for Eastern Europe.¹ First, to what extent will the worsening in relations between the Soviet Union and the West, particularly with the United States, affect Eastern Europe's future ties with the West? Second, will a deterioration in political relations have a marked influence on economic ties between Eastern Europe and the West?

In the United States, commercial relations with Eastern Europe and the Soviet Union have always been highly vulnerable to the vagaries of politics. Commercial relations, though, cannot easily survive sharp swings in policy such as those that took place in U.S. policy toward the Soviet Union earlier this year. In recognition of this, Washington has privately assured U.S. companies that its policies

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¹As used here, Eastern Europe refers to the six smaller CMEA Eastern European states, excluding the Soviet Union.

that encourage business involvement and lending in Eastern Europe remain unchanged. As for the Soviet Union, the official policy is to link political and economic relations, as clearly was reflected in the economic sanctions imposed on Soviet trade earlier this year. The administration's assurances to the business community concerning Eastern Europe, therefore, appear credible only if one assumes that Eastern Europe can be isolated from the worsening in political relations with the Soviet Union. There are many U.S. companies with misgivings in making such an assumption. While these doubts have not led major companies to pull out of the market, many U.S. businessmen sense that the risks of doing business in Eastern Europe have risen and greater caution should, therefore, be taken.

In Japan and Western Europe, by contrast, there is an evident desire to insulate their economic relations with Eastern Europe and the Soviet Union from the current downswing in U.S.-Soviet relations. The reason is simply that the economic stakes are very substantial, while the expected political benefits of economic sanctions are doubted. Interdependence in trade and finance is a fact of life for these countries. The western countries depend on the East as a source of raw materials and as a market for their investment goods. Eastern Europe, in turn, looks to the West for essential imports and the credits to finance them. There is little prospect, for example, that Eastern Europe would be able to eliminate or much reduce their recourse to western credits, which now total over \$50 billion.

Economic interdependence is substantial, but the structure of these mutual dependencies is neither uniform across countries or balanced between pairs of countries. This causes a problem because the countries most dependent on maintaining such ties have only limited influence on the state of overall East-West relations. Interdependence, for example, is strongest for West Germany, Austria, Poland and the G.D.R.; it is weakest for the Soviet Union and the United States. This factor helps account for the varied reactions to the U.S. request of its allies to agree upon joint economic sanctions against the Soviet Union. Japan, for example, recently gave the go-ahead for discussions with the Soviet Union on the third phase of a major forestry project which had been held up since January. This decision was based on an apparent agreement with EEC countries that projects should be exempted from sanctions "... whose suspension would hit their economy or which would have little economic sanctions impact."²

These uncertainties in East-West relations come at a time of growing economic strains in western economies and financial markets due to recent oil price hikes and prospects of more to come. The adjustment to a rising OPEC surplus this time will be different from what has taken place since 1974. The manner in which recycling has been managed over the past six years constrains the adjustment options open to oil-importing countries, including those in Eastern Europe. Past adjustments, for example, filled U.S. and other international bank portfolios with loans to Eastern European and developing countries, thus increasing the overall risk level of their asset holdings. Such lending was desirable since it allowed countries to spread out the bur-

² *Japan Economic Journal*, May 27, 1980, p. 1.

den of adjustment over a number of years. These debts now limit the ability of the international banks to accommodate the current problems of recycling. As a result, most oil importing countries will be forced to adjust sooner than they would have liked.

The experience of these years has also altered the perceptions of oil producers concerning prospects for inflation, economic growth, and foreign exchange rates. This has led to changes in the mechanism by which oil prices and production are set by OPEC. OPEC appears willing and able to keep oil prices rising in real terms in the coming years. These developments are contributing to a major structural transition in western economies that will stretch into the mid-eighties.

The confluence of these economic events and the new political uncertainties represent a unique stage in the relatively brief history of East-West commercial relations. A key question is how Eastern Europe will be able to adjust to these developments. Since 1973-74 most of them have relied on financing to postpone the necessary structural adjustments to the oil price hikes. Priority will now have to be given to making these adjustments, since new credits will be more limited than in the past. Such adjustments pose both political and economic challenges. Will there be the necessary political commitment to undertake such adjustments and can they be accomplished without major improvements or reform of the present systems of planning and management?

There are important policy issues here for western countries. To what extent, if any, should the West assist the adjustment process in Eastern Europe, for example, by granting trade concessions or balance of payments credits? The French government in early 1980 was reported to have granted long-term financial credits to Poland that in effect permitted the refinancing of repayments scheduled in 1980-81 for past official French loans.³ Such credits were granted without the usual consultation with other OECD countries. This example raises some unanswered questions regarding trade and credit policy toward Eastern Europe: Should other countries be encouraged to follow the French initiative? Should western countries have a coordinated policy regarding such assistance to Eastern Europe?

A useful perspective on these policy issues can be gained by first reviewing key aspects of East-West trade over the past decade.

II. OPENING TO THE WEST

During the 1970s Eastern Europe's trade and financial relations with the West expanded markedly. An essential precondition for this opening to the West was the SALT process between the United States and the Soviet Union, which got underway in the late 1960s. These discussions provided a framework within which competition in strategic armaments between the two superpowers could be contained. They removed a major uncertainty overhanging East-West commercial relations.

The rapid expansion of imports of western capital goods and credits by the East that followed during the first half of the 1970s, however,

³ *Euromoney*, March 1980, p. 112.

did not produce the expected economic benefits. The oil price hikes in 1973 and the subsequent world recession enlarged Eastern Europe's existing trade deficit with the West. This deficit had to be covered by even more western credit, rather than the hoped for export growth. Since 1975, Eastern European countries have sought to stabilize their balance of payments positions and reduce their trade deficits with the West. By 1979, however, Bulgaria was the only country to achieve a surplus trade position with the West. On top of these disappointing economic results, Eastern Europe once again faces significant political uncertainties due to the derailing of the SALT process between the United States and the Soviet Union.

III. DIVERGENT ECONOMIC TRENDS

Since the mid-seventies a growing dichotomy has been evident in Soviet economic trends compared with Eastern Europe. After experiencing a record trade deficit in 1975, the Soviet Union rapidly achieved a surplus payments position by 1977, and hard currency surpluses followed in 1978 and 1979. Eastern European countries, however, are still trying to reduce payments deficits caused by past oil price hikes, recession, and a rising burden of debt servicing. The evidence suggests that Eastern Europe's adjustment to external economic pressures during the mid-seventies was much less successful than the Soviet adjustment to these pressures. This reflects Eastern Europe's much greater dependence on foreign trade, an unfavorable structure of trade with the West that resulted in adverse shifts in their terms of trade, and a reluctance for sociopolitical reasons to allow the external price changes to directly affect consumers' real incomes.

Reflecting the adverse trade trends, Eastern Europe's total foreign indebtedness has continued to climb. Though trends vary by country, the total has grown some \$6-8 billion each year since 1975. The level of Soviet debt, however, peaked in 1977 and declined in 1978-79. Estimates put Eastern Europe's total debt to the West at \$53.6 billion at the end of 1979, compared with \$16.2 billion for the Soviet Union.

EASTERN EUROPE'S GROSS INDEBTEDNESS TO THE WEST

[Estimates in millions of U.S. dollars]

	End 1978	End 1979
Bulgaria.....	4,000	3,900
Czechoslovakia.....	3,500	4,200
German Democratic Republic.....	9,000	10,500
Hungary.....	7,300	8,100
Poland.....	17,500	21,000
Romania.....	5,000	6,750
U.S.S.R.....	17,200	16,500
Comecon banks.....	5,800	6,200
Total.....	69,300	77,150
Total (excluding Comecon banks).....	63,500	70,950

Note: Foreign assets held as deposits in Western banks totaled approximately \$11,000,000,000 at end 1979.

The level of any country's debt must be viewed relative to that country's ability to earn foreign exchange by export sales. Given the relatively modest rates of Western economic growth since 1975, it is

not surprising that the expansion of Eastern Europe's exports lagged far behind official plan targets. As a result, imports of plant and equipment from the West were cut back sharply. These reductions, which act to cut domestic growth, reflect the commitment of policymakers to maintain their country's creditworthiness by reducing the rate of debt accumulation in line with actual export growth.

Looking ahead to the eighties, Eastern Europe's leaders face more limited policy alternatives than ever before. The economic results for the year just finished reflect rates of economic growth that are the lowest in three decades; prospects for a quick improvement are dim. In an address that discussed economic problems in Hungary, Janos Kadar underscored a dilemma that faces policymakers throughout Eastern Europe:

[T]he unfavorable changes in external economic conditions are bringing out in sharper relief the weak points of our economy and the faults of our work. In the face of adverse development of the conditions we must and can act effectively through the alteration of production structures and selective industrial development. The practice of economic direction, however, has not been able to make sufficiently quick and elastic adaptations to the changed circumstances.⁴

Another worry concerns trade prospects with the Soviet Union. Total Soviet oil output rose only two percent in 1979, the lowest rate since the early fifties. With the exception of Romania, the Eastern European economies are heavily dependent on Soviet oil deliveries. The Soviet Union has been helping to ease the economic burdens of its Eastern European neighbors by delaying the adjustment of the price of its oil deliveries to prevailing world market levels and by granting substantial trade credits for the 1976-80 five-year plan. Soviet shortages of energy and raw materials, however, are a reality that will become increasingly troublesome in the coming years. The Soviet Union has pledged to maintain Eastern Europe's current volume of deliveries of oil and raw materials into the eighties. There is, however, little scope for increases from present levels. Shortfalls will have to be made up by purchases in world markets. Eastern Europe's imports of oil from the Mideast already account for over 10 percent of total oil imports.

The divergent economic trends in the area are clearly evident in data relating to oil revenues. Soviet petroleum exports to the West totaled an estimated 1.1 million barrels per day last year, down about 20 percent from the 1978 level. Higher oil prices, however, helped boost revenues about \$2 billion to \$7.8 billion. Oil exports to the West this year will likely fall 10-15 percent in volume, but based on current prices, oil revenues will climb an additional \$3.0 billion. Eastern European countries (excluding Romania) imported an estimated 210,000 barrels per day of Middle Eastern oil last year, up 9.4 percent from 1978. The cost of this oil at current prices is nearly \$1 billion more than last year.

IV. A CHANGING WORLD ENVIRONMENT

The world economy is now entering a structural transition necessitated by the sharp increases in the price of oil. This transition involves the replacement of traditional patterns of post-war economic growth

⁴ British Broadcasting Company, *Survey of World Broadcasts*. SWB/EE/6382, March 28, 1980, p. C/14.

by a new model of economic growth. The new model, already beginning to work itself out, is based on expensive energy and a new structure of relative prices resulting from expensive energy. By its nature the transition to this new economic model involves substantial shifts in comparative advantage among countries and industries within them. At issue, therefore, is how efficiently Eastern Europe will be able to accomplish the changes in economic structure implied by this transition.

The necessity for a fundamental economic restructuring at some time in the future has been evident in Eastern Europe since the sixties when there were extensive reform discussions in all countries. The limits on energy availability that are now emerging have drastically shortened the time period available to accomplish these adjustments. The challenge facing national policymakers is to identify and develop new economic patterns based on the use of energy-efficient capital and the replacement of inefficient existing capital stock. This challenge, in effect, requires a rationalization of Eastern Europe's industry on the basis of the new world market price structure which acts as a guide to efficiency.

V. POLICY ALTERNATIVES IN EASTERN EUROPE

Policy options facing East European policymakers include the introduction of changes in economic structure, reforms in the system of planning and management, and the promotion of conservation and alternative energy supplies. Though discussions continue in most countries, Hungary is the only country to have introduced a reform of its price system with the goal of achieving basic changes in the structure of the economy. The last option has so far received the primary emphasis.

The CMEA countries are committed to developing an ambitious nuclear power program. The initial targets of this joint program call for nuclear power by 1990 to meet 25 percent of the overall requirements for electric energy in Eastern Europe (excluding the Soviet Union), compared with 10 percent currently. Two nuclear stations with a total capacity of 4 million kilowatts are to be built in the Soviet Union for exporting electric power to Eastern Europe, and an additional 37 million kilowatts of capacity is to be constructed in Eastern European countries. In addition to this cooperative program, the Soviet Union will be building a number of nuclear plants for domestic needs.

The projected 25 percent contribution of nuclear power to electricity requirements in 1990 is a substantial figure. It represents, however, a much smaller percentage measured against total energy consumption. And the contribution comes with a massive price tag. The capital costs of the program—to be met primarily from CMEA countries' own resources—are very large, exceeding \$100 billion if all the plants are constructed. The program, therefore, will intensify pressures on available investment resources, particularly in construction, which has long been a bottleneck throughout Eastern Europe. This means that substantial resources will be tied up in the nuclear program that otherwise might be used for industrial investment to modernize plant and equipment. There is a strong possibility that the program will be scaled down because of limitations on available domestic resources.

Prospects for energy conservation are likewise mixed. There is little room to cut back energy consumption in the consumer sector given the current low levels of personal energy consumption in Eastern Europe and trends toward catching up with Western European consumption levels, due, for example, to greater automobile ownership. In industry, energy use is relatively inefficient and the potential for industrial energy savings appears good. The existing planning and incentive systems, however, are not well suited to the task of encouraging energy savings, since profitability criteria are still underutilized in influencing decisionmaking at the enterprise level.

The outlook for structural change in the Eastern European economies does not appear promising at this time, either in economic planning and management or in industry. One lesson derived from the experience of the seventies is that the resistance to structural change is deeply ingrained in these economies. The predominant model of technology transfer was to import modern western technology and implant it within the traditional economic system with little or no change in this system. To be sure, positive results were achieved, but the results are modest if measured against the rates of export growth recorded or the size of debts incurred. Even where joint ventures have been tried, as in Romania and Hungary, the difficulties of accommodating a profit-oriented firm within the traditional planning system have limited the potential benefits to be had from such cooperation.

The process of structural change in western economies involves substantial changes in the relative valuation or pricing of resources. This in turn affects product prices and, ultimately, the productivity of existing capital. The structural changes are propelled by incentives that operate through the price system, rewarding, for example, the owners of certain resources. The resulting redistribution of income causes some industries to decline and some firms to go out of business, while redirecting new capital investment toward profitable opportunities. Government intervention is, of course, present in varying degrees in this process, but the primary channel of adjustment is via the price system.

Eastern European policymakers face the identical pressures for structural change. What is lacking in their countries is a price system to provide direction for the necessary changes that must be made at the factory or enterprise level. The direction must come from the planners, i.e., from top to bottom. Such a system is capable of making the general kind of adjustments that are called for. The historical evidence, however, clearly shows that the system is much less efficient in making such changes than western market systems.

With the exception of Hungary, significant reforms of the economic systems in Eastern Europe are not probable at this time, given the nature of the internal and external disequilibria that policymakers are facing. This means that the necessary structural adjustments will have to be accomplished with the traditional planning systems of these countries. Failure to pursue these adjustments will alter a country's traditional comparative advantage, thus leading to the erosion of its export competitiveness and creditworthiness. This is a prospect that undoubtedly worries the policymakers.

Hungary is in the process of implementing a major reform of their domestic price system. The goal of the reform is to align domestic prices with world market prices and to provide for greater flexibility

of prices to adjust to changes abroad. The hope is that a more rational price system will encourage the needed structural changes in the economy. Hungary's price reform represents a pioneering effort to follow a decentralized approach to promoting structural adjustment. The progress of the reform will be eagerly studied in both East and West.

As part of the adjustment process, CMEA policymakers will also continue to keep tight limits on imports and look for new ways to boost exports. There is scope for export improvement within the present system by providing better incentives for export enterprises, by more effective marketing and servicing, and through widening the scope of industrial cooperation to attract Western participation in export-oriented industries. There has been resistance even to these modest institutional changes in some countries. Recent political developments make more liberal policies in these areas less likely. The same applies to membership in the IMF and World Bank, which had been under consideration in several Eastern European countries.

It appears probable that cutbacks in domestic growth, together with limitations on investment and imports, will provide a major focus of economic policy during the adjustment process that lies ahead. For social reasons Eastern European policymakers do not appear inclined to make significant cuts in the share of resources allocated to consumption. If external economic pressures do not let up until the mid-eighties—as seems quite likely—Eastern European countries may find themselves facing a predicament similar to the one they experienced in the late sixties. Their capital stock will be seriously out of date and inadequate, the legacy of the under-investment now taking place in plant and equipment modernization. The difference between the two periods will be the stock of foreign debt contracted in the interim which must be serviced.

VI. POLITICAL UNCERTAINTIES

A remaining question concerns the impact of political uncertainties on Eastern Europe's efforts to deal with the economic problems being encountered. Eastern Europe will not likely face a direct embargo of trade or credits, as does the Soviet Union. A deterioration in U.S.-Soviet relations, however, could adversely affect their economic prospects in the coming years. Political uncertainties caused by this deterioration and the risks associated with it may lead them to slow down and limit the expansion of East-West commercial relations. There may also be questions about the wisdom of depending on inflows of western credit as an essential component of these countries' economic plans. A major unknown is whether the Soviet policy toward Eastern Europe will change as a result of a deterioration of East-West relations.

These trends point to a significant stagnation in East-West commercial relations in the coming years. How long the stagnation lasts depends importantly on Eastern Europe's success in adjusting to a changing world environment and on current political trends. The fact of East-West interdependence in trade and finance, however, cannot be ignored. The management of these interdependencies in the context of an uncertain East-West political environment will pose significant challenges for all concerned.

COUNTRY RISK ANALYSIS AND BANK LENDING TO EASTERN EUROPE

By Gabriel Eichler *

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I. INTRODUCTION

The subject of western bank lending practices to Eastern Europe has come under scrutiny, following an unprecedented growth of that region's indebtedness in the 1970s. Loans outstanding for the region rose from \$5 billion at the beginning of the decade to nearly \$70 billion at its end. The real or perceived political implications of this trend has fostered concerns about the ability of banks to evaluate risks associated with exposure in individual countries in general, and in the Centrally Planned Economics (CPEs) in particular.

The objective of this paper is to discuss those aspects which distinguish country risk analysis of the CPEs from that of other countries, and to identify other determinants that influence banks in the evaluation of loans to, and exposure level in foreign countries.

II. A BRIEF HISTORICAL BACKGROUND

The general direction of post-war East-West banking relations was determined by the cold war atmosphere, as reflected in the East Europeans' failure to participate in the Marshall Plan and in their withdrawal from the IMF. The low level of Western banks' involve-

*Bank of America NT&SA, San Francisco, Calif. In the issues covered in this paper it is impossible to represent anyone's opinion except the author's. The views on country risk and particularly on the usefulness of systematic country risk analysis in bank decisionmaking (section IV) tend to be very subjective. Reference to "bankers' evaluation" which one finds in the press falaciously implies consensus among bankers—the views of individuals may not be those of their institutions, much less those of other institutions. The author is grateful to Paul Marer, H. Robert Heller, and Lawrence Brainard for comments, suggestions, and encouragement, and to Jan Alfstad and Ruth Witzel for typing under pressure.

ment in the East, consisting of short-term, trade related transactions, was primarily caused by the weak demand. Contributing to this condition were autarkic development strategies of the CPEs; official xenophobia and suspicion of possible ulterior motives behind lending by Western banks; and a kind of nationalistic pride, which held that national development could be accomplished without Western funds. At the end of the 1950s, debt of Eastern Europe was estimated at \$400 million.

While some aspects of this attitude were gradually relaxed, major changes in national development strategies started taking place only towards the end of the 1960s and at the beginning of 1970s. Propitiously, this transition period was characterized by the emergence of a new atmosphere of detente in East-West relations concurrently with high liquidity in the Western financial market. Western banks thus shared the euphoria of the Western business community over the prospects of saturating a huge untapped market with Western consumer and capital goods.

The increasing contact between the East and the West gradually resulted in a recognition of considerable functional similarities in the interests and behavior of Eastern and Western professional groups, among them bankers. This positive impression was compounded by a favorable analysis of facts. First, the East Europeans had not defaulted on commercial loans. The existing failures to fulfill financial obligations by the pre-communist governments or those associated with the American lend-lease program to the USSR were (or could be) explained as defensible on political grounds. Second, the East European countries had very little or no debt. Third, as centrally planned economies, they were thought to have a superior control of exports, imports and especially of finances. Fourth, their bankers were known to be conservative and the countries without external financial problems. And finally, the USSR, with its abundant reserves of mineral resources, especially of gold, was generally perceived as a lender of last resort to other countries in the East Bloc. Their failure to provide data on their economies and their respective financial situation could therefore be largely overlooked. While some differences were recognized among East European countries, the "bloc attitude" towards them by western banks generally prevailed.

By the mid 1970s, when Eastern indebtedness rose to \$30 billion, the increasing sophistication of Western bankers and the recognition of the differences among Eastern countries in their borrowing practices, in their financial skills, and in their level of indebtedness, led to a growing differentiation in the attitude of western banks towards individual East European countries. This development was in line with the growing sophistication of country creditworthiness analysis by major banks. Analysts in many banks displayed a desire to incorporate the East European countries in the country risk rating system that were being developed and to evaluate them by more or less standard comparative criteria. As a result, Eastern countries have been increasingly treated like other countries.

III. COUNTRY RISK ANALYSIS

A. *The General Framework*

In addition to the usual criteria banks use to evaluate the credit-worthiness of domestic borrowers, additional country-specific factors warrant consideration in banks' relations with foreign entities. These include factors related to the national currency and the economy such as: changes in the exchange rate and foreign exchange controls, the rate of inflation and economic growth; social, political and economic conditions; and pertinent laws, regulations and customs. Country risk therefore influences the entire spectrum of lending to economic units within a specific country. It includes lending to the central government and its entities (sovereign risk) as well as to non-government banks, corporations, and individuals. It is concerned with the willingness and ability of the central bank to furnish a borrower with convertible currency to repay external obligations (transfer risk), as well as all risks that differentiate otherwise identical borrowers in separate countries. Country risk analysis is required for both asset and liability management as it may affect both the sources and the uses of funds. In the case of the CPEs, banks are primarily concerned with sovereign and transfer risks associated with lending.

Most banks have developed country risk rating systems. Various methods have been employed, ranging from fully qualitative to fully quantitative, each with its own degree of sophistication and operability (depending on the confidence of a bank's senior management in analytic methods). Country-risk evaluation systems may be divided into several types:

1. *Fully qualitative.*—Usually without a standard format. Reports vary in size, depth, and scope. There is a tendency to write about issues on which data are readily available, rather than on what may actually require analysis.

2. *Structured qualitative.*—A standard report format is usually prepared, frequently supplemented by tables. The reports typically include information on various demographic, economic and political variables. (Neither of these first two systems facilitates comparative analysis and neither produces a rating.)

3. *Checklist.*—Performance of a country is scored with respect to various indicators or variables. Both quantitative and qualitative variables are used, involving some subjective judgment. The scores may add up to a final score, depending on a set of subjectively determined weights. The summary score is relatively easy to interpret, cross country comparisons are possible, but some bias towards quantitative factors may be involved. Many banks use this and the structured qualitative system.

4. *Fully quantitative system.*—This is a subject of continuing research efforts both in business and in academia. While several such systems are currently in existence, they are viewed skeptically especially among professional business men and very few banks use them.

Some banks employ systems which combine both the quantitative and the qualitative or subjective methods.

Even the most sophisticated country risk rating system is useless if it fails to conform to the needs, behaviour, biases, and structure of its ultimate user—a large, complex organization. Lest these behavioral considerations be neglected, sophistication must at times be sacrificed for simplicity, and academic beauty and theoretical precision for practicability.

To present a full operational country risk rating system is beyond the scope of this paper. Some illustrations are available in the literature.¹ There is, however, a set of variables which is commonly employed in country risk rating systems and in non-systematic analysis of country risk by banks. The variables are observed either with a desire to assign confidence level to a country in general, (derived from the evaluation of its economic, political and social stability and/or resiliency), or are believed to reflect specifically the willingness and ability of a country to service its external debt obligations, (that is, the relationship between a country's projected external debt service schedule and the resources that can be made available to meet it).

Which variables should be included in a country risk rating system and what weight should be given to each is the subject of incessant debate. However, the following variables have been employed most frequently in the analysis: (1) Economic GNP per capita, real GNP growth rate; a measure of inflation (consumer or wholesale price index); money supply growth; a measure of investment performance (such as investment to income ratio, the rate of growth of investment, ratio of income growth to fixed capital formation, etc.); and mineral resources; (2) variables related to the external sector—exports (value and volume), export concentration or diversification; similarly for imports, their value, growth, the share of consumption imports, the share of capital imports, compressibility of imports, such as the share of food and fuel in total imports; a measure of exchange rate adjustment and of fluctuation; measures related to international reserves, their value, composition, value in terms of months of projected imports covered; measures related to external debt, such as level, debt to GNP ratio, debt to exports ratio, growth to debt, etc.; debt service needs, the composition of debt, IMF borrowing; and share of trade in GNP, and trade and current account balances; and (3) social and political variables associated with political stability, such as frequency and prospects of political violence, unconstitutional transitions of leadership, conflicts with neighboring countries, trends in unemployment, etc.

As mentioned, systems differ in the relative weights assigned to the determinants in measuring a country's performance. In general, some paradigm for comparative measurement is formulated, taking into account the desired time frame as the relevance of individual variables differs over the short, medium and long terms.

¹ Richard Puz, "How to Find out When Sovereign Borrower Slips from A-1 to C-3", *Euro money*, December 1977; P. Nagy, "Quantifying Country Risk: A System Developed by Economists at the Bank of Montreal, *Columbia Journal of World Business*, Fall 1978. and many others.

B. Focus on Eastern Europe

Incorporating Eastern Europe in this framework raises numerous problems. First, because of the differences in the formulation and implementation of economic policies, the inclusion of centrally planned economies in the rating system creates certain biases. For instance, the inclusion of the CPEs' record of minor fluctuations in growth rates, minimal or non-existent open inflation, lack of open unemployment, bias on a comparative country rating system by unduly shifting the international averages or other standards with which individual countries' performance is compared and rated. Second, the significant definitional differences and/or absence of the large portion of necessary data make necessary extensive estimation. Since timely estimation can not account for annual fluctuations with a requisite degree of precision, it exaggerates economic stability and thus again inserts a bias into a system, which compares and rates countries according to the degree of fluctuations of variables around some standard. Third, the Comecon countries share a set of characteristics distinguishing them from the rest of the world, which are of considerable importance in the country risk evaluation. While East European countries may be incorporated into an objective country risk rating system, considerable manipulation is required to complete the evaluation process.

We shall now proceed to identify those characteristics which distinguish most East European countries from world standards. The relative applicability of these individual factors or variables to individual East European country emerges as a criterion in their rating.

1. *Data.*—Up to now, Comecon countries have failed to publish on a timely basis a considerable portion of data required for proper analysis. Where data are provided, the definitions frequently do not coincide with standard international practice. Furthermore, the importance and meaning of many economic indicators differ between the CPEs and western economies. The most salient paucity of data is in the area of balance of payments and debt, but lacunae in the area of domestic economy are also considerable. East European countries vary in the quality and quantity of data provided and published. The degree of confidence in our knowledge of economic and financial standing thus varies among the East European countries and is a determinant in their rating.

The emphasis that banks place on data availability and reliability has dramatically increased in recent years. In the past, decisions could be based on banks' knowledge of East European countries' insignificant level of borrowing and of debt, their impeccable payment record, and belief in both the lender of last resort theory and in the benefits of central planning. Now, however, the rapid growth of debt, continued high borrowing needs, differences among East European countries in mineral, capital, and labor resources, and political developments invigorated the need for much more complex analysis. Access to the international financial market for countries which fail to produce on a timely basis appropriate data consistent with standard international practice is increasingly reduced and so is, consequently, their creditworthiness.

2. *Hard versus soft currency.*—Trade among Comecon countries and with some outside countries is conducted almost exclusively by means of annual and long-term bilateral trade agreements. The accounts of trade flows are kept in transferable rubles—a unit of account not convertible into dollars. Transactions with most western countries and developing countries take place in freely convertible currencies; East European currencies are not used. Quantitative country risk analysis therefore requires concentration primarily on the freely convertible currency portion of the international financial stocks and flows of the East European countries—although it is recognized that all trade is economically meaningful.

Reliance on hard currency values instead of overall trade and payments variables may, however, result in biased comparative analysis. For instance, the trade/GDP ratio, frequently used as a proxy in the analysis of comparative vulnerability of an economy to external developments, would be improperly smaller in the case of CPEs. Experience has shown that developments in the world markets have had a substantial impact on the CPEs in spite of the relatively low indicator of "openness."² The debt/GDP ratio may be subject to a similar bias, so in comparative analysis the ratio of hard currency debt/hard currency exports is therefore more appropriate. Furthermore, economic relationships within a CPE may be such that simple austerity measures, usually effective in market economies to improve balance of payments, may not result in achieving equilibrium in the hard currency current account (as presently evidenced in at least one CPE). In such cases, measures directed specifically at the problem (without the necessary substantial reduction in economic growth) would be warranted. The CPEs must therefore be judged on the basis of their ability to identify and implement appropriate policy measures concerning their hard currency financial situation.

3. *Central economic planning and the monopoly of foreign trade.*—Comecon economies are centrally planned with various degrees of orthodoxy. The Soviet-type of central planning has both positive and negative effects on country risk. The economies tend to be economically more stable than comparable market economies in that: business cycles in the western sense have not existed (although with the expansion of relations with the west, the CPEs are increasingly more vulnerable to western business cycles and other developments in the world markets);³ labor unrests are very infrequent; monopoly of foreign trade potentially provides greater ability to control imports and trade in general (but see next paragraph); and the central control of international financial flows combined with the traditional conservatism of most East European financial authorities decreases the probability of unexpected hard currency financial developments. On the negative side, while central planning has been efficient in the mobilization of resources it has been found inefficient in their allocation. In the East European framework, central planning results in the misallocation of

² F. Holzman argues in "Creditworthiness and Balance of Payments Adjustment Mechanism of Centrally Planned Economies", 1979, the domestic financing of a given hard currency debt service ratio requires a savings effort in a CPE that is usually much less than that of a comparable western nation.

³ See Neuberger, Egon and Tyson, L.D. eds, *The Impact of International Economic Disturbances on the Soviet Union and Eastern Europe: Transmission and Response*, Elmsford, N.Y. Pergamon, 1980; see also, supra, p. 128-147.

labor (concealed unemployment), lack of motivation or motivation in an improper direction for both management and labor, and a general lack of dynamism. Many shortages and inefficiencies could be relieved by increased flexibility of the system. The relatively orthodoxy of the system is then an important criterion inversely related to the country rating.

The 1970s produced examples refuting some earlier held views about the virtues of central planning and the pertinence of some economic indicators to country risk analysis in the CPE context. First, there is evidence that while some CPEs have displayed considerable ability to control imports, others have shown even less ability than comparable market economies. The relative import control depends on the particular institutional framework and on the relative political strength of various interest groups within the CPE. A generalization about CPE's ability to control imports as a positive factor in country risk assessment is therefore erroneous.

Similarly, the ability of the CPEs to reorient current production to exports is subject to doubt. Due to the considerable differences between the world market and the protected domestic and intra-Comecon markets, expansion of productive capacity in the CPEs may fail to generate ability to export. The CPE experience also exemplifies the weaknesses of some indicators frequently used in country risk analysis, namely the share of investment in GDP and the share of capital goods in total imports. While higher shares of investment and of capital goods imports strengthen the productive capacity of a country, it is important to evaluate the ability of the system to allocate scarce capital resources to their most productive uses, especially as it concerns the international competitiveness of the resulting products. The ratios are relevant only to the extent that the increased productive capacity can be turned into comparably increased hard currency export earning capacity. Experience has shown that for some CPEs that extent is relatively small, due not only to the duality of the markets, but also due to delays in project completion, waste and neglect of imported capital goods, deficiency in quality and logistics of domestic supplies, and below-capacity production. Various other measures used in country risk assessment are also inappropriate in the CPE context but due to this paper's size constraint cannot be elaborated here.⁴

4. *Role of financial authorities and banks.*—Related to the preceding paragraphs is the relative authority and influence of the CPE's national bank, foreign trade bank, or the ministry of finance, on the direction of the economy. These authorities are most aware of the balance of payments and debt situation of their respective countries. Having perhaps the most extensive external contacts, bank officials are more than others aware of external developments, limits and drawbacks of reliance on foreign savings, and they are able to perceive the true importance of the balance of payments performance. However, the banks' role in the system is frequently limited to the execution of policy rather than its formulation.

⁴ For instance, various measures of inflation and foreign exchange rate adjustments are inappropriate since, compared to market economies, in most CPEs prices and price expectations play a much less important role in managerial decisions. To the extent that foreign trade deficit is policy-determined, the domestic currency is ipso facto overvalued. Therefore, the dependent and independent variables in the system are reversed. In this context, see also Holzman, *op. cit.*, for a discussion of some other variables.

As a consequence, two tendencies may be observed. First, since western bankers tend to deal primarily with Eastern bankers, information about the CPE is being funnelled through a source which is potentially biased and which may not represent the complete view and attitude of the leadership. That is not to necessarily imply intentional deception, but rather that reality may be confused with the hopes, intentions and wishes of the CPE bankers, who may or may not be speaking with authority on issues related to the national economy. The western banker may be under the impression that he is dealing with the government when he is actually dealing only with one of its departments. The CPE bankers, after all, only channel and monitor the flow of hard currency, while the ability to earn it depends on others. Second, the concerns of Westerners and the real dimensions of the balance of payments and debt problems, are communicated to the CPE leadership and the economy via CPE bankers. Therefore, in CPE, where the direction of the economy depends on the relative political strength of various interest groups and where the absence of economic scarcity considerations in investment project evaluation tends to result in excessive borrowing, the more influential are the CPE bankers and financial authorities, the more probable is the implementation of appropriate stabilization policies and measures, and consequently the higher is their creditworthiness.

5. *Sophistication in dealing with the West.*—As noted earlier, even under conditions of high elasticity of demand and supply, the redirection of production from the domestic market to exports may be hindered, inter alia, by commercial considerations. One may argue that whereas in commerce in market economies the behavior of participants reveal an intent to overcome demand constraints, in CPEs the primary concern appears to be to overcome supply constraints—even in cases where productive capability exists.

The ability of East European countries to procure convertible currencies is related to their ability and willingness to learn and accept western banking, trading, and marketing principles. Considerable differences exist among the CPEs in this regard, usually related to the degree of strictness of the political regime. Export promotion and good trading performance require the ability to establish personal contacts and relations, knowledge of foreign languages and extensive travel abroad to develop an understanding of foreign markets and practices. In many CPEs such activities are suspect. Because of its implication for hard currency earning potential, the sophistication of the CPEs in dealing with western institutions (including banks) is positively correlated with their creditworthiness.

6. *Membership in the Council for Mutual Economic Assistance (Comecon) is relevant in risk analysis.*—First, it provides a country access to hard currency funds from two Comecon banks: the International Bank for Economic Cooperation (IBEC) and the International Investment Bank (IIB). Both of these banks procure their funds in the Eurocurrency market. Second, the trading mechanism of the Comecon countries has positive and negative aspects. The intra-Comecon price formation mechanism has in recent years been reviewed as a positive factor to the extent that it has provided a partial shield for the East European countries from the OPEC price hikes. Taking

this notion a step further, longer term trade agreements assure a degree of stability; intra-Comecon trade is not subject to business cycles and—especially important in the recent period—the flow and prices of raw materials are predictable.

On the other hand, the intra-Comecon trading pattern and practices are among the causes of the relatively low level of sophistication of exporting industries and ultimately the deficiency in hard currency earning capacity of the CPEs. The ability to reorient trade from the soft to the hard currency area is generally believed to be low; to the extent that it exists, it affects positively a country's creditworthiness.

Another relevant issue is the so-called "leakage" problem. Hard currency imports directly or indirectly "leak" to the soft currency area at a cost to the country's economy. This problem is mitigated to the extent that a portion of intra-Comecon trade is conducted in hard currencies, inter alia, to compensate for the hard currency cost of re-exports.

7. *Influence of the USSR and Communist Party governments.*—East European countries have had strong economic and political ties with the USSR and are governed by communist parties. Irrespective of its genesis and foundation, the relationship has historically implied a high degree of political and institutional stability. It is believed that political and institutional stability in East European countries has been higher than in other countries at similar stages of development. However, the degree of political stability does vary among countries, and this factor is one of the criteria used in country risk assessment.

Political and institutional stability tends to be considered one of the most important positive determinants of creditworthiness. In this respect it is important to note the difference between East European countries and some developing countries. While a degree of inequality of the distribution of wealth is recognized in Eastern Europe, the inequality is measurable only within the context of the country (such as inequality in the distribution of various privileges) and not in a worldwide context. In other words, in no East European country is the country's wealth concentrated with a single leader or family, whose flight (due to political instability) could inflict significant damage to the national economy (viz Iran and Nicaragua).

8. *Umbrella theory.*—The ideas presented in the preceding sections and the general notion of the existence of the Soviet bloc stimulated emergence of what has been metaphorically called the umbrella theory. In its simplest and most prevalent version, the USSR is believed to come to the rescue of its allies when they face financial difficulties. No known legal premise for this belief exists as there is no signed agreement, bilateral or multilateral, within the context of the Comecon, that would make it incumbent upon the USSR to be the lender of last resort. Nevertheless, this belief is enhanced by reports of Soviet financial assistance to allies in need.⁵ It is presumed to be in the political interest of the USSR to provide that function, according

⁵ \$1-billion Soviet hard currency emergency aid to Poland was, presumably erroneously, reported in "Poles seek up to \$7 bn in New Credits" *Financial Times*, February 13, 1980, and repeated again on April 25. Several other publications repeated the reports. A 1-billion ruble Soviet-Polish agreement was apparently signed in November, 1976, but only a small part of it included a hard currency loan to Poland. The USSR assisted Hungary in 1956, Czechoslovakia in 1969 and Poland in 1971, suggesting its willingness to assist its allies after periods of military intervention and political turmoil.

to some observers, possibly in exchange for non-membership in the IMF.

The umbrella theory could be perhaps best interpreted as follows: To the extent that Comecon countries perceive the West as treating their creditworthiness to a large degree as a unit, they are expected to assist one other in some form should financial difficulties occur. Assistance is expected to come primarily, but not exclusively, from the USSR. A direct relationship exists between the external debt servicing capacity of individual countries and the group as a whole. An imperfect repayment record of any member of the group would be reflected in the deterioration of terms and conditions of loans to the other members of the group. This relationship is expected to weaken in the long-term as individual Comecon countries become increasingly treated as separate units by western institutions and as some of them increasingly pursue independent domestic economic and foreign policies. One can thus differentiate in the degree to which the umbrella theory may apply to individual countries, and this constitutes another criterion in the evaluation of their creditworthiness.

More recently, as a consequence of the Afghanistan crisis, many banks returned to treating East European countries as a bloc, as a result of the "inverted umbrella theory". This view is based on the (probably mistaken) belief that the dominant partner can force its allies to renege on their financial obligations to the West if such action fits its foreign policy goals.⁶

The initial reaction of most banks to the Afghanistan crisis was to reevaluate their position in Eastern Europe and to take a defensive posture. In many banks, dealing with the East has always been a subject of political rather than economic analysis, and country guidelines and lending practices have essentially been results of policy ("business") decisions as opposed to "credit" decisions. The Afghan crisis served to re-enforce that attitude. To be sure, while political aspects deserve substantial weight in the decision-making process, viewing the issue of lending to individual CPEs exclusively as a policy decision erroneously fails to recognize the substantial differences in their economic management.

As Soviet allies, the CPEs are generally assumed to take a foreign policy stand in support of the dominant partner. Nevertheless, this support can range in spectrum from merely "paying lip service" to taking a militant stand surpassing that of the USSR. Due to publicity and country risk reasons banks cannot remain aloof to militantly hostile policies and the desire to lend is inversely related to the relative militancy of the CPE's foreign policy (see also point 10, below).

Furthermore, the maneuverability of East European countries is evidently reduced in periods of colder political atmosphere. This is then directly translated into reduced enthusiasm for East-West projects, which constrains the hard currency earning potential and consequently reduces creditworthiness.

⁶ F. Ghilles. M. Lafferly, "Banks Get Tough on East European Loans", *Financial Times*, January 10, 1980.

Similarly, an interesting behavioral side-effect of political developments on lending to the CPEs takes place in large organizations. When the East ceases to be perceived as an area of long-term opportunities (e.g. after Afghanistan), the priorities of senior management are re-oriented to other areas and a lack of enthusiasm is displayed for business related to CPEs. The perception of this change filters down to the working level of management which then exerts no extra effort to promote within the organization difficult-to-explain and substantiate Eastern business, therefore effectively causing its retardation.

9. *Membership in the International Monetary Fund.*—With the exception of Romania, no Comecon country is a member of the IMF, although some, as founding members, participated in the drafting of the IMF charter. The IMF is thus not a possible source of funds.⁷ The importance of the IMF goes beyond that of being a source of funds. Consistent with the IMF charter, membership of a country in the IMF signifies to commercial banks the availability of institutionalized means to overcome unpredicted temporary financial difficulties. Furthermore, in several cases, western banks have found the IMF's advisory role of economic policies of several countries to be an important element in the countries' ability to regain "confidence of the (international financial) market." Forceful IMF advice tends to increase the authority and views of those factions in governments which advocate acceptance of corrective measures.

The first two roles of the IMF are very applicable to the East European countries. However, the potential importance of the third role of IMF to the East European countries is frequently exaggerated. As an international organization, the IMF tends not to advocate systematic adjustments. Historically, its advice has encompassed chiefly austerity measures and currency adjustments. Such advice would be redundant in the case of East European countries because when they face financial difficulties they tend to impose austerity measures without outside advice. As noted earlier, such measures may not be appropriate or sufficient. Banks frequently express their concerns to CPE financial authorities without the IMF's umbrella implying that lack of corrective measures may result in reduced access to the financial market. Such "informal conditionality" may in fact be less embarrassing to the CPEs and equally effective.

Related to the IMF membership is also membership in the World Bank. The importance of membership in the World Bank to the East European countries is also at times exaggerated since only the less developed of the East European countries would qualify for loans from the World Bank. In view of the first two roles of the IMF mentioned above and the availability of World Bank development funds for the less developed of the Comecon countries, on balance, western private banks consider membership in these organizations a

⁷ The USSR participated in the drafting but failed to ratify the IMF Charter. Poland withdrew in March 1950 (inter alia because its request for a \$600 million loan from the World Bank was turned down), and Czechoslovakia was expelled in 1954 primarily due to its failure to provide financial and economic information. The founding quotas were \$1.2 billion for the USSR, and \$125 million each for Poland and Czechoslovakia. Romania became a member in December 1972.

very important positive factor in assessing creditworthiness. As a corollary, the refusal to join (despite the IMF's effort to bridge the impediments) raises concern about the commitment of the CPEs to the international monetary order. This consequently has an adverse effect on their creditworthiness⁸ even though most CPEs are believed to be unable to join due to external constraints. Numerous problems in the financial field are related to the absence of an international institution delegated to deal with East-West financial issues in an orderly manner. In view of the growing Eastern indebtedness, the need for such an institution is becoming more evident, and non-membership in the IMF weighs increasingly heavier as a negative factor in the assessment of creditworthiness of the CPEs.

10. *U.S. foreign policy.*—The existence of the Soviet bloc and its equivocal participation in the international economic and monetary order discussed in the preceding sections has its consequence in that U.S. foreign policy towards individual countries in Eastern Europe and towards the bloc as a whole influences bank decisions more than US relations with other countries. The difference stems mainly from the adversary relationship and the bi-polar nature of current international relations. It reflects the general uncertainty and the absence of a solid foundation of and consensus on East-West business relationships. In this environment, banks, together with non-financial corporations, seek explicit, unequivocal policy statements from the Administration. Unfavorable policy statements towards a particular country can directly affect bank lending policy. General public mood may also be influential if for no other reason than because any large institution that deals extensively with the public dislikes to advertise and promote a relationship with unpopular and controversial regimes.

11. *Financing by Western government institutions.*—A considerable share of Eastern borrowing has been provided by Western government export credit agencies, such as the U.S. Export-Import Bank. In addition to the pecuniary value of the funds provided by these institutions, their participation in particular credits or, simply their willingness to provide credit to a CPE has proven to be a factor encouraging private bank lending in the area.⁹ Conversely, the absence of official credit facilities has limited private sources of funds. While the correlation between official and private credit is generally applicable, in the Soviet bloc's case the issue tends to receive additional weight. Creditworthiness of individual CPEs is then affected by the availability of official credit facilities.

Taking the issue a step further, there is a (perhaps unfounded) belief among many private bankers that when a country faces a need

⁸ For discussions on the Soviet bloc's objections and the IMF efforts, see S. Dell, "International Monetary Reform and the Socialist Countries", *The Banker*, 5/28/70; L. Brainard, "The Stir Within Comecon—Why Eastern Europe is Talking About The IMF", *Euro money*, October 1979; A. Zwass, "The First Soviet Statement on the IMF" *Euro money*, January 1980. For an Eastern view advocating membership, see Dr. Kazimierz Zabielski, "Stosunek Krajow i Instytucji RWPG do Miedzynarodowego Funduszu Walutowego i Banku Swiatowego", *Instytut Finansow*, Warsaw 1971. Zabielski argues that CMEA as a bloc would be sufficiently powerful to overcome the "U.S. dominance". In fact, in the founding period, the CMEA bloc would have had nearly 20 percent of the vote, including 12.4 percent of USSR and 1.5 percent for Poland and Czechoslovakia.

⁹ Paul Marer, ed., *US Financing of East-West Trade*, IDRC Indiana University, 1975.

to restructure its existing debt, it will first approach an official institution with that request, given the advantage of a presumably larger range of negotiating points which exist between political entities. While private banks' domain include virtually financial issues only, numerous political, commercial and other issues may be involved in quid-pro-quo negotiations between government entities.

Finally, the CPEs differ considerably in their ability to receive financial support from western Government institutions in periods of financial stress. The differences are due to political, strategic and commercial considerations, as well as to historical and cultural affinities between particular CPEs and western countries. On the whole, compared to a NATO or an OECD member, the relative ability of Comecon countries to receive such financial assistance is judged lower. Nevertheless, this issue may at times receive high consideration in assessing creditworthiness of individual CPEs.^{9a}

12. Legal aspects.—Various US and other laws apply to many East European countries, including the Johnson Act of 1931 (which prohibits lending to any government entity in default to the US government) and the more recent Jackson-Vanik and Stevenson Amendments (which affect East-West trade and finance). Since the CPEs tend to borrow via a single institution, the legal lending limit (limiting maximum exposure of a bank to a single borrower to 10 percent of capital and surplus) has at various times limited an individual bank's ability to lend to individual CPEs. Finally, partly because the Soviet bloc is in the west identified as an adversary, and partly because the commercial practices of state-trading countries differ from those of market economies, CPEs tend to be vulnerable to various commercial legal actions, such as dumping charges and protectionist measures. To the extent that the legal aspects reduce access to possible sources of funds as well as reduce the hard currency earning potential of individual CPEs, they adversely influence a CPE's creditworthiness.

C. Summary

In summary, the preceding discussion admittedly (and to some extent intentionally) fails to leave the reader with an unambiguous sense of the creditworthiness of individual CPEs. The failure reflects the highly subjective nature of the exercise. Nevertheless, country risk assessment usually includes an underlying objective quantitative analysis, concentrating on the external financial status and prospects of individual economies. Current experience clearly indicates that the CPEs are no longer perceived superficially as a single unit. The position of the CPEs as a group in the international financial market has been changing, and the wide differences in "spreads" at which individual CPEs are able to borrow reflect primarily, albeit not exclusively, their relative country risk rating. For illustration, but strictly without any explicit or implied endorsement, the relative position of the CPEs among 96 countries in the financial market as perceived by

^{9a} See V. Pregelj, K. Jurew, and R. Bresnick, *supra*.

Institutional Investor (September 1979 and March 1980) is presented below.¹⁰

RANKING OF THE CPE'S AND SELECTED COUNTRIES BY INSTITUTIONAL INVESTOR

Country	Rank (from 1 to 96)		I.I. credit rating ¹ (from 0 to 100)
	March 1980	September 1979	
U.S.S.R.-----	26	17	71.5
German Democratic Republic-----	34	-----	61.4
Czechoslovakia-----	36	36	60.7
Hungary-----	38	35	59.4
Romania-----	53	47	52.6
Poland-----	67	59	41.6
For comparison:			
Switzerland-----	1	3	98.5
Austria-----	12	12	86.3
Greece-----	33	37	61.4
Brazil-----	43	33	58.0
Yugoslavia-----	51	46	53.4
Philippines-----	57	52	98.5
Peru-----	72	76	35.2
Zambia-----	87	86	18.4

¹ According to *Institutional Investor*, the ratings reflect responses of 101 banks asked to "grade the creditworthiness of each of the countries on a scale of zero to 10, with zero representing the least creditworthy countries . . . and 10, representing the most creditworthy . . . The individual responses were weighted, using an II formula that properly gives more weight to responses from banks with the largest worldwide lending exposure and the most sophisticated country analysis systems."

IV. THE ROLE OF COUNTRY RISK IN LENDING DECISIONS

Country risk analysis as described in section III is an important determinant in a bank's lending guidelines to individual countries. Nevertheless, it cannot and should not be viewed as the sole determinant. It is only an analysis (far from perfect) of economic, political and social aspects of risk, without any consideration of business aspects and of benefits. The role that country risk analysis plays in individual banks depends on the confidence of senior management in the viability of quantitative analysis, on the (dis)trust in "academic" work, on organizational factors, and on other considerations which will be detailed below.

A. Country Risk and Default

A prediction of financial difficulties arrived at by quantitative analysis is a necessary but not a sufficient condition for default. That is, if all indicators are positive the country will almost certainly not default. If most of the indicators are negative, the country may not necessarily default, but some difficulty is highly probable. Bank analysis is thus mainly oriented towards assessing the probability of difficulty or delays in a borrower's fulfilling financial obligations and not necessarily towards the issue of default vs non-default. Indeed, historical experience reveals that relatively very few countries actually default on their obligations for an extended period of time. Currently, of the over 150 countries participating in the international financial market only about five are known to be in arrears (none in Eastern Europe). In some of these countries the problem could have been and was predicted by country risk analysis. To the extent that banks responded to these predictions, their losses were minimized. In two of

¹⁰ "Results of a survey of 90 banks", presented in "Rating Country Risk", *Institutional Investor*, September 1979, and March 1980.

these countries the problem was entirely of a political nature and very difficult to predict. Nevertheless, some signs of concern were raised even about these countries. Despite the signs of concern, many banks continued to lend to these countries.

One may, however, objectively argue that this "business decision" was probably correct even though it ultimately may have resulted in some financial loss. One needs to compare the temporary loss to the past income stream to the foregone income stream had the risk not been taken in all similar cases. Some signs of concern, after all, exist in most countries in the world. The bank's choice of alternatives is essentially set within limits of Type I and Type II errors: The bank can either stop lending to any country with potential difficulties and thereby forego a profitable earning stream, or, going to the other limit, it can lend to all countries except those actually in default. Most banks' behavior falls somewhere in between these extremes, and here subjective judgment plays an important role.

Clearly, default is neither in the interest of a borrower nor of a bank. A country in default ceases to have access to the international financial market and is therefore precluded from conducting normal trade relations. Since to most countries such a state is undesirable, self-interest leads them ultimately to attempt to resolve the problem to the satisfaction of their creditors.¹¹ The small number of countries in default (for an extended period) has at least until now shown that overly cautious bank portfolio management would be at the cost of foregone profits, and that diversification of exposure has been the appropriate strategy.

B. Country Risk and "Market Confidence"

Since default is in neither the borrower's nor lender's interest, the financial market (or a group of banks) can override results of academic quantitative analysis by retaining confidence in a country, as expressed by continuing to lend to it. In other words, at least in the short-term, the issue of market confidence—and thus the borrowing power of a country—is perhaps the most important determinant of its creditworthiness. The short-term creditworthiness of a country is thus to some extent a function of the perceived creditworthiness of a country, despite the circularity of this argument. This is not unlike the case of a person whose creditworthiness in the view of a bank is boosted by his ability to borrow from someone else. Nevertheless, in situations when market confidence is retained despite analytical assessments that point in the opposite direction, in-depth country analysis in major banks still takes place, complemented by assessment of quality and influence of personnel in the borrowing country (such as issues discussed in section III (B) (4)). In fact, the U.S. regulatory authorities find the question of banks' confidence in the governments, the role of central banks and the quality of economic, planning and management teams of high importance in their evaluation of borrowers.

¹¹ One could argue that the possibility of Comecon-wide self sufficiency reduces the strength of the argument that disruption of trading relations with the west is a deterrent to default by the East European countries.

In the long-term, the importance of market confidence should not be exaggerated. An economically and financially weak country will not be able to retain market confidence for an extended period of time. A country heavily dependent on the financial market is vulnerable to the developments in that market; a general credit squeeze may result in temporarily insurmountable complications for that country.

Country risk analysis is thus the ultimate predictor of financial difficulties; market confidence will sustain the country only if the economic and financial difficulties are temporary. As soon as it becomes obvious that appropriate corrective measures have not been taken, banks will individually attempt to reduce their exposure, which in aggregate may consequently induce a financial collapse.

C. Country Risk and Terms and Conditions of Borrowing

In the period of adjustment prior to expected financial difficulty, a borrowing country faces pressure from the increasing cost of borrowing. Country risk analysis can therefore to some extent predict the relative cost of borrowing, but this should not be understood to mean that systematic country risk analysis is actually utilized in establishing the rates, terms and conditions of lending to individual countries. Terms and conditions are a result of interplay of aggregate and country-specific demand and supply forces, which are surely influenced by relative (country) risk. The views of western governments, and the attitudes of public media may also play an influential role. A low rating does not imply cessation of lending, but rather higher spreads and limits on individual banks' country guidelines. The higher cost of borrowing then reflects the departure of marginal lending banks from the market (for assets related to the particular country) as well as the limits on total exposure which major lending banks wish to have in their portfolio.

Hence, the role of country risk analysis is not necessarily to advise a bank to stop lending to a particular country, but to exercise appropriate precautions and adjust expected yield on assets and loan-loss reserves to the appropriate degree of risk. The yield on assets lent by a bank should reflect the incurred and potential costs to the bank of lending to a particular borrower.¹² These costs include the cost of maintaining non-interest-earning loan-loss reserves, the cost of executive time allocated to difficult cases, travel expenses, opportunity cost associated with the allocation of assets with a borrower in difficulty as opposed to another one, etc.

D. Other Determinants of Lending

Numerous other factors are always involved in making individual decisions on specific loans by banks. These factors may overrule the results of pure country risk analysis. Such decisions are frequently

¹² Yield includes spread, "front-end" fees and other charges. Spread is the difference between an internationally recognized interest rate (such as prime rate or LIBOR) and the rate charged to a borrower. Because of the high publicity spreads receive, they tend to be accepted as indicators of borrowers' status in the financial market, and borrowers are therefore more willing to compromise on other charges than on spreads. Lenders, in addition to the elements included in the calculation of yield, may receive additional benefits from the "relationship", that is various fee and income generating services (such as letters of credit, deposits, etc.).

misunderstood by the uninitiated. For example, a bank may not desire to participate in a specific syndicated loan because of some overall management considerations, such as a desire to increase its capital/asset ratio. On the other hand, at times a bank may extend a loan to a particular country even at seemingly low lending rates to maintain a good relationship, market share, influence, etc. Frequently, banks accommodate a request by a favored domestic customer to facilitate exports.

In many of these regards, a small bank may differ from a large one. While the extremely large number of participants in the financial market precludes monopolistic behavior on any bank's part, the decisions of large banks are frequently followed by smaller banks in the belief that the former have greater financial resources for in-depth analysis. Most large banks allocate considerable financial and human resources for proper analysis.

In most large banks the final decisions are made only after views and opinions of different groups with divergent interests are presented. On the marketing end, market excitement and competition with other banks, the borrowers' enthusiasm and optimism transmitted to the lending officer, and a bias in favor of short-term benefits over long-term risks may at times result in an excessive desire to extend loans. On the other hand, those who evaluate credit tend at times to be biased towards pessimism, since the staff's performance is evaluated in light of experience connected with the ultimate repayment of loans. Economic and political analyses add another dimension to the process. The final decision of a bank about its relationship with a borrower is thus a result of a complex set of pressures and interests which reduces the probability of a bank taking an undue risk relative to reward.

V. CONCLUSIONS

In the East European case, the original decision of Western banks in the 1960s and early 1970s to participate in lending was made without sophisticated economic analysis. At that time such analysis was found to be unnecessary, and given the lack of data, impossible. Nevertheless, in the last decade most banks as well as the East European countries have found the relationship profitable. Given the advanced stage of the relationship and the absence of international institutions which would facilitate the transitions and complications in the relationship, country risk analysis has begun to play a very important role. For this relationship to remain highly desirable both for western banks and for East European countries, it is necessary for both parties to be aware of the need for bona fide cooperation in the resolution of all issues. The availability of basic information according to standard international practice is now more essential than ever before.

FOREIGN BORROWING AND THE DOMESTIC ROLE OF EAST EUROPEAN BANKS IN CAPITAL INVESTMENT

By Donald W. Green*

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I. INVESTMENT THEORY AND PRACTICE UNDER CENTRAL PLANNING

It is often observed that while Communist thinkers were very concerned with the dynamics of capitalism and the relationship of those dynamics to the proletarian revolution, they left very little written guidance on how to organize and manage a socialist economy. It was ironic that the first Soviet longterm plan, the GOELRO program of the 1920s, was based fundamentally on the analysis of pre-revolutionary economists and engineers.¹ Whereas the establishment of supply planning, given defined needs and known capacities, is a relatively straight-forward proposition and has been accomplished in many wartime economies, the task of investment planning over a long horizon represents a far more complex problem. This becomes evident once one considers the various dimensions in the allocation of investment resources—among sectors, across regions, the locational choice within regions, technological choice, the impact of the foreign sector, and the intertemporal coordination of investment projects.

The builders of socialism did not even have the guidance of modern mathematical economics in the specification of the problem. However, the elegant principles of intertemporal optimization under constraints help more to illustrate the complexity of the investment problem than to provide a solution.² One crucial problem is that of valuation, as Montias posed the question: ³

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¹ This formative period in central planning is discussed in Leon Smolinski, "Grinevet'ski and Soviet Industrialization," *Survey*, 67 (1968), pp. 100-116. Further analysis of the period is contained in Donald W. Green, *Industrialization and the Engineering Ascendancy: A Comparative Study of American and Russian Engineering Elites, 1870-1920* (Unpublished Ph. D. dissertation, Berkeley, 1972); and Kendall E. Balles, *Technology and Society under Lenin and Stalin: Origins of the Soviet Technical Intelligentsia, 1917-1941* (Princeton, 1978).

² The programming and mathematical methodology was presented in R. S. Eckaus and K. T. Parikh, *Planning for Growth* (Cambridge, Mass., 1968), and S. Chakravarty, *Capital and Development Planning* (Cambridge, Mass., 1969). A synthesis from a planning perspective is given in G. M. Heal *The Theory of Economic Planning* (London, 1973), Chap. 10-14.

³ John Michael Montias, *Central Planning in Poland* (New Haven, 1962), p. 145.

Which is better, to plan ahead with perspective balances that suffer from all the pitfalls of current physical planning together with a much greater degree of uncertainty, or to base the expansion of the economy's capacity on calculations of investment efficiency grounded on prices that reflect correctly neither the scarcities of today nor those of tomorrow?

A second problem is the determination of the objective function and the appropriate rate of time discount. A third set of problems concern the treatment of technological uncertainty over the planning horizon and the specification of terminal conditions to be met at the end of the horizon.

The actual practice of investment planning under communism bears only a weak resemblance to the mathematical specification of the problem. In the Soviet Union, the process was soon dominated by an "engineering approach" which sought to reduce the problem to a manageable size.⁴ The objective was reduced to terminal conditions for sector capacities (tons of coal, steel, etc.) after a fixed horizon of five years. The valuation problem was solved by using fixed, average-cost prices and building annual material balances in physical terms. Technology was conceived as fixed, deterministic, linear and with constant returns to scale once optimal plant size was achieved. The environment was also simplified by treating the foreign sector as passive (to serve as a residual in the annual balances). Conceived in this way, specialists could then engage in derivative sub-optimization for various partial problems: locational decisions under ministerial authority, choice among alternative linear technologies, measurement of capital effectiveness, transportation planning, and many others. Sub-optimization at the microeconomic level does eventually lead to questions of macroeconomic efficiency, and it is just such a process which gave rise to the critiques of central planning presented by Kantorovich and Kornai.⁵

One of the principal attractions of the "engineering approach" to investment planning is that it left the fundamental decisions of objectives, structure and the tempo of growth to the Communist Party. One must supplement the engineering concept of a dynamic intersectoral model with a political system of regional and functional lobbying for investment allocations and specific projects. The institutionalization of the engineering model with the political allocation system gave rise to heavy inertia in the budgetary process. Political decisions, enforced by the top leadership, became the only mechanism for shifting priorities. Unlike the decentralized market, the centralized system requires a skilled pilot to redeploy the allocation of resources when changes occur in objectives, technology or the environment.

For the purposes of this paper, we also note the absence of any need for investment banking under centralized planning. There is no need for intermediation between the saving of property owners at current relative prices and the investment programs of entrepreneurs given

⁴The development of Soviet investment planning is reviewed in Maurice Dobb, *Soviet Economic Development Since 1917*, Rev. Ed., (New York, 1966), Chap. 14. A similar description of Polish investment planning is given in Montias, *op. cit.*, Chap. 5.

⁵L. V. Kantorovich, *The Best Use of Economic Resources* (Cambridge, Mass., 1965); J. Kornai, *Mathematical Planning of Structural Decisions* (Amsterdam, 1967).

expectations of future relative prices. Banks in a classical centrally-planned economy have only a minimal role in the investment process.⁶ First, construction organizations must be financed and audited, typically the function of the Stroibank or Construction Bank. Second, the Central Bank and the Ministry of Finance must be concerned with macroeconomic balance between nominal incomes and consumption goods given the bias of central planners for high accumulation rates in the national economy. The financing of investment expenditures was initially done through government budgets rather than through bank credits. The tendencies toward bureaucratic inertia and specialist sub-optimization also did not enhance the role of the banks; instead, this tended to reinforce the hierarchical nature of investment allocation given the ministerial structure of authority. The principal horizontal linkage to coordinate investment plans and expenditure across different ministries is the regional Party Official, responsible for territorial efficiency, and not the banking system.

II. THE ROLE OF EAST EUROPEAN BANKS IN THE FINANCING OF CAPITAL INVESTMENT: THE PAST TWO DECADES

By the early 1960's many East European economists recognized that the financing of capital investment via State budgetary grants was contributing to a decline in capital effectiveness and the long delays in project construction. The standard diagnosis was that incentive systems were defective for both construction organizations and productive enterprises, and that these problems would be at least partially resolved by financing investment through bank credit. At the same time, strong interests within the planning hierarchy and political leadership sought to retain central control over both the aggregate level of capital investment and the selection of major investment projects. During the 1960s and 1970s, the importance of bank credit and enterprise funds in investment financing tended to rise; however, this trend did not seriously reduce the pervasive influence of central planners and ministerial authorities over the allocation of capital investment. As in the case of short-term credit for enterprises, banking relationships became more complex but credit continued to serve more as the ratification of allocation decisions already made on the basis of other criteria.

One of the most significant criticisms of theoretical socialism was the recognition that a centralization of property rights over capital goods by the State could have a serious impact on the efficiency of investment allocation and the effective utilization of capital. When capital goods are "costless" to production units faced with strong output demand, investment demand will be excessive. The distortion will bias project information provided by enterprises for central budgetary support. Establishing charges for capital allocations will neither restrain demand nor improve project selection, since capital costs and losses in capital efficiency become embedded in the structure of prices and budget

⁶ This description of investment banking in the classical CPE is based on T. M. Podolski, *Socialist Banking and Monetary Control: The Experience of Poland* (Cambridge, 1973), Chap. 2; George Garvy, *Money, Financial Flows and Credit in the Soviet Union* (Cambridge, Mass., 1977); and Adam Zwass, *Money, Banking, and Credit in the Soviet Union and Eastern Europe* (White Plains, N.Y., 1979).

subsidies. Construction organizations have few incentives to improve capital productivity, complete investment projects on time and within budget, or take a longer view of capital durability. Introducing bank financing and control into a void of enterprise property rights will clearly not solve socialism's problems in this area.

The evolution of the banking role in investment finance is particularly instructive in the case of Poland.⁷ During the mid-1950s, bank credit was first introduced to finance "quick-yield investment" and then to finance "decentralized investments" by longer term credit (usually 5 years). This role of banks remained minor until the establishment of greater enterprise discretion over capital spending in 1958. There was a surge in decentralized investment in 1959 as enterprises sought to start projects immediately in order to establish claims on future resources; aggregate investment grew 23 percent during that year with intense pressure on construction capacity and the supply of building materials. By 1960, direct controls were imposed on "decentralized investments" and the use of bank credit in this area remained limited until after 1965. Thereafter, bank credit became the major source of Polish investment finance but the causal determinant of the level and composition of investment remained the decisions of the planning authorities. When the surge in capital investment took place in the early 1970s, bank credit rose quickly to cover the delays in project completion and cost overruns. From 1970 to 1977, the volume of investment credits rose by a factor of $5\frac{1}{2}$ while the level of investment activity grew only $2\frac{1}{2}$ times and the volume of physical capital grew only $1\frac{1}{2}$ times.⁸ One cannot fault the Polish banking system for the excessive investment surge and the breakdown in financial discipline; the banks were directed to finance projects approved by the planners and to borrow abroad to pay for purchases of Western equipment and technology.⁹

In most countries of Eastern Europe, there was a significant shift toward the financing of capital investment from bank credit and enterprise own funds after the mid-1960s. In Czechoslovakia, Poland and Hungary the investment bank was eventually merged with the State bank to better coordinate credit policy for State enterprises. Enterprise self-financing of investment projects became quite significant in Hungary and the GDR by the mid-1970s, but centralized decisions continued to dominate investment activity in the GDR throughout the decade.¹⁰ The Hungarian reform of 1968 provided enterprises with considerable financial liquidity, resources which financed a surge of investment spending in 1970-71, during 1974 and again in 1977-1978. The National Bank of Hungary was not able to exercise financial restraint on investment spending, and as in Poland, was forced to borrow more heavily abroad to pay for imports of machinery and building materials. As Portes has noted, the new economic mechanism failed to force ministries and enterprises to bear the costs of excess spending, poor project selection, and delays in completing construction.¹¹

⁷ This summary of Polish experience is based on Podolski, *op. cit.*, Chap. 8-11.

⁸ *Rocznik statystyczny 1979* (Warsaw, 1979).

⁹ Zbigniew N. Fallenbuchl, "The Polish Economy in the 1970's," in U.S. Congress, *East European Economies Post-Helsinki* (Washington, 1977), p. 851.

¹⁰ Zwass, *op. cit.*, pp. 133-138.

¹¹ Richard Portes, "Hungary: Economic Performance, Policy and Prospects," in U.S. Congress, *op. cit.*, p. 783.

It is clearer now that for socialist bank credit to serve in the regulation and allocation of capital investment several prerequisites are necessary. First, the number of investment projects selected by central planners and financed by the State budget should be a smaller share of total investment than is usually the case in Eastern Europe. Second, the pace of construction activity must be brought down within the capacity of the construction sector and the building materials industry. Third, some expansion of property rights must take place at the enterprise or association level in order to establish better incentives for efficient project design and efficient use of completed capital goods. Fourth, domestic producer prices must adjust more rapidly to reflect external prices and domestic capacity constraints with projections of those prices made available to both central and enterprise authorities. And fifth, the banking system itself must be given incentives to allocate credit more efficiently among branches and enterprises, a reform which may require some decentralization of banking itself and negotiated interest rates.

III. THE SIGNIFICANCE OF FOREIGN BORROWING IN CHANGING THE ROLE OF BANKS IN THE INVESTMENT PROCESS

As an economy's dependence upon foreign trade rises, foreign currency costs and benefits become more significant in the selection of investment projects. Even with relatively free trade and convertible exchange rates, it has often required many years for large corporations to gain an international perspective on their capital spending plans. In Eastern Europe, capital investment decisions did not usually consider the foreign trade aspects until the 1970s, despite the criticisms of many economists. As domestic growth strategies became linked to imports from the West and the buildup of external debt, it became evident that nearly all major investment projects had explicit or implicit costs and benefits in foreign currencies. Among the important considerations in an investment decision are the current expenditures on imported machinery and technology, future revenues from project exports and future gains from import substitution.

It is clear that the central planner must consider a new price, the current and future value of foreign exchange. Furthermore, with fixed domestic prices for labor, capital and input materials and a non-convertible currency, what prices should the planner use to evaluate the rate of return or "capital effectiveness" of the project? For East European planners, the dilemma is compounded because two external price systems and exchange rates are important. To the West, he faces world market prices for commodities and money, and within the CMEA, he faces intra-CMEA prices in transferable rubles, prices which tend to overvalue manufactures relative to agricultural and basic materials. For certain projects, both external markets may have to be considered in his analysis. In practice, conversion coefficients that were highly differentiated were often used to reduce all values to the domestic currency—a procedure which may have satisfied the bureaucracy but would seldom convince economists.

East European economists recognized that world market prices might be introduced to guide domestic investment decisions given the

serious problems with the domestic price structure. As early as 1950, Kalecki proposed that world market prices be used to guide investment and foreign trade decisions. Alternatively, programming models such as those developed by Kantorovich and Kornai could be used to calculate shadow prices to guide investment decisions. In his 1961 model, Trzeciakowski combined the two approaches of programming and external prices.¹² The model included constraints on sector capacity and currency balances with the two major trading regions. Given the current and future prices in world and CMEA markets, the solution of the programming model would generate a system of implicit prices for foreign exchange as well as an overall efficiency rate of exchange. This represented an elegant solution to the central planners' dilemma, but there still remained many difficulties. One of the most serious was the actual forecasting of future world prices and the size of various markets. Special institutes have been established in most East European economies to provide such forecasts, and one must remember that the same problem is faced by all enterprises in the world market.

In the late 1970s, Hungarian economists became the major critics of intra-CMEA pricing and currency non-convertibility. Kalman Peci has argued that a regional price system should be developed in the CMEA which would link domestic and foreign trade prices to world market prices.¹³ In an earlier essay, he adopted the same position in evaluating East European investment in Soviet energy resources such as the Orenburg pipeline for natural gas.¹⁴ The interest paid on credits to the U.S.S.R. is far below world inflation and world interest rates, while the prices of Soviet energy exports will rise steadily with world price increases. The major reason for using world prices in domestic economic analysis is opportunity cost. East Europe must borrow abroad to finance Soviet energy development; given the level of external debt, the transfer of resources to the U.S.S.R. reduces the financing of domestic investment from foreign credits. In fact, one can interpret the Hungarian price reform of 1980 as a response to the analysis of Peci and other East European economists. Industrial producer prices in Hungary have been raised to world market levels and will adjust with a short lag to changes in external prices. These prices are then being used to guide the trade and investment decisions of Hungarian enterprises.

The critique of investment criteria and foreign trade by East European economists has seldom been linked directly to the role of banking. However, the shift toward world market prices in the evaluation of investment does suggest a greater role of the banks in project evaluation as well as their usual task of external financing. The rise of external debt during the 1970s has made the supply of convertible currency a binding constraint on the aggregate level of investment. Furthermore, access to Western credit markets and the terms of borrowing can no longer be separated from the investment strategy selected by

¹² Alfred Zauberman, "The Soviet and Polish Quest for a Criterion of Investment Efficiency," *Economica*, August 1962; and Zauberman, "The Criterion of Efficiency of Foreign Trade in Soviet-Type Economies," *Economica*, 1964.

¹³ Kalma Peci, "The Success of the Principle of Reciprocal Advantage in Hungarian-Soviet Economic Relations," *Kozgazdasagi Szemle*, November 1979, reviewed in *Radio Free Europe Research*, Hungary/22, 5/12/79.

¹⁴ K. Peci, *Kulgazdasag*, April 1978, reviewed in *Radio Free Europe Research*, Hungary/10, 10/4/79.

central planners and the political leadership. In several countries this pressure has already established a broader constituency among the banks, the Ministry of Finance and the Ministry of Foreign Trade to offset the inertial investment policy of the central planners. Certain projects have had to be abandoned because of their external consequences, and the scope and structure of other projects have been altered to gain support of this domestic financial coalition.

IV. THE IMPLICATION FOR EAST EUROPEAN BANKING DURING THE 1980's

In the 1980s, Eastern Europe faces an environment which would appear to be particularly difficult for economic reform and institutional change. The adverse movement in the terms of trade for the CMEA Six as well as the unprecedented rise in State debts to households and the West impose severe constraints on the political leadership. Significant investment programs for energy and energy conservation are necessary, a rising volume of exports is required to pay for imports and service debt, and the household sector may hold productivity hostage if improvements are not made in dietary standards, housing and the quality of consumer goods. However, we still expect significant reforms to occur in Eastern Europe during this decade, reforms which will require an expanded role for banking and finance.¹⁵

The expanded role for banking expected in Eastern Europe may even spill over into investment decisions. Here, however, one must acknowledge the formidable barriers to property rights which are likely to persist during the decade. Centralization of property rights over capital goods and "ministerial commandism" will continue to limit the decentralization of investment choice and consequently the role of investment banking. Such problems continue to arise in the Yugoslav economy even after several decades of development in the property rights of enterprises, workers and banks. There are serious limitations, moreover, in the capacity of the banks in Eastern Europe to make efficient decisions in the allocation of investment funds. Major investment reform would also require significant changes in the construction sector, shifting incentives and organization toward market patterns observed in international construction.

During the next five-year period, the two most significant constraints on economic policy will be energy and the balance of payments. As external financing becomes a critical function for any organization's growth, one is likely to observe an upgrading in the role of financial authorities, both internal and external, in the conduct and strategy of the organization. This phenomenon has been directly observed in the pattern of capitalist enterprises, and is likely to be taking place already in socialist economies with relatively high levels of external debt. In fact, one of the sharpest adjustments in investment policy took place in the Soviet Union during 1977-1978 and was a reaction to perceived constraints in energy and convertible

¹⁵ A survey of those developments is presented in Donald W. Green, "The Role of Banking and Finance in East European Reforms," in NATO Economics Directorate, *Economic Reforms in Eastern Europe and Prospects for the 1980s* (Brussels, 1980).

currency. Similarly in Poland and Hungary, constraints have been imposed on aggregate investment to reduce imports from the West and there has been a re-allocation of investment resources to export industries, energy, and sectors producing for the domestic market.

Central planners could act directly to reduce foreign exchange requirements and thereby maintain their authority over the allocation of investment and exchange within the domestic economy. In fact, this would be one interpretation of the drive for compensation or buy-back agreements which seek to bypass the normal channels for external borrowing. This policy, which can often be inefficient and ultimately quite costly, did receive strong support from planners, ministerial authorities and some foreign trade officials. Deliberation among alternative compensation projects could proceed without the influence of the banks, and the ultimate decision to adopt the project and the choice of the Western partner would remain as before with the political leadership.

Although the compensation device will continue to be important at least through the early 1980s, we do not expect that East European planners will be successful in restricting the influence of financial officials. Because of the increase in external debt during the 1970s, Eastern Europe now exhibits the prerequisites for investment banking in the 1980s: An intermediation of property rights given the establishment of internal productive assets which are matched by external liabilities. The relationship to Western credit markets has become a major determinant of where the convertible currency constraint will bind investment decisions in the future. Under these circumstances, the managers of the country's portfolio of external assets and liabilities will become more influential in areas of domestic policy, including the critical investment decisions.

THE MADRID CONFERENCE ON SECURITY AND CO-OPERATION IN EUROPE: THE ECONOMIC AGENDA

By Francis T. Miko*

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INTRODUCTION

The second follow-up Conference on Security and Cooperation in Europe began in Madrid on November 11, 1980, after preliminary meetings starting on September 9. This 35-nation East-West conference takes on special significance at a time when East-West relations have deteriorated sharply, primarily as a result of the Soviet invasion of Afghanistan. East-West trade and economic cooperation are among the major categories of items on the Madrid agenda, together with issues in European security, and human rights. The purpose of the Conference is both to review the progress made to date in implementing the CSCE Final Act and to explore further ways to expand East-West cooperation.

Issues in economic relations may not occupy the most prominent place in the calculations of either Western or Eastern participants at Madrid. The Soviet Union and its East European allies want to focus on questions related to "military detente" in Europe. The United States and many West European countries are continuing to stress security issues and human rights. But the economic agenda, given the strong mutual interest of Western, Eastern, and neutral participants, could contribute substantially to the ultimate success or failure of the Madrid Conference and the future of the CSCE process.

On the American side, the U.S. Congress is playing a major role at Madrid. Members of Congress are on the U.S. delegation and the U.S. Commission on Security and Cooperation in Europe has a direct

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role. Additionally, Congress can have an impact as a result of its legislative responsibility over many trade issues addressed at the Conference.

THE PLACE OF ECONOMIC ISSUES IN THE HELSINKI FRAMEWORK

The Conference on Security and Cooperation in Europe has its origins in Soviet proposals for a "European Security Conference" dating back to 1954. By the early 1970's, Soviet aims appeared to be: (1) to gain recognition of the postwar boundaries and political status quo in Europe; (2) to reaffirm its predominant position in Eastern Europe; (3) to achieve a gradual reduction of American influence in Europe without precipitating the emergence of a strong united Western Europe; (4) to increase Soviet influence in Western Europe; (5) to reduce East-West tensions and improve Moscow's international image at a time when the Sino-Soviet dispute was intensifying; and (6) to expand economic cooperation with the West and gain increased access to Western technology and know-how.¹

The last of these objectives was one that may initially have been of secondary importance but which became a higher priority as the Soviet Union adopted the policy of relying more heavily on economic cooperation with the West as a means of speeding its own economic development.² Most East European countries shared this interest in East-West economic cooperation from the start.

The West was slow to respond to Soviet initiatives. In the 1950's and 1960's, most Western governments were suspicious of Soviet motives and saw no value in a security conference. Western positions changed as a result of the general improvement in East-West relations. Still the United States and its allies set a number of preconditions before agreeing to hold the conference. The Soviet and East European governments met these by accepting the United States and Canada as full participants in the European negotiations; the Soviet Union, Poland, and the German Democratic Republic signed treaties normalizing relations with the Federal Republic of Germany; a Four Power Berlin agreement was signed in 1971; and negotiations on mutual force reductions in Central Europe (MBFR) were set.

Finally, the Soviet Union agreed to expand the agenda of the Conference to include issues in the area of human rights, human contacts, and a freer flow of information between East and West. The United States may have had the lowest expectations from the Helsinki Conference among CSCE participants initially. It felt that most of its objectives had been achieved by way of Soviet concessions on other issues, even prior to the formal meetings. In the early stages, West European governments took a stronger interest in the substance of the negotiations, particularly the discussions aimed at reducing the barriers between Eastern and Western Europe. But interest in the discussions on expanded economic cooperation was shared by all participants.

¹ See Povolny, Mojmir. *The Soviet Union and the European Security Conference*. *Orbis*, vol. 18, no. 1, Spring 1974, p. 201-230. Bykov, Vladimir L. *The U.S.S.R. and Security in Europe: A Soviet View*. *Annals of the American Academy of Political Science*, July 1974, p. 96-104.

² See Bressensdorf, Erwin B. von. *Security and Economics in Europe*. *Aussenpolitik*, vol. 24, no. 2, 1973, p. 130-136.

CSCE preparatory negotiations were held from November 1972 through June 1973. The first formal stage of the conference was held in Helsinki at the foreign ministers' level from July 3 to July 7, 1973. The second negotiating stage took place in Geneva between September 1973 and July 1975. The Final Act of the Conference was signed during a summit level meeting of heads of state of the 35 participating nations in Helsinki on August 1, 1975. The first CSCE review conference was held in Belgrade between October 4, 1977, and March 9, 1978, after preliminary meetings in the summer of 1977.

As the talks moved from stage to stage, the roles and attitudes of different countries changed. The expectations from CSCE of the United States and other more skeptical Western governments rose visibly. The Soviet Union showed mounting dissatisfaction with the stress placed on human rights questions by many Western governments. At each stage of the negotiations, the economic agenda occupied an important, though not central, place. As the least controversial, economic issues received less prominent media attention than other subjects. But, as a result, the economic discussions proceeded in less polemical and more businesslike fashion. This atmosphere has been difficult to maintain in Madrid, in the aftermath of the Afghanistan crisis and the resulting downturn in United States-Soviet economic relations.

THE ECONOMIC CONTENT OF THE HELSINKI FINAL ACT³

The provisions of the CSCE Final Act, signed in August 1975, were placed under three headings, popularly termed "baskets." Basket I, dealing with European security issues, included a declaration of principles guiding relations among participating states, as well as political-military confidence building measures. Basket II contained the provisions on economic, scientific, technological, and environmental cooperation. Basket III dealt with humanitarian, cultural, and educational cooperation. The third "basket" contained the understandings regarding the freer movement of people and information between East and West. A concluding section of the document laid out the principle of follow up meetings. The time and place for the first such conference was set for 1977 in Belgrade.

Basket II of the Final Act contained a preamble followed by six sections. The preamble expressed the conviction that cooperation in the economic, technological, and scientific sphere, on the basis of equality and mutual interest, would serve to strengthen European security and improve living conditions. It recognized the special needs of the developing countries and the fact that growing world-wide economic interdependence called for joint measures to solve global problems, as well as concerted effort to maintain international economic stability. It established for the United Nations Economic Commission for Europe (ECE) and other international organizations a role in the implementation of Basket II.

³ U.S. Dept. of State. Bureau of Public Affairs. Conference on Security and Cooperation in Europe: Final Act, Helsinki, 1975. Washington 1975. 27 p.

1. Commercial Exchanges

General provisions.—Participating states pledged to: (a) promote and ensure conditions favorable for the expansion of trade; (b) recognize the benefits of applying most-favored-nation treatment; (c) encourage the expansion of multilateral trade; (d) seek intergovernmental and other long-term trade agreements; (e) try to deal with monetary and financial problems so as to allow the continuous expansion of trade; (f) seek to reduce and eliminate trade obstacles; (g) promote steady trade growth while avoiding abrupt fluctuations; (h) seek to avoid foreign market disruptions; and (i) facilitate the participation of firms and enterprises in the development of trade.

Business contacts and facilities.—CSCE signatories agreed to: (a) encourage contacts between firms, banks and official organizations, especially between the sellers and users of products and services; (b) help accelerate business negotiations between firms and organizations; (c) improve working conditions for foreign businessmen by providing necessary information, permanent offices, hotel accommodations, means of communication, suitable offices and residential accommodations; and (d) encourage greater participation in trade by smaller firms.

Economic and commercial information.—The signatories also pledged to promote the publication and dissemination of economic and commercial information quickly and at regular intervals, including: (a) national economic indicators; (b) foreign trade statistics; (c) laws and regulations concerning foreign trade; and (d) information to help businessmen in commercial contacts such as directories and organizational charts of enterprises. In addition they agreed to efforts within the framework of the ECE or other joint commissions to encourage the exchange of commercial information, create a system of notification of laws and regulations, and standardize statistical terms.

Marketing.—Participating states agreed to: (a) help firms and enterprises of other countries to develop marketing knowledge and techniques; (b) improve conditions for trade through market research, advertising measures, establishment of supply facilities, furnishing spare parts, supplying after sales services, and training local personnel; and (c) encourage international trade promotion, in particular through the ECE.

2. Industrial Cooperation and Projects of Common Interest

Industrial cooperation.—This section pledged CSCE signatories to encourage industrial cooperation through many of the same measures as those listed under commercial exchanges, including increased access to information, improved working conditions for businessmen, facilitation of business contacts, and participation of smaller firms. Signatories agreed to encourage a variety of forms of industrial cooperation, including joint production and sale, specialized production and sale, construction and modernization of plants, supply of complete industrial installations under product-pay-back arrangements, mixed companies, exchanges of know-how and technological information, li-

censes and patents, joint industrial research, as well as new forms of cooperation. To improve conditions for industrial cooperation, signatories pledged to seek to protect the interests of the other partner, including legal protection of property, and to take into account the needs of industrial cooperation within the framework of national economic policies and programs.

Projects of common interest.—CSCE signatories pledged to encourage projects of interest in the fields of energy resources, raw materials, transportation, and communications. Exchanges of electrical energy, cooperation in research for new sources of energy, particularly nuclear, development of navigable and road networks in Europe, joint efforts on multimodal and container transportation were listed as hopeful areas of cooperation.

3. Provisions Concerning Trade and Industrial Cooperation

Harmonization of standards.—To help reduce obstacles to trade, participants reaffirmed their interest in harmonizing standards and technical regulations. They expressed their willingness to promote international agreements in this area and to increase international cooperation to achieve standardization.

Arbitration.—Signatories supported the inclusion of arbitration clauses in contracts between firms and enterprises, under a mutually acceptable set of arbitration rules, allowing arbitration in third countries.

Specific bilateral arrangements.—CSCE participants encouraged bilateral agreements to avoid double taxation, facilitate the transfer of profits and the return of the value of assets invested, and to settle other similar problems.

4. Science and Technology

Possibilities for improving cooperation.—The signatories affirmed their intention to: (a) remove obstacles to scientific and technological cooperation; (b) facilitate the exchange and dissemination of information; (c) encourage international visits by specialists; and (d) make wider use of commercial channels for applied research and the sharing of results, while protecting intellectual and industrial property rights.

Fields of cooperation.—The Final Act listed some specific areas in which signatories felt that cooperation would be particularly beneficial. These included: agriculture; energy; new technologies and rational use of resources; transport technology; physics; chemistry; meteorology and hydrology; oceanography; seismological research; research on glaciology, permafrost, and cold climate problems; computer, communications, and information technology; space research; medicine and public health; and environmental research.

Forms and methods of cooperation.—Specific forms of cooperation outlined included: (a) exchange of publications and papers; (b) visits and direct contacts among specialists; (c) international and national conferences, seminars, and courses; (d) joint projects; and (e) use of commercial channels for cooperation between firms and enter-

prises. This section of the Final Act also called for periodic exchanges of views and information on scientific policy, regional and sub-regional cooperation, and the use of existing international organizations (such as the ECE, UNESCO, and UNISIT).

5. Environment

Aims of cooperation.—Signatories agreed to: (a) address environmental problems affecting more than one country; (b) improve measures for the protection of the environment; (c) seek to harmonize environmental policies; and (d) cooperate in the production and improvement of equipment for environmental protection.

Fields of cooperation.—The following areas of cooperation were listed in the Final Act as examples: air pollution; water pollution and utilization; protection of the marine environment; conservation; improving urban environment; research, monitoring, forecasting, and assessing environmental change; legal and administrative measures for environmental protection.

Forms and methods of cooperation.—CSCE countries agreed to cooperate through: (a) exchanges of information; (b) conferences and experts meetings; (c) exchanges of specialists; (d) joint projects; (e) harmonizing environmental standards; (f) consultations on environmental protection; (g) promotion of international laws on the environment; (h) use of the ECE and UN Environment Program; and (i) utilization of information already available. Signatories agreed on two specific measures: (1) an extensive international program to monitor and evaluate the long-range transportation of air pollution; and (2) an ECE study on activities of individual governments to predict the environmental consequences of economic and technological activities.

6. Cooperation in Other Areas

Participating states agreed to cooperate in areas such as the development of transport in Europe, promotion of tourism, economic and social aspects of migrant labor, and personnel training.

ECONOMIC ISSUES AT BELGRADE

Basket II proved less contentious than other portions of the Final Act in part because many of its provisions dealt with issues that had already been resolved or were in the process of being resolved bilaterally among the participants. Yet where problems existed, they often defied easy solution. Compliance with the Final Act was most satisfactory with regard to those provisions which either already conformed to the practices of individual countries or where the benefits of compliance clearly outweighed the costs.⁴ But implementation of provisions requiring changes in the behavior of individual signatories proved as painful and uneven as under the other baskets. Between the Helsinki and Belgrade conferences, progress on imple-

⁴ Testimony of John Hardt at a joint hearing on CSCE's Basket II of the Commission on Security and Cooperation in Europe and the Subcommittee on International Economic and Trade Policy, House Foreign Affairs Committee, March 6, 1980.

menting Basket II was slow and uneven. In some areas there was actually retrogression in the performance of individual governments.⁵

The Final Act provided for followup meetings to CSCE, the first of which was to be held at Belgrade in 1977. The followup format emerged as a compromise between those countries which wanted to create a permanent CSCE institution and others, including the United States, which opposed formation of a standing organization.

The Belgrade CSCE conference (October 1977–March 1978) followed on the heels of a crackdown against human rights advocates in the Soviet Union and some of the countries of Eastern Europe.⁶ The United States and other Western countries saw the conference primarily as a forum for taking the Soviet and East European governments to task for these and other perceived violations of the Final Act. Soviet and East European governments, on the other hand, wanted the conference to address further measures to implement the CSCE accords, with only the most general discussion of what had been accomplished.⁷ Western critics saw the Eastern approach as one aimed at avoiding international scrutiny of their records of compliance with CSCE, calling it a tactic of "escape forward." Western governments refused to consider new proposals until there had been a thorough review of the record and substantial movement by all governments to fulfill the commitments already made.

Not surprisingly, the economic agenda fell victim to East-West differences over these issues, even though the Basket II working group undertook a comprehensive review of the record of implementation, as well as discussion of new proposals. In the review stage, the United States was particularly critical of the Eastern record in terms of providing economic information and data. U.S. negotiators charged that while there had been modest improvement in the practices of some countries, others had actually become more secretive with data since the signing of the Helsinki accord. They called on Eastern states to be more forthcoming in particular with foreign trade, balance-of-payments, and five-year plan information, needed by Western businessmen conducting trade with the East.

The United States also criticized Eastern practices concerning business contacts and facilities. It was pointed out that Western trading partners still lacked access to the end users of their products. Other problems cited were the lack of multiple entry visas for businessmen, travel restrictions within Eastern countries, the absence of adequate business and residential facilities, and inadequate efforts by Eastern countries to create opportunities for small and medium-sized Western firms. In addition, the United States charged that several Eastern governments were giving preferential treatment to industrial cooperation projects, to the detriment of other forms of cooperation, sometimes even when industrial cooperation ventures were not commercially justifiable. U.S. delegates voiced greater satisfaction with the implementation of the scientific and environmental cooperation provisions of the Final Act. But even here they criticized the con-

⁵ See U.S. Commission on Security and Cooperation in Europe. *Implementation of the Helsinki Final Act*. Washington, 1977. Second Semiannual Report of the President to the Conference on Security and Cooperation in Europe, December 1, 1976–June 1, 1977. Washington, Dept. of State, June 1977, p. 11. (Special Report No. 34.)

⁶ Second Semiannual Report of the President, op. cit., p. 5–8.

⁷ Kuznetsov, V. *What to Bring to Belgrade*. *Novoye Vremya*, No. 17, April 22, 1977 (FBIS: Soviet Union, April 28, 1977, p. BB4).

tinued impediments to direct contact between Western and Eastern scientists and the lack of reciprocity with regard to access to information. Other Western governments had similar complaints. Much of the Western criticism was rejected by Eastern governments as either unfounded or insignificant.

Eastern governments criticized the United States and other Western countries for continuing to raise their own barriers to East-West trade. The U.S. practice of making the granting of MFN and credits contingent on emigration policies of individual communist governments was particularly criticized. In the end, Eastern and Western participants could agree only that much remained to be done to implement the accords.⁸

A number of new proposals on Basket II were tabled at Belgrade. The United States and the European Community cosponsored three proposals aimed at creating opportunities for smaller firms in East-West trade, allowing greater contact between Western and Eastern scientists, and encouraging time-tables for completion of industrial cooperation projects so as to cut down on serious delays. Other European Community proposals for improving commercial information, improving communications and office facilities also received U.S. backing. Neutral Austria submitted a comprehensive proposal aimed at cutting the red-tape and improving conditions for East-West economic cooperation.⁹ The Eastern reaction to Western proposals was for the most part negative. Eastern representatives termed the proposals too minor to include in any document coming out of Belgrade.

The Soviet Union and its East European allies also submitted a comprehensive proposal. It called for the full application of MFN, the removal of tariffs and other trade barriers, and favorable treatment of products stemming from industrial cooperation. The Soviet Union submitted a proposal to convene all-European conferences on energy, the environment, and transportation.¹⁰ A Conference on the environment has since been held in November 1979.

None of the new proposals could gain the consensus needed for adoption because of the linkage of Basket II to other issues. In fact, the only reference to Basket II issues in the Belgrade concluding document was the agreement to hold a scientific experts meeting in Bonn in the summer of 1978. Many participants expressed the view that more progress could have been achieved in the economic discussions at Belgrade if it had not been for the linkage between Basket II and the stalemate in the conference as a whole.

THE ECONOMIC AGENDA AT MADRID

Problems and Prospects

The most significant achievement of the Belgrade Conference, ultimately, was the scheduling of the 1980 Conference in Madrid to ensure the continuation of the CSCE process. To avoid a repeat of the dragged

⁸ U.S. Department of State. *The Belgrade Followup Meeting to the Conference on Security and Cooperation in Europe*. October 4, 1977-March 9, 1978. Washington, June 1978, p. 20-21. (Office of Public Communication Special Report No. 43.)

⁹ Hass-Hurnl. Bettina S. *The Relevance of Economic Issues at the Belgrade Conference*. *Interconomics*, No. 5-6, May-June 1978, p. 143.

¹⁰ Yuryev, N. *Towards a Europe of Security and Cooperation*. *International Affairs (Moscow)*, No. 2, February 1977, p. 19.

out preliminary discussions at Belgrade, dates were set for both the preliminary and the formal meeting at Madrid.

Participants at Madrid faced greater obstacles to success than in any previous stage of the dialogue. The chill in East-West relations on the eve of the Madrid meeting at first cast some doubt on whether the meetings would even take place as scheduled. There were some suggestions that the meeting be postponed in view of the current international climate. Some observers argued that the timing of the meeting was bad from the start, coinciding so closely with election campaigns in the United States and the Federal Republic of Germany. None of the participating countries advocated cancellation of the Madrid Conference. Eastern and Western official views agreed that on balance CSCE is a useful exercise that should be continued, that communications in the CSCE framework are even more important during this period of heightened East-West tension than before, and that cancellation of Madrid could end the CSCE dialogue.

East-West consensus emerged on the need for more fruitful results from Madrid than were achieved at Belgrade. Participants agreed that to avoid an unproductive East-West confrontation, there had to be a careful balance in emphasis on all of the baskets of the Final Act, as well as between the review function and the consideration of new proposals at the Madrid conference. Extensive consultations took place among participating governments to lay the foundation of the conference. These preparations were dealt a setback by the Soviet invasion of Afghanistan. The danger of failure resulted not only from the deterioration in East-West relations, but also from the very different views of various states concerning how the Final Act should be implemented, and further obligations under the provisions of CSCE.

The economic dialogue is again influenced by problems in other spheres at Madrid. Decoupling Basket II from other issues is no more feasible than at Belgrade. The Soviet invasion of Afghanistan, explicitly and implicitly weighs heavily on the proceedings, as do other problems which have developed in East-West relations (SALT postponement, the NATO theater nuclear weapons modernization decision, and the crisis in Poland). But many analysts still hold out the hope that the strong mutual interest in economic cooperation among Western and Eastern nations will actually provide a stimulus to the overall success of the conference.

A more direct burden on the Basket II talks is posed by the chill in East-West, and particularly U.S.-Soviet, commercial relations that has followed the Soviet invasion of Afghanistan. The U.S. trade reprisals against the Soviet Union, especially the embargo on U.S. grain sales and restrictions on the transfer of technology, translate into a substantial downturn in U.S.-Soviet trade volume and complicate efforts to reach agreement at Madrid. Western Europe has been reluctant to join in sanctions against the Soviet Union but has not excluded the possibility of such action in the future. The European Community postponed its talks with CMEA, scheduled for March 1980. Conditions for success at Madrid are also hindered by the economic problems and growing protectionist sentiment of the recession-ridden industrialized West, as well as the substantial hard-currency debt of the Eastern countries.

The U.S. Approach to Madrid

The Carter administration went on record as seeking both a "candid review of progress in implementation of the Final Act" and consideration of new proposals.¹¹ The President indicated in advance that the tone of the meeting would depend on the willingness of participants to meet their obligations under the Final Act. The United States also expressed the hope that new proposals would be limited to a number that can realistically be dealt with at the conference. The administration endorsed in principle French sponsored moves to expand on the military confidence building measures contained in the Final Act. At the same time, the United States indicated that it would not accept a one-sided focus on what Eastern spokesmen refer to as "military détente," to the exclusion of other CSCE issues, in particular the question of human rights. The United States has used Madrid as a forum for discussing the relevance of Afghanistan to European security.

The U.S. strategy on Basket II emerged after extensive coordination and consultation with U.S. allies and other countries. In terms of review, the focus of U.S. concern is similar to that at Belgrade. The main criticism against the Eastern record of compliance remains the East's failure to provide adequate commercial and economic information. The United States does not feel that there has been improvement in either the quality or the volume of information provided by the Soviet Union and Eastern Europe. The Soviet Union, Czechoslovakia, Bulgaria, Romania, and the GDR are viewed as the least forthcoming. The United States actually suspended joint activity with the Soviet Union in two areas of energy cooperation because of unsatisfactory Soviet performance in exchanging information.

The United States also remains dissatisfied with the performance of some Eastern governments in terms of providing Western trading partners with access to trade officials and end users. The Soviet Union and Czechoslovakia are viewed as the worst offenders. Business facilities in the Soviet Union and Czechoslovakia have also been criticized as inadequate. Visa and travel restrictions on foreign businessmen are seen as particular burdensome in the Soviet Union.¹²

The United States is focusing on these shortcomings both in the review phase of the conference and in discussion of new proposals. One suggestion was made that the United States propose the establishment of a continuing committee within the CSCE framework to discuss data and information questions.¹³ On the eve of the Madrid meeting the United States decided not to initiate its own new proposals at Madrid, though it was prepared to co-sponsor European proposals.

The United States is also having to defend its own record in implementing Basket II of the Final Act. A study on the U.S. record of implementing CSCE by the Commission on Security and Cooperation in Europe concluded that while the U.S. record is good it still leaves room for improvement and indicated areas in which the United States may be vulnerable. These include the denial of MFN and credits to countries (the Soviet Union, the German Democratic Republic,

¹¹ Seventh Semiannual Report by the President to the Commission on Security and Cooperation in Europe, June 1, 1979–November 30, 1979, Washington, January 1980, pp. 2–3. (Department of State Special Report No. 62.)

¹² *Ibid.*, p. 9–12.

¹³ Testimony of John Hardt, *op. cit.*

Czechoslovakia, and Bulgaria) on the basis of their emigration policies, export control restrictions on goods to CMEA countries, and market disruption and antidumping regulations.¹⁴ The U.S. economic sanctions against the Soviet Union have been attacked by Eastern governments at Madrid as measures going against the spirit, if not the letter, of the Final Act. The main U.S. argument against this type of criticism has been that economic cooperation cannot proceed in isolation from the performance of countries in other areas.

West European Allies' Views of Madrid

The West European governments have a strong continuing commitment to the CSCE process and to the success of the Madrid conference. Their aim at Madrid is to achieve a thorough review of CSCE implementation and to build on the Helsinki agreements, while avoiding a repeat of the East-West confrontation at Belgrade.¹⁵

In the wake of the crisis over Afghanistan, there was a degree of uncertainty over how to proceed and what could realistically be expected from Madrid in the current atmosphere. Some countries held open the possibility that it might be preferable to postpone or even cancel the Madrid Conference rather than to allow it to become the arena for a major confrontation. There were even indications that the host Spanish government was prepared to postpone if the international situation requires it.¹⁶

The French government expressed the following position in advance of Madrid: (1) That a Madrid Conference had to be "useful" and could only be that if the Soviet Union made some gestures to reestablish a climate of confidence; (2) that the essential purpose of the meeting had to be to contribute to East-West cooperation and detente; (3) that the continued Soviet presence in Afghanistan might make French participation doubtful because the United States might want to turn the meeting into a tribunal to condemn the Soviets; and (4) that France would not decide until September whether it will attend the conference.¹⁷

Other EC and NATO nations also initially opposed the idea of using Madrid as a forum for the condemnation of the Soviet action in Afghanistan. They did not want a postponement of the Madrid Conference but felt that the only alternative was to convince the superpowers not to use Madrid as an arena for confrontation.

On the substance of Basket II, West European interests are similar to those of the United States. The European Community and other countries share the American interest in gaining fuller implementation of the information, business contacts and facilities provisions of CSCE. Major initiatives are focusing on those areas at Madrid. Europeans generally take a more direct interest in all-European cooperation projects, such as the proposed conferences on energy, transportation and the recently concluded conference on the environment.

¹⁴ U.S. Commission on Security and Cooperation in Europe. *Fulfilling our Promises: The United States and the Helsinki Final Act*. Washington, D.C., November 1979. p. 179.

¹⁵ CSCE: Bilateral FRG-Poland Consultations. *Atlantic News*, No. 1179, December 21, 1979, p. 4.

¹⁶ CSCE: Adjournment of Madrid Conference? *Atlantic News*, No. 1188, January 25, 1980, p. 4.

¹⁷ French Stir Discussion About Nature of Madrid Meeting. *Atlantic News*, No. 1205, March 26, 1980, p. 1.

Differences between United States and West European positions have been apparent over the linkage of Basket II to other sections of the Final Act. West Europeans have been more reluctant than the United States to use East-West trade as a political lever. They have been more inclined to pursue economic cooperation with the East on its own merits without seeking Eastern concessions in other areas. A main West European objective from CSCE's Basket II has been to achieve long-term stability in East-West economic relations, shielding them from the ups and downs in other areas. Efforts to use Basket II as a political bargaining chip are seen as undermining that objective. West European governments also are far less questioning of the desirability of trade with the East. They have not visibly shared U.S. concerns that trade will contribute to strengthening the Soviet Union in ways that might endanger Western security.¹⁸

Attitudes of the Neutrals and Nonaligned

No signatories of the Final Act have more directly identified their vital interests with the success of the CSCE process than have the group of neutral and nonaligned countries. The CSCE is seen as the only major European forum where they have an equal voice with the NATO and Warsaw Pact blocs. Despite the differences in ideology and government systems, this loose grouping of countries which includes Sweden, Finland, Austria, Switzerland and Yugoslavia has maintained considerable cohesion. These countries were concerned over the lack of progress achieved at Belgrade and indicated that they had greater expectations from the Madrid Conference.

In the aftermath of the Soviet invasion of Afghanistan, the neutral countries were unsure of how to proceed in preparation for Madrid. But at high level consultations in early April 1980, they agreed that the Madrid meeting should take place.¹⁹ According to Austrian Foreign Minister Pahr, the Madrid meeting was more necessary than ever since the current international situation had seriously affected detente.²⁰

On Basket II, their attitudes are very similar to those of the United States and its European allies. They feel the consequences of the inadequacies of Eastern performance in some areas more sharply than the United States and some other countries. They are among the most dependent on trade with the East. They have demonstrated their willingness to press for Eastern compliance in a number of areas and are taking a leading role on many issues at Madrid. But they also appear to share the view of some other West European states that it is counter-productive to use Basket II as a trade-off for Eastern concessions in other areas.

The Soviet Approach to Madrid

The Soviet attitude toward the Madrid conference seems more ambiguous than it was at previous stages of CSCE. While the Soviets have given some public attention to Madrid, media discussion does not compare in volume or substance to the extensive positive treatment of

¹⁸ Mueller, Friedemann, *East-West Trade and Security Policy*, Aussenpolitik, vol. 30, No. 2, 1979, p. 181-183.

¹⁹ Preparations for Madrid CSCE, *Die Presse* (Vienna), April 3, 1980, p. 2.

²⁰ Foreign Broadcast Information Service, Daily Report: Western Europe, April 4, 1980, p. A1.

earlier CSCE negotiations. There is a feeling among some Western observers that Moscow's enthusiasm for the continuing dialogue has waned, that its approach to CSCE is now essentially one of damage limitation. Soviet spokesmen have themselves indicated that their commitment to Madrid is not unconditional, that it must be what they perceive as a "constructive" meeting to be worth the effort. As one Soviet spokesman put it:

The work of the Madrid meeting must cover the political and military aspects of security, as well as questions of cooperation in the economic sphere and the humanities, which arise from the Helsinki agreements in general. It is important for the success of the meeting that all questions raised correspond to the compelling demands of the day; their solution be of interest to the meeting's participants, or at least not conflict with the interests of any of them; finally discussion of the proposals put forward must promote the development of mutually beneficial cooperation and the strengthening of security in Europe, and not entail confrontation, spread mistrust, or undermine detente.²¹

The main Soviet and Warsaw Pact initiative in advance of Madrid was in the area of military confidence-building measures or, in Soviet terms, "military detente," first proposed at the 1978 Moscow meeting of the Warsaw Pact Political Consultative Committee.²² Soviet spokesmen claimed that while CSCE had already achieved a number of successes in the political sphere, there had been a "glaring lack" of progress in the military sphere.²³ Specific proposals were put forward by Soviet President Brezhnev on March 2, 1979 and were endorsed by the Warsaw Pact Foreign Ministers meeting in May at Budapest. The measures included: (1) non-first use of nuclear or conventional weapons; (2) freezing the memberships of military alliances (NATO and the Warsaw Pact); and (3) expanding CSCE confidence building measures to include a ceiling of 50,000 on military exercises, giving notice of major air and naval exercises, and advance notice of major troop movements.²⁴

The Soviet/Warsaw Pact proposal called for the convening of a high-level conference on military detente with the participation of all CSCE signatories. Soviet spokesmen argued that this conference should be separate from Madrid but could enrich the work of that conference. Western countries were at first hesitant about such a conference, suspecting that the Soviets might be seeking to decouple military-security considerations from CSCE in order to downgrade the remaining CSCE agenda. Eventually, they agreed in principle to the holding of such a conference—after the Madrid meeting based on a somewhat different French proposal.²⁵

The Soviets have opposed discussion of Afghanistan at Madrid, with the argument that the subject has no relevance to European security and cooperation. At the same time, Moscow tried and failed to exploit differences among Western countries over how to respond to Afghanistan in order to drive a wedge between the United States and its allies at Madrid. Soviet leader Brezhnev in a Pravda interview accused the United States of trying to "undermine the spirit and essence of the

²¹ Security and cooperation in Europe: Achievements and Prospects. *International Affairs* (Moscow), No. 11, October 1979, p. 10.

²² 1978 WTO PCC communique-Moscow.

²³ Security and Cooperation in Europe: Achievements and prospects, ep. cit., p. 8.

²⁴ WTO Foreign Ministers' meeting communique-Budapest May, 1979.

²⁵ Seventh Semiannual Report of the President . . . , op. cit., p. 2.

Helsinki Final Act" and of pursuing the aim of "subduing the European States, first of all its own allies."²⁶

Notwithstanding its emphasis on military detente, the Soviet Union continues to have a substantial interest in the economic agenda at Madrid. The Soviet Union has maintained from the outset that economic cooperation is an essential part of East-West detente. In addition to answering Western criticism of Soviet performance in implementing Basket II, Soviet delegates arrived in Madrid with grievances of their own. Even prior to the sanctions imposed by President Carter on trade with the Soviet Union, the Soviets had itemized specific complaints. The most severe criticism is aimed at the United States for barring most-favored-nation treatment and credits to the Soviet Union under the Jackson-Vanik Amendment to the Trade Act of 1974, as well as what the Soviets perceive as excessively rigid export controls and the general tendency to want to use trade as a political lever.

The Soviet Union is also concerned about what it sees as growing protectionist sentiment in the industrialized West generally. The establishment of the European free trade zone between the EEC and EFTA in 1977 is seen as discriminatory against third states, and causing deteriorating marketing and customs conditions for Soviet exports. The Soviets see a campaign against buy-back arrangements in the West's frequent claims of "dumping" by CMEA nations. The U.S. sanctions against the Soviet Union in response to Afghanistan are depicted by Soviet spokesmen as but the latest illustration of the U.S. inclination to discriminate against the Soviets in trade, and as a clear violation of the Helsinki Final Act.²⁷

Soviet new proposals at Madrid will aim to correct some of these perceived problems in East-West economic cooperation and to expand economic relations in areas of particular interest to the Soviet Union. The Soviets are interested in expanding industrial cooperation on a product-pay-back basis. They are eager to encourage long-term comprehensive inter-governmental agreements on economic, industrial, and technological cooperation. They support the expanded use of joint governmental commissions as the vehicle for expanded business contacts. More generally, the Soviet Union would like to see Madrid help to remove the instability and uncertainty from East-West economic relations.²⁸

East European Views of Madrid

The East European countries, with the exception of Yugoslavia and to a lesser extent Romania, take public positions on CSCE and the Madrid meeting which are closely in line with Soviet views. Despite this formal CMEA cohesion, the East European governments have strong interests of their own. The original conference and the continuing process are seen as providing the multilateral framework within which they can pursue closer political and economic relations with the West bilaterally. Some East European countries have suggested

²⁶ Interview with Leonid Brezhnev, Pravda, Jan. 13, 1980, p. 1.

²⁷ Pichugin, B. Soviet-Western Economic Relations, International Affairs (Moscow), No. 8, August 1979, p. 18-19.

²⁸ Ibid., p. 14-15.

that CSCE is the primary vehicle for expanding detente.²⁹ In line with this view, all of the East European countries were disappointed with the East-West tensions and limited results achieved at the Belgrade Conference. They share a concern that Madrid could further undermine East-West relations, a result all wish to avoid.

The CMEA countries arrived in Madrid with a well-coordinated approach. They have endorsed the Soviet call for discussions focusing on military detente. Poland has offered to host such a conference. Romania has put forward its own disarmament proposals and Yugoslavia has also indicated its interest in pursuing confidence building measures at Madrid. East European governments have voiced opposition to any attempt to use the conference as a forum for discussing Afghanistan, or even contentious issues covered directly by the Final Act. In their view, positive results can be achieved only if all participants are willing to emphasize issues where interests are mutual and thus agreement is most likely. They opposed an extensive human rights debate, because in their view it would also hinder "constructive" results.³⁰ This East European attitude reflects the fact that Eastern Europe would have more to lose from a breakdown of the CSCE process than would the Soviet Union, which has already achieved at least some of its objectives from CSCE.

Nonaligned Yugoslavia, which equates detente with its own survival, has a special stake in the success of the conference. Despite the fact that the Yugoslav government is in sharp disagreement with the socialist bloc on many issues—Yugoslavia condemned the Soviet invasion of Afghanistan for example—it also opposed the raising of contentious issues at Madrid. Yugoslavia seems to agree with other East European countries which feel that the atmosphere at the conclusion of the Madrid conference will be more significant than the substantive content of the negotiations.

Basket II is an area in which the East European countries have especially strong independent interests, although here too CMEA is presenting a more or less united stand at Madrid. East European concerns on the subject differ according to the status of their individual trade relations with the West. Because West European countries occupy a more significant place in East European economic relations than the United States, East European attention tends to focus on problems in that trade. Problems in trade with the United States can be expected to be raised primarily by those countries (Czechoslovakia, the C.D.R., and Bulgaria) which do not currently enjoy U.S. trade preferences. Czechoslovakia is particularly critical of U.S. performance. This stance in part seems to be a response to the U.S. administration's past criticism of Czechoslovakia.³¹ It also reflects Czechoslovak disappointment with the failure of the United States to come to terms on the claims/gold issue.

²⁹ Trybuna Ludu (Warsaw), February 1, 1980 (FBIS: Eastern Europe, Feb. 5, 1980, p. BB4).

³⁰ Interview with Pal Racz, Magyar Mirlap (Budapest), July 29, 1979, p. 4.

³¹ Petr, Vladimir. Who Threatens Helsinki: A Reflection on International Relations. Pravda (Bratislava), December 4, 1979, p. 6 (FBIS: Eastern Europe, December 11, 1979, p. BB1-7).

THE ROLE OF THE U.S. CONGRESS

The U.S. Congress has taken a strong interest in CSCE, in particular its human rights provisions, since the signing of the Helsinki accords. This interest was demonstrated most vividly with the establishment of the Commission on Security and Cooperation in Europe in 1976. The Commission is a joint Congressional-Executive branch organization consisting of six senators, six representatives, and three executive branch appointees (representing the Departments of State, Defense, and Commerce). Its task is to monitor and report to Congress on the implementation of CSCE, as well as to coordinate with other government agencies.

The Ford Administration opposed the establishment of the Commission. The monitoring and implementation of the CSCE Final Act were viewed as responsibilities resting exclusively with the Executive branch. Both the White House and State Department argued that the Administration would be placed in an untenable position if it were linked to the actions of a Commission which by its makeup would inevitably be controlled by Congress.³² In subsequent years, executive branch cooperation with the Commission improved but the relationship remained essentially one of uneasy coexistence.

Congressional attention was initially fueled by a belief that the Administration was taking little interest in the implementation of CSCE once it had been signed. Secretary of State Kissinger had in fact stated that the Soviets had already paid for the accord many times over.

Subsequently, the Carter Administration took a more active interest in CSCE, particularly its human rights provision. This was evident in the leading role played by the United States at Belgrade. The conference was welcomed by the Administration as forum for advancing its new human rights policy.

Members of Congress were on the U.S. delegation in Belgrade. The Commission staff played a direct role in both the preparation and at the actual conference. Congress is playing a similar role at Madrid. Commission Chairman Representative Dante Fascell (D-Fla.) is serving as deputy head of the delegation. The reports on the record of implementing the Helsinki accords, prepared by the Commission in 1979 and 1980, are major supporting documents for the U.S. delegation at Madrid.³³

Congressional interest in CSCE has also been manifested by a continuing series of hearings on every aspect of the Helsinki accords. The hearings have been conducted by the CSCE Commission, in some cases jointly with other Congressional committees. The latest hearing on Basket II was held on April 6, 1980. Both Government and private witnesses testified on the current status of East-West commercial relations. In addition a number of resolutions have been introduced in both houses of Congress related to the Final Act, mostly dealing with Basket III and human rights.

³² U.S. Congress, House Committee on International Relations, Subcommittee on International Political and Military Affairs, Conference on Security and Cooperation in Europe: Pt. 2. Hearings held November 18, 1975 and May 4, 1976. Washington, Govt. Print. Off., 1976, 191 p.

³³ Commission on Security and Cooperation in Europe. Fulfilling our Promises, *op. cit.*

The Congressional role has been criticized for its emphasis on human rights issues to the exclusion of other items in the Final Act. This criticism has been applied specifically to the neglect of Basket II, or a perceived interest in using it solely as a lever to gain Eastern concessions elsewhere. But prior to the Soviet invasion of Afghanistan, several legislative measures related to Basket II of CSCE were under consideration.

In the Final Act, signatories affirm the benefits of applying most-favored-nation status. Section 402 of the U.S. Trade Act of 1974 barred the granting of MFN and credits to communist countries, unless the President determined that they allowed free emigration. Yugoslavia and Poland were exempted from the provisions of the legislation because those countries already enjoyed MFN status at the time the legislation was enacted. Romania (1975) and Hungary (1978) were granted U.S. trade benefits, under the waiver provision of the amendment, based on the finding that the policies of those countries were in compliance with the requirements of the legislation. But this waiver is subject to annual review and therefore creates some uncertainties affecting long-term trade commitments. In the case of the Soviet Union, Czechoslovakia, the G.D.R., and Bulgaria, U.S. MFN and credits continue to be denied, even though there has been some improvement in the practices of at least some of those countries on emigration. The Soviet Union allowed a record number of Jews to emigrate in 1979.

Senator Adlai Stevenson (D.-Ill.) and Representative Les Aucoin introduced bills in 1979 which would have revised certain provisions of the Trade Act in a manner consistent with CSCE. The bills (S. 339 and H.R. 1835) would have allowed the President to grant a waiver of Section 402 on the basis of his own determination without formal assurances on emigration from the recipient country. They would have lengthened the waiver period from one to five years, thus removing some of the uncertainties in U.S.-East European trade relations. The bills also addressed the question of credits, removing the present ceiling of \$300 million Export-Import credits to the Soviet Union and replacing it with a \$2 billion on loans to all Communist countries. The bills were not reported out of committee.³⁴

Congress has modified export control legislation, another subject on which the United States has been criticized in the CSCE context. The Export Administration Act amendments of 1977 had the effect of allowing the President greater flexibility in applying the controls to individual countries. Also the designation "Communist countries" was replaced by "countries which pose a threat to U.S. national security" in the definition of the targets of the legislation.³⁵ The 1979 amendments to the Export Administration Act reform U.S. export control legislation in major ways. The amendments make a clear distinction between foreign policy and national security criteria. They reduce the list of categories of goods requiring licenses and speed up

³⁴ U.S. Congress, House, Committee on Foreign Affairs, Subcommittee on Europe and the Middle East, *U.S. Relations with the Countries of Central and Eastern Europe*, Washington, U.S. Govt. Print. Off., 1979, p. 8.

³⁵ U.S. Congress, Joint Economic Committee, *Issues in East-West Commercial Relations*, U.S. Govt. Print. Off., 1979, p. 4-6

the licensing process. The amendments also emphasize coordination of controls with other countries.³⁶ Despite these reforms, the CSCE Commission has found that too many items are subject to review and that U.S. implementation of CSCE could stand further improvement on this score.³⁷

CONCLUSIONS

The Madrid Conference has come at a time when East-West relations have deteriorated sharply. It would be difficult for the meeting not to reflect the general trends in East-West relations. But in the view of some observers, the conference may have come when it is most needed. Some analysts voice the hope that Madrid will contribute to putting East-West relations back on a more stable basis. As other East-West communications channels become closed, the Madrid Conference may be the main forum for maintaining the dialogue and trying to ease tensions.

The Madrid Conference could have a significant impact on U.S.-West European relations. Throughout the history of the CSCE negotiations, there has been a recognition, at least within official U.S. circles, that the Conference is at least as important in terms of U.S. relations with its European allies as it is in terms of East-West relations. It was recognized that, depending on the approaches of the different parties, the conference could restore greater cohesion and unity or it could heighten the differences which had developed over the Western responses to Afghanistan, Iran, and other international problems. A very rigid Soviet stance at the beginning of the conference has contributed to Western unity.

The United States and its allies may still not share identical views on the priorities among different objectives to be pursued at the conference. The primary West European goal of a "successful" meeting—one that furthers détente—even if it means downplaying certain issues of interest to the West, may still conflict with the U.S. aim of convincing the Soviet Union of its concern over recent Soviet behavior, even if other results at Madrid are sacrificed. Many analysts would argue that Western unity should in fact be the primary objective at Madrid and that compromises are required to achieve that unity.

Under normal circumstances, the chances for agreement on a number of Basket II issues would be enhanced by the genuine mutual interests of all 35 participants in East-West trade. But the disruption of U.S.-Soviet relations by the Soviet invasion of Afghanistan and the U.S. economic reprisals taken in response complicate negotiations. In this area, too, allied differences have yet to be overcome. U.S. and allied assessments of the economic problems that need resolution at CSCE are similar. But the level of importance attached to the economic agenda at Madrid may differ. West European governments view East-West economic relations as sufficiently important to merit insulation from most problems in military and political relations, and to seek Basket II agreements on their own merit. The United States, which is less dependent on trade with the East, has thus far been unwilling to decouple Basket II from other CSCE issues.

³⁶ U.S. Commission on Security and Cooperation in Europe. *Fulfilling our Promises*, op. cit., p. 186-187.

³⁷ *Ibid.*, p. 192.

EASTERN EUROPEAN PARTICIPATION IN THE TOKYO ROUND OF MULTILATERAL TRADE NEGOTIATIONS

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I. SUMMARY AND OVERVIEW

The recently concluded Tokyo Round of Multilateral Trade Negotiations (MTN) was significant in a number of respects, not the least of which was the active participation of the countries of Eastern Europe. The Tokyo Round negotiations marked the first time the Eastern European countries had actively participated in a major round of multilateral negotiations within the framework of the international trading system.

Participation in the Tokyo Round negotiations provided the Eastern European countries with an opportunity to gain international political prestige, seek concessions from their Western trading partners, and lessen their economic dependence on the Soviet Union and their partners with the Council for Mutual Economic Assistance (CMEA). Similarly, the participation of the Eastern European countries provided an opportunity for their Western trading partners to draw them into the multilateral framework of international trade, thereby increasing the impact of the world economy upon their domestic economic systems.

From a trade standpoint, the results of the Tokyo Round negotiations between the Eastern European countries and their Western trading partners were modest in scale. However, from a broad perspective, the results of the Tokyo Round negotiations represent a significant step in the process of integrating East-West trade into the framework of the international trading system. The process of integration will be lengthy, and will require adjustments to the economic systems of the Eastern European countries, and to the international trading system itself, but eventually will result in expanded trade between East and West.

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II. INTRODUCTION

In September 1973, the foreign ministers of the world's major trading partners convened in Tokyo, Japan, to assess the problems facing the world economy. As part of the program for dealing with the world's economic woes formulated at that session, the foreign ministers announced the intent of their countries to enter into another round of multilateral trade negotiations. The Tokyo Round, as it became known, would be conducted within the framework of the General Agreement on Tariffs and Trade (GATT) and have the intended aim of reducing existing tariff and nontariff barriers to world trade. Nearly six years later, after prolonged and often arduous negotiations, the Tokyo Round of Multilateral Trade Negotiations (MTN) formally drew to a close with the signing of the Geneva Protocol of 1979, and the final session of the Trade Negotiations Committee.

The results of those five and one-half years of negotiations are significant in many ways, far overshadowing the results of the six previous rounds of multilateral trade negotiations. Significant reductions were negotiated in the average world wide levels of industrial tariffs. When fully implemented, the tariff reductions negotiated in the MTN will result in an average cut of 33 percent in the industrial tariffs of the world's developed countries, reducing them from an average of 6.2 percent to an average of 4.2 percent.

Significant progress was also made in the Tokyo Round negotiations in reducing nontariff barriers to world trade. Unlike previous rounds of multilateral trade negotiations whose focus had been on reductions in world tariff barriers, the Tokyo Round negotiations also addressed the nontariff measures used by governments to restrict international trade. The basic rules of international trade had remained virtually unchanged since their original formulation in 1948. Largely through the negotiation of codes of conduct governing the use of certain of these nontariff measures, such as standards, licensing, subsidies and countervailing duties, procedures for government procurement, customs valuation, and anti-dumping, the rules of international trade were updated and modernized to provide an effective, just, and equitable trading system for the coming decades.

Easily overlooked, and paling in comparison to the achievements of the Tokyo Round, but significant nevertheless, was the participation of the nonmarket economy countries of Eastern Europe¹ in the MTN. For the first time, Poland, Romania, Hungary, Czechoslovakia, and Bulgaria actively participated in multilateral negotiations within the framework of the international trading system.² Of the nonmarket economy countries of Eastern Europe, only Albania and the German Democratic Republic chose not to participate in the Tokyo Round negotiations.

¹ For the purposes of this article, the nonmarket economy countries will be defined as the German Democratic Republic, Poland, Czechoslovakia, Hungary, Romania, Bulgaria, and Albania. Yugoslavia is more appropriately classified as a market economy for the purposes of the GATT, as reflected by its protocol of accession, and was in fact treated as such in the MTN. Consequently, a discussion of Yugoslav participation in the Tokyo Round negotiations falls outside the scope of this article.

² Both Poland and Czechoslovakia nominally participated in the Kennedy Round, 1967-1971. Poland acceded to the GATT in 1967 at the time of the Kennedy Round and its contribution to the Round was the concessions contained in its protocol of accession. Czechoslovakia agreed to effect reductions in its customs tariff during the Kennedy Round, but little importance was placed upon them by the other participants in the Round.

The prospect of the nonmarket economy countries of Eastern Europe participating in the MTN negotiations presented a dilemma for the other participants in the Tokyo Round. While their participation offered an opportunity for further integrating them into the multilateral framework of international trade, thereby increasing the impact of the world economy upon their domestic economic systems, their participation also presented the other participants with the problem of securing concessions of value from nonmarket economy countries within the framework of an agreement originally concluded between market economy countries and based on the principles underlying market economies.

III. MOTIVATIONS FOR PARTICIPATION

There were basically three motivations underlying the participation of the Eastern European countries in the Tokyo Round of Multilateral Trade Negotiations. Participation in the Tokyo Round negotiations afforded the Eastern European countries an opportunity to (1) gain the international political prestige associated with participation in a major round of trade negotiations within the multilateral framework of the international trading system; (2) graduate from the status of "second class" citizens within the GATT; and (3) press their Western trading partners for concessions which would enable the Eastern European countries to expand their exports to the West.

From a political standpoint, participation in the Tokyo Round would enable the Eastern European countries to gain considerable prestige within the world trading community. Nearly one hundred nations actively participated, to varying degrees, in the Tokyo Round negotiations. A refusal to participate would have had the effect of further isolating the Eastern European countries from the world trading system, and thus strengthening their dependence upon trade with their traditional trading partners within the CMEA framework. On the other hand, participation in the Tokyo Round negotiations would allow the Eastern European countries to play a larger role in the international trading system, and gain a greater degree of acceptance from their Western trading partners.

Closely related to the desire of the Eastern European countries to gain a greater degree of acceptance in the international trading system, was the desire of the Eastern European countries to graduate from their "second class" status as GATT members. The other contracting parties to the GATT had traditionally viewed the Eastern European members as "second class" citizens, countries whose membership had been desired for political reasons, despite the incompatibility of their economic systems with the fundamental principles of the General Agreement.

Poland had acceded to the GATT in 1967, with Romania acceding four years later in 1971. Lacking tariff regimes which were effective regulators of their foreign trade, and therefore unable to offer tariff reductions of value to the Contracting Parties in return for the benefits of membership, both countries agreed to undertake commitments to expand their imports from other GATT member countries on an annual basis. Poland agreed to increase the value of its imports from

GATT member countries by 7 percent per annum. Romania pledged to increase its imports from the Contracting Parties at a rate at least as favorable as the rate of increase in its total imports.

Hungary became a contracting party to the General Agreement in 1973. Unlike the accession negotiations of Poland and Romania, a working party comprised of GATT member countries judged the Hungarian tariff regime to be an effective regulator of Hungary's foreign trade. As a result, Hungary was admitted to the GATT on the basis of tariff reductions on imports originating from GATT member countries.

However, all three countries—Poland, Romania, and Hungary—were required to negotiate protocols of accession outlining their GATT rights and obligations and setting forth certain conditions for their membership. These protocols of accession contain stringent provisions designed to enable other GATT member countries to insulate their domestic economies from the potentially disruptive effects of trade with nonmarket economy countries. Most onerous of these provisions, from the standpoint of the Eastern European countries, is the provision allowing other GATT member countries to continue to impose discriminatory quantitative restrictions on imported products from the Eastern European countries, provided that the discriminatory element is not increased, and is eventually eliminated. The protocols of accession of Poland, Romania, and Hungary also contain provisions allowing other GATT member countries to selectively impose restrictions, contrary to the provisions of Article XIX of the GATT, on imports which cause or threaten to cause disruption to their domestic markets.

Czechoslovakia, on the other hand, had been an original signatory to the General Agreement in 1948. However, with the communist takeover and the subsequent conversion of the Czechoslovak economic system into a centrally planned nonmarket economy, the other member countries of the GATT had moved to limit the scope of their GATT relations with Czechoslovakia. Although Czechoslovakia had not been forced to accept conditions qualifying its membership to the GATT, similar to those later accepted by the other Eastern European countries, some of the Contracting Parties had taken measures, such as the imposition of quantitative restrictions on imports from Czechoslovakia, to protect their domestic markets from potentially disruptive import penetration.

Bulgaria, although not a contracting party to the General Agreement, had established an observer mission to the GATT.

The Eastern European countries perceived the Tokyo Round negotiations as an opportunity to demonstrate their willingness and their ability to comply with all the obligations associated with membership to the GATT, and to put pressure upon the other GATT member countries to treat them on an equal basis with all other contracting parties to the General Agreement. The Eastern European countries sought to accomplish this by contending that they had lived up to the conditions contained in their protocols of accession, particularly those involving potential market disruption resulting from their exports, and that the conditions had proven largely unnecessary. Moreover, the Eastern European countries intended to participate in the negotia-

tions on nontariff barriers, particularly those on anti-dumping and safeguards actions, to further demonstrate their reliability as trading partners within the GATT framework.

In contrast, the Eastern European countries contended that the other members of the GATT had failed to comply with their GATT obligations in their trade relations with the Eastern European countries. Foremost in this regard was the failure of the European Community to progressively liberalize its quantitative restrictions on imports from the Eastern European countries. Although the Community had agreed to liberalize and eventually eliminate these quantitative restrictions, progress towards that end had been slow, and restrictions continued to be maintained in product sectors of major export interest to the Eastern European countries. The European Community represented the largest Western market for the exports of the Eastern European countries. However, the continued maintenance of these quantitative restrictions effectively limited the potential for growth in the Eastern European countries' market share.

Similarly, the Eastern European countries were unhappy with the failure of the United States to apply the GATT in its trade relations with them. Of the Eastern European countries, the United States has entered into GATT relations with only Poland.³ The United States was precluded from extending most-favored-nation (MFN) treatment, as called for in Article II of the GATT, to any other communist country (except Yugoslavia) by the Trade Expansion Act of 1962, and other previous legislation. Thus, when Romania acceded to the GATT in 1971, and Hungary in 1973, the United States, lacking the necessary legal authority to extend most-favored-nation status to communist countries, was forced to invoke GATT Article XXXV, providing for the non-application of the General Agreement between two contracting parties.

The Eastern European countries had anticipated that the Trade Act of 1974, authorizing the participation of the United States in the Tokyo Round negotiations, would provide the United States with the legal authority to extend most-favored-nation treatment to communist countries, thereby enabling the United States to apply the General Agreement in its trade relations with Romania, Hungary, and Czechoslovakia, in addition to Poland. However, the final version of the Trade Act provided only for the extension of most-favored-nation treatment to communist countries on a limited conditional basis. More specifically, Section 405 of the Trade Act stipulated that MFN status could only be extended to a communist country within the context of a bilateral trade agreement. Such agreements would remain in force for a period of three years, although renewable for additional three year periods provided a satisfactory balance of concessions had been maintained throughout the life of the agreement. The extension of MFN treatment to communist countries was further conditioned upon the annual waiver by the President, with the consent of the Congress, of the provisions of Section 402 of the Trade Act, the so-called Jackson-Vanik Amendment, denying the extensions of

³ The United States and Czechoslovakia at one time enjoyed full GATT relations, as original signatories to the General Agreement. However, the United States and Czechoslovakia mutually suspended GATT relations in 1952, following the enactment of Congressional legislation denying trade benefits to communist countries.

trade benefits to communist countries denying their citizens the freedom of emigration.

The limited nature of the authority under Title IV of the Trade Act to extend most-favored-nation treatment to communist countries required the United States to maintain its invocation of GATT Article XXXV in its trade relations with Romania and Hungary, as well as to continue the suspension of its GATT relations with Czechoslovakia. Although Romania and Hungary subsequently entered into bilateral trade agreements with the United States under the provisions of Title IV of the Trade Act, receiving most-favored-nation status albeit on a limited basis, the Eastern European countries—specifically, Romania, Hungary, and Czechoslovakia—continued to express their dissatisfaction with the unwillingness of the United States to treat them on an equal basis with other member countries of the GATT.

Finally, from a trade standpoint, the Tokyo Round negotiations offered the Eastern European countries an opportunity to seek concessions on tariff and nontariff barriers from their Western trading partners which would enable them to expand their exports to the West. Although modest in scale, trade with the West was essential to the continued economic development of the Eastern European countries. The Eastern European countries relied heavily upon imports from the West to enable them to modernize their manufacturing facilities, increase their national productivity, and improve their standards of living, thus reducing their economic dependence upon the Soviet Union and their traditional reliance upon intra-CMEA trade. However, the trade expansion effect of any concessions granted to the Eastern European countries by their Western trading partners would largely depend upon the success of the Eastern European countries in persuading their Western trading partners to dismantle the economic and political obstacles limiting the growth of trade relations.

Despite the limited nature of its trade relations with the countries of Eastern Europe, the United States, after an initial period of indecision, encouraged the participation of the Eastern European countries in the Tokyo Round negotiations. From a broad political perspective, the participation of the Eastern European countries in the Tokyo Round negotiations would constitute a significant step toward greater involvement in the international trading system. An expanded role in the international trading system would, in turn, lessen the economic dependence of the Eastern European countries on the Soviet Union and their CMEA allies. Moreover, their participation in the international trading system would increase the impact of the world economy upon their domestic economic systems, thereby creating pressures for economic decentralization and more flexible, market-oriented economic policies.

From a trade perspective, the Tokyo Round negotiations presented the United States an opportunity to press the Eastern European countries for concessions on items of export interest to the United States. Historically, U.S. exports to the Eastern European countries had been relatively small, accounting for less than five percent of the Eastern European countries total imports. However, concessions on the part of

the Eastern European countries within the framework of the MTN might facilitate greater access to Eastern European markets for U.S. firms and businessmen, thus enabling the United States to expand its exports to the countries of Eastern Europe.

The European Community, on the other hand, was somewhat less enthused by the prospect of Eastern European participation in the Tokyo Round negotiations. The Community was unsure that the further integration of the Eastern European countries to the international trading system was in fact desirable. The centrally planned nature of the Eastern European economies made them basically incompatible with the market-oriented principles of the GATT, and unable to grant concessions of value in the traditional manner in return for concessions granted by other GATT member countries.

The participation of the Eastern European countries in the Tokyo Round negotiations also presented the European Community with a dilemma. The European Community represented the Eastern European countries' largest market in the West. More so than any other participant in the Tokyo Round negotiations, the European Community had the greatest amount of leverage in negotiating with the Eastern European countries. Yet the Community was also the most vulnerable. Despite agreeing in the protocols of accession of Poland, Romania, and Hungary, to their liberalization and eventual elimination, the Community continued to maintain discriminatory quantitative restrictions on imports from the Eastern European countries. Entering into negotiations with the Eastern European countries in the Tokyo Round would provide the Eastern European countries with an opportunity to criticize the Community for not honoring its GATT obligations. However, concessions made by participants in the Tokyo Round would apply to all participants on a most-favored-nation basis, including the countries of Eastern Europe. The Community could reduce the benefit to the Eastern European countries of its Tokyo Round tariff concessions by limiting them to items which were not of principal export interest to the Eastern European countries. But to seek concessions in return, the Community would have to engage the Eastern European countries in formal negotiations.

IV. THE PROBLEM OF RECIPROCITY

The most vexing problem posed by the participation of the Eastern European countries in the Tokyo Round negotiations was that of the nature of their contribution to the negotiations. The basic purpose of the GATT and the obligations assumed by member countries is to promote the expansion and liberalization of international trade. Periodically, multilateral rounds of negotiations had been convened to reduce existing barriers to world trade. These rounds of multilateral trade negotiations had traditionally centered on reductions in tariff barriers. The basic assumption underlying the Tokyo Round negotiations, like other previous rounds of negotiations, was that reductions in tariff barriers, as well as the curtailment of nontariff barriers, would lead to expanded international trade.

Due to the most-favored-nation principle embodied in the General Agreement, tariff reductions made by participants in the Tokyo Round

would benefit all other GATT members, as well as other countries enjoying most-favored-nation treatment through various bilateral arrangements. The Eastern European countries, like other participants in the negotiations, would benefit from the tariff concessions made by GATT member countries in the Tokyo Round.

In seeking reciprocal concessions from the Eastern European countries participating in the Tokyo Round, the other participants were faced with the problem of identifying traditional or new concessions on the part of the Eastern European countries which would have a similar trade expansion effect as those put forward by countries with market economies. Four general forms of reciprocal concessions on the part of the Eastern European countries were considered:

A. Tariff Reductions

Traditionally, multilateral trade negotiations have focused on tariff barriers to international trade. Accordingly, the traditional contribution of participating countries in multilateral trade negotiations has taken the form of reductions in existing tariff levels. In a market economy country, the customs tariff regime is the principal regulator of the country's foreign trade. However, the customs tariff regime does not play a comparable role in regulating the foreign trade of a centrally planned economy country. As a rule, in a centrally planned economy the customs tariff regime plays only a minor role in determining the sources and composition of foreign trade. Purchasing decisions with regard to imports are generally not based on commercial considerations. Individual firms and producing enterprises have little control over economic decisions involving sources of supply, costs of factors of production, amounts of goods produced, and the prices goods are sold at. Tariffs are an effective regulator of trade only to the extent that the individual firms are free to negotiate with and select sources of supply, both domestic and foreign; are free to fix selling prices according to costs; and have access to foreign exchange at uniform, reasonable rates of exchange.

The basic features of the centrally planned economy preclude the conditions necessary for the customs tariff regime to be an effective regulator of foreign trade. In a centrally planned economy import decisions are based instead on factors such as planning priorities expressed in the foreign trade plan formulated by the central planning agency, the manipulation of foreign exchange multiplier rates, the allocation of foreign exchange, the granting of import licenses, and other forms of administrative discretion. As a result, reductions in tariffs on the part of a country with a centrally planned economy would not necessarily have a comparable trade expansion effect as tariff reductions on the part of a country with a market economy. The trade expansion effect of tariff reductions by a centrally planned economy country is further limited by the isolation of the domestic price structure from the world economy. In a centrally planned economy prices are arbitrarily set, rather than determined on the basis of costs of production plus margins of profit. Therefore, through the manipulation of prices domestically produced goods may remain com-

petitive with foreign products despite reductions in customs tariffs, thereby negating their associated trade expansion effect.

B. Import Commitments

Commitments on the part of the Eastern European countries to annually increase their imports from other GATT member countries presented another potential contribution by the Eastern European countries to the Tokyo Round negotiations. In return for the benefits of tariff reductions offered by other Tokyo Round participants, the Eastern European countries would agree to increase their imports from other GATT member countries by a certain amount annually. In theory, annual import commitments would have a trade expansion effect similar to that associated with tariff reductions, although not as a result of market forces.

However, there were several drawbacks to annual import commitments on the part of the Eastern European countries in return for tariff concessions offered by other participants in the Tokyo Round. Most importantly, past experience with annual import commitments had indicated that they did not necessarily provide adequate reciprocity for tariff reductions made by other GATT member countries. Both Poland and Romania had agreed to annual import commitments in their protocols of accession to the GATT. However, neither commitment had functioned well. The Polish import commitment called for Poland to increase the value of its imports from GATT member countries by seven percent annually. Initially, Poland experienced little difficulty in fulfilling its commitment. But in recent years, despite the advantageous effect of inflation, Poland had been unable to fulfill its commitment. Romania's commitment called for an increase in Romanian imports from GATT member countries at a rate no less than the rate of increase of Romania's total imports. Although in practice the Romanian import commitment has functioned somewhat more effectively than that of Poland, neither commitment had fully reciprocated in trade terms the benefits to Poland and Romania from the reduction in tariffs resulting from accession to the General Agreement.

Secondly, the intended trade expansion effect associated with an annual import commitment may be easily distorted by the centrally planned nature of the economies of the Eastern European countries. Given the ability of the central planning agency to control the sources and composition of foreign trade, the Eastern European countries could fulfil their commitments by concentrating their imports from a few arbitrarily selected GATT member countries, such as their CMEA partners or political friends, despite the concept of nondiscriminatory treatment provided for in the General Agreement.

A further drawback to annual import commitments was the fact that they would not serve to encourage economic liberalization and a larger role for market forces within the economic systems of the Eastern European countries. On the contrary, the necessity to ensure the fulfilment of import commitments would tend to reinforce the control over import decisions by central planning authorities.

Past annual import commitments had been applied to imports of all products from all GATT member countries. Also considered as

potential concessions on the part of the Eastern European countries were import commitments covering specific product sectors. These so-called sectoral import commitments would consist of undertakings on the part of the Eastern European countries to import specific amounts of certain products for certain periods of time. The exact product coverage, the level of imports of each product, and the duration of the commitment would be the subject of negotiation between the country requesting the commitment and the particular Eastern European country.

Sectoral import commitments on the part of the Eastern European countries participating in the Tokyo Round negotiations might serve as an intermediate step for several of the Eastern European countries in the transition from annual import commitments to tariff reductions as the basis for their GATT membership. Sectoral import commitments might also serve to promote a greater reliance on the part of the Eastern European countries on their tariff regimes as regulators of their foreign trade. Similarly, sectoral import commitments might force the Eastern European countries to diversify the composition of their foreign trade.

However, the application of import commitments on a sectoral basis presented several new problems in addition to those presented by the traditional application of import commitments. Sectoral import commitments on the part of the Eastern European countries would not necessarily guarantee an increase in their total imports from other member countries of the GATT. Instead, they might only result in a shift in the composition of the Eastern European countries' imports from GATT member countries. The Eastern European countries were plagued to varying degrees with large balance of payments deficits, high accumulated hard currency debts, and small rates of export growth. As a result, they had relatively fixed amounts of hard currency with which to purchase imports from other GATT member countries. In order to fulfill sectoral import commitments in certain product sectors, the Eastern European countries might be forced to curtail imports in others. Given these constraints, the conclusion of sectoral import commitments might set off a competitive struggle among the members of the GATT to gain a piece of the relatively small Eastern European market for their exports.

Moreover, rather than encouraging greater participation on the part of the Eastern European countries in the multilateral framework of international trade, sectoral import commitments would lead to a greater degree of bilateralism in their trade with other GATT member countries, similar in effect to their bilateral trading arrangements within the CMEA framework. Furthermore, the acceptance of sectoral import commitments by the Eastern European countries would likely lead to increased centralization of control over import decisions, rather than a larger role for market forces in economic decisionmaking.

C. Nontariff Barriers to Trade

Unlike previous rounds of multilateral trade negotiations, the Tokyo Round negotiations also focused on the nontariff measures used by governments to restrict the normal flow of international trade. Rules, or codes of conduct, governing the utilization of nontariff

measures in the following areas—standards, licensing, customs procedures, subsidies and countervailing duties, and government procurement procedures were negotiated in the Tokyo Round. These codes of conduct were intended to limit the use of nontariff measures so as to create a more fair and equitable international trading system.

More specifically, the Standards Code establishes rules for the formulation and application of industrial and health and safety product standards. These rules are based on the principle that national product standards should not constitute a barrier to international trade. The basic thrust of the Standards Code is toward greater openness in the establishment and administration of product standards, with the eventual goal of harmonization of standards internationally. Where possible national standards should be formulated to conform with international standards. The Code requires that all proposed standards be published and interested foreign parties be offered the opportunity to comment on them prior to their adoption. Test methods and administrative procedures for compliance with national standards should also be published, and where possible testing of products carried out in exporting countries in accordance with foreign testing procedures be accepted.

The Licensing Code deals primarily with the administration of import licensing regimes. The purpose of the Code is to simplify and harmonize the procedures which importers must follow in obtaining import licenses, so that the procedures themselves do not constitute unnecessary obstacles to international trade. The Code establishes open and simplified procedures governing both automatic and non-automatic import licensing regimes.

The Customs Valuation Code establishes a set of international rules for the determination of the value of imported goods for the purpose of assessing customs duties. The Customs Valuation Code attempts to ensure that these rules are fair, simple, conform to commercial reality, and allow traders to predict, with a reasonable degree of accuracy, the duty that will be assessed on their products. In addition, the Customs Valuation Code contains various technical provisions designed to streamline import documentation, customs handling procedures, and other customs matters.

The Subsidies/Countervailing Duties Code addresses the use of export subsidies which confer unfair competitive advantages to the products of the subsidizing country. The Code sets up methods for determining injury to domestic industries resulting from the sales of subsidized products. In addition, the Code establishes rules for the identification of export subsidies, the determination of injury resulting from them, and the assessment of countervailing duties as remedies.

The Government Procurement Code is designed to facilitate access of foreign suppliers to the procurement needs of government entities. Most government procurement systems are presently closed to foreign producers by various formal and less formal systems of discrimination in favor of domestically produced products. This discrimination in favor of domestic producers is often achieved through highly invisible administrative practices and procedures. The rules contained in the Government Procurement Code are formulated to discourage

discrimination between domestic and foreign suppliers at all steps in the procurement process.

Adherence by the Eastern European countries to some or all of the codes of conduct negotiated in the Tokyo Round might serve to stimulate liberalization of their domestic economic systems by subjecting them to a greater degree of international discipline. In addition to promoting adjustment within their domestic economies, adherence to the codes would more fully integrate the Eastern European countries into the framework of international trading system. While the adherence of the Eastern European countries to the codes would require them to assume obligations limiting their use of nontariff measures, they would also receive certain benefits from code membership. As such, adherence to the codes alone would not constitute sufficient reciprocity for the tariff concessions made by other participants in the Tokyo Round negotiations.

Moreover, given the arbitrary nature of the price structure in a centrally planned economy, and its insulation from the effects of the world economy, adherence by the Eastern European countries to those codes addressing pricing concepts would be of little real value in the absence of fundamental reform of their economic systems. However, the adherence of the Eastern European countries to those codes which are not directly related to pricing might prove useful in limiting the degree of administrative control exercised over foreign trade.

In this context the adherence of the Eastern European countries to the Standards Code would be the most desirable. Their adherence would encourage greater openness in their standards systems and procedures, thereby reducing the use of product standards as a barrier to trade. Similarly, adherence of the Eastern European countries to the Licensing Code would force them to inject a greater degree of transparency into the application and administration of their import licensing regimes. Licenses for imports would have to be granted in accordance with international rules. Adherence of the Eastern European countries to the Customs Valuation Code might also be desirable, encouraging a greater degree of conformity to internationally accepted procedures for import valuation.

On the other hand, Eastern European adherence to the Subsidies/Countervailing Duties Code and the Government Procurement Code would not be desirable. Adherence to both codes would require fundamental reform of their domestic economic systems in order to comply with the provisions of the codes.

D. Business Facilitation Measures

Measures undertaken by the Eastern European countries participating in the MTN to facilitate the conduct of trade with GATT member countries could also serve to reciprocate the concessions made by other participants in the Tokyo Round negotiations. Liberalization of the rules and regulations governing the conduct of business between Western firms interested in exporting to the Eastern European countries and the relevant ministries and producing enterprises would have a trade expansion effect, although difficult to quantify, similar to that associated with the tariff concessions put forward by other participants in the MTN.

Frequently, domestic laws and regulations governing the conduct of business with foreign entities have acted as an impediment to increased trade between the Eastern European countries and the other members of the GATT. In particular, laws and regulations limiting the rights of Western firms to open and operate business representation offices, hire local employees at reasonable wages, advertise, conclude contracts, gain access to end-users of their products, gain access to local courts and administrative bodies, and provide technical services to the same extent as nationals and enterprises of the host country have hampered the ability of Western firms to conclude business transactions and effectively compete in the domestic markets of the Eastern European countries. Liberalization of these rules and regulations would enable Western businessmen to penetrate these relatively closed markets, and develop and expand commercial relationships.

Increased market access for Western firms would in turn increase the impact of the international economy on the domestic economic systems of the countries of Eastern Europe, creating pressures for economic decentralization, and for more flexible, market-oriented policies. Although the immediate trade expansion effect of these concessions would be small and difficult to quantify, the value of these concessions over the long term might prove to be much more significant.

Similarly, increased access to economic information on the economies and foreign trade of the Eastern European countries would aid Western firms in their efforts to develop commercial relationships with the ministries and enterprises within the countries of Eastern Europe. The availability of such information remains extremely limited. The paucity of this information often acts to discourage Western firms from entering into business relationships with the countries of Eastern Europe because they are unable to engage in the necessary market analysis and research to determine the product sectors in which their products are competitive. Access to more detailed financial and economic data, in particular, balance of payments information and detailed foreign trade statistics, including intra-CMEA trade, on a frequent basis would enable Western firms to determine which products are and are not competitive with domestic production, and whether or not Western products are discriminated against in favor of imports from other CMEA member countries. By targeting those sectors in which they are most competitive, Western producers could more effectively take advantage of business opportunities within the Eastern European markets.

The problem of identifying concessions on the part of the Eastern European countries participating in the MTN which would provide adequate reciprocity for their own concessions was a difficult one to solve for the other participants in the Tokyo Round negotiations. The concessions sought from the Eastern European countries had to be relevant within the context of the centrally planned nature of their domestic economic systems. They also had to address the means by which centrally planned economies regulate international trade. At the same time, concessions on the part of the Eastern European countries had to be formulated in a manner which would overcome the ability of centrally planned economies to moderate, far more easily than market economies, the trade expansion effect associated with traditional GATT concessions and obligations.

V. THE TOKYO ROUND NEGOTIATIONS

All the Eastern European countries participating in the Tokyo Round negotiations chose to put forward tariff concessions in one form or another as reciprocity for the tariff concessions made by other participants in the Tokyo Round negotiations. The Tokyo Round negotiations offered the Eastern European countries an opportunity to gain an added degree of legitimacy for their tariff regimes through the acceptance of their tariff concessions as adequate reciprocity for tariff concessions made by other participants in the Round.

The desire to secure acceptance of their customs tariff regimes was of particular importance to Poland and Romania. Neither country had established customs tariff regimes at the time of their accession to the GATT in 1967, and 1971, respectively. Subsequent to their accession to the GATT, both countries introduced customs tariff regimes; Romania on January 1, 1974, with Poland following suit two years later. However, at the time of the Tokyo Round negotiations neither country's tariff regime had been determined to be an effective regulator of foreign trade. Romania had submitted its tariff regime for examination by a working party comprised of GATT member countries. The working party had been unable to reach a conclusion on its effectiveness as a regulator of Romania's foreign trade. The Polish tariff regime, on the other hand, had been described upon its introduction as experimental, did not apply to the other members of CMEA, and had never been submitted to a GATT working party for examination.

Both Poland and Romania viewed the MTN as an opportunity to gain some degree of legitimacy for their tariff regimes which could be used to influence any future examination of their tariff regimes by GATT working parties. Acceptance of Polish and Romanian tariff concessions by other Tokyo Round participants as adequate reciprocity for their own tariff concessions would establish de facto equality between the roles of customs tariffs in the Polish and Romanian economies and those of other GATT members, and would constitute, in effect, acceptance of the Polish and Romanian tariff regimes as effective regulators of foreign trade.

The acceptance of tariff concessions on the part of Poland and Romania by other Tokyo Round participants would assume added significance in light of the desire of both countries to eventually replace their annual import commitments with tariff reductions as the basis of their membership to the GATT. Both Poland and Romania regarded the annual import commitments contained in their protocols of accession as evidence of their differential treatment as GATT members, and had long been interested in substituting tariff reductions as the basis of their GATT membership, in the manner of other contracting parties to the GATT. Acceptance of Polish and Romanian tariff concessions in the MTN would lend considerable weight to their arguments that the Polish and Romanian tariff regimes were effective regulators of foreign trade, and, therefore, there was little need for continuing the import commitments contained in the Polish and Romanian protocols of accession.

To this end, from the outset of the actual negotiations both Poland and Romania indicated their intention to provide reciprocal conces-

sions in the form of tariff reductions in return for the tariff concessions offered by other participants in the Tokyo Round. In fact, both countries subsequently adopted the tariff cutting formula agreed to in the MTN, albeit with many exceptions.

Czechoslovakia also chose to advance tariff concessions as its principal contribution to the Tokyo Round negotiations, although for some different reasons. In negotiating accession to the GATT in 1948, Czechoslovakia had entered into tariff negotiations with the other contracting parties and had agreed upon certain tariff reductions in return for the benefits of GATT membership. Despite the diminished role of Czechoslovakia's tariff regime following the communist takeover and the establishment of a centrally planned economy, Czechoslovakia continued to maintain its tariff regime, although largely for administrative purposes. In each of the rounds of multilateral trade negotiations preceding the Tokyo Round, Czechoslovakia had agreed to tariff reductions. Thus, the tariff negotiations during the Tokyo Round offered Czechoslovakia an opportunity to further demonstrate the continued viability of its customs tariff regime.

Bulgaria, as a non-GATT member, did not stand to benefit from the tariff reductions made by GATT member countries within the context of the Tokyo Round negotiations. However, Bulgaria would receive the benefits of concessions made in the Tokyo Round by countries with which it enjoyed most-favored-nation status through bilateral relationships. Consequently, Bulgaria was not as compelled to offer reciprocal concessions as the other Eastern European countries participating in the Tokyo Round. Nevertheless, the Tokyo Round negotiations provided an opportunity for Bulgaria to influence the basis for future accession negotiations, in the event it decided to apply for membership to the GATT.

Towards the conclusion of the Tokyo Round, Bulgaria unilaterally introduced a tariff instrument, offering reductions in the Bulgarian tariff regime, in return for acceptance by GATT member countries of the legitimacy of the Bulgarian tariff regime as an effective regulator of Bulgaria's foreign trade and the extension of certain GATT rights to Bulgaria. Acceptance of the instrument by GATT member countries might enable Bulgaria to seek GATT membership on the basis of tariff reductions instead of on the basis of an annual import commitment similar to those of Poland and Romania. The Bulgarian tariff instrument was later rejected by the Contracting Parties, as prejudicing the outcome of any future examination of the Bulgarian tariff regime by a GATT working party, as well as any future negotiations on terms of accession which might take place following a Bulgarian application for membership to the GATT.

Given the centrally planned nature of the economies of the Eastern European countries, and the comparatively minor role played by their tariff regimes in regulating their foreign trade, tariff reductions on the part of the Eastern European countries were generally considered to be of little value by the other participants in the Tokyo Round, and insufficient as reciprocity for their own tariff concessions.

The one exception to this general assessment was the tariff concessions put forward by Hungary. As a result of a process of economic decentralization begun with the introduction of the New Economic

Mechanism (NEM) in 1968, Hungary's tariff regime played a much more central role in regulating Hungary's foreign trade than its counterparts in the more highly centralized economies of the other Eastern European countries. As evidence of its role, tariff concessions had constituted the basis for Hungary's accession to the GATT in 1973. Following Hungary's application for membership, a working party of GATT member countries had examined the Hungarian tariff regime and had found it to be an effective regulator of Hungary's foreign trade. Subsequently, Hungary entered into tariff negotiations with the Contracting Parties, including the European Community, and provided tariff concessions in return for the benefits of membership to the General Agreement. The United States did not enter into tariff negotiations with Hungary at the time of Hungary's accession due to the lack of legal authority to extend most-favored-nation treatment to communist countries. However, the United States approved Hungary's protocol of accession to the GATT, and reserved its right to enter into tariff negotiations with Hungary at some future date in the event of U.S. disinvocation of GATT Article XXXV. Since its accession to the GATT, Hungary had continued its efforts at economic decentralization. As a result, there existed considerable precedence for accenting Hungarian tariff concessions as adequate reciprocity for tariff concessions put forward by other participants in the Tokyo Round negotiations, and reasonable expectation that they would result in increased trade between Hungary and the other member countries of the GATT.

Of the countries participating in the Tokyo Round negotiations, the European Community and the United States were the two countries to negotiate most actively with the Eastern European countries. The European Community shared the general assessment of the participants in the Tokyo Round that tariff reductions on the part of the Eastern European countries, except those of Hungary, were of little value and would not be sufficient reciprocity for its own tariff concessions of benefit to the Eastern European countries. The European Community strongly supported instead the negotiation of sectoral import commitments as the best means for securing reciprocal concessions from the Eastern European countries participating in the MTN. The Community contended that nondiscriminatory sectoral import commitments would constitute meaningful concessions on the part of the Eastern European countries, consistent with the nature of their internal economic systems, and would result in expanded trade.

Accordingly, the European Community formally requested sectoral import commitments covering agricultural products and consumer goods from each of the Eastern European countries participating in the MTN. The Community's requests for agricultural sectoral import commitments covered a wide variety of products, including food preparations, oil cakes, wine, tobacco, and fruits and vegetables. They were formulated on a bilateral basis, requesting fifty percent increases in imports from the Community over the first five years; with a minimum growth in imports of six percent per year. At the conclusion of the five year period, the commitments would be renegotiated. The

Community's requests of the Eastern European countries for sectoral import commitments on industrial products were formulated on a nondiscriminatory most-favored-nation basis, requesting engagements to ensure an appropriate rate of increase of imports from the member countries of the GATT over the ensuing eight year period. These requests covered primarily consumer goods, including pharmaceuticals, photo equipment, textiles and apparel, leather goods, footwear, copper articles, watches, furniture, electrical machinery, autos, aircraft, and optical instruments. The requests were based on existing tariff nomenclature, and formulated to accord with the general staging principle of eight years agreed to for tariff reductions negotiated in the MTN.

Each of the Eastern European countries participating in the MTN rejected the European Community's requests for sectoral import commitments, although for different reasons. Both Hungary and Czechoslovakia had acceded to the GATT on the basis of reductions in their customs tariff regimes. Agreement to the negotiation of sectoral import commitments, in lieu of tariff reductions, in return for the benefits of tariff reductions offered by the Community would undermine the existing credibility of their tariff regimes and the basis for their membership in the GATT. The Community's requests were particularly offensive to Hungary because the Community had entered into tariff negotiations with Hungary at the time of Hungary's accession to the GATT.

Theoretically, the Community's requests for sectoral import commitments might have been more acceptable to Poland and Romania. Both countries were anxious to replace their annual import commitments with tariff reductions as the basis for their membership to the GATT. Sectoral import commitments had been depicted as an intermediate step in the transition to an effective tariff regime. However, upon closer examination, both countries perceived sectoral import commitments as entailing additional obligations to those inherent in their present import commitments. Rather than serving as an intermediate step toward GATT membership on the basis of an effective customs tariffs regime, they would instead solidify their current second class status as GATT members.

For Bulgaria, a non-GATT member, acceptance of the Community's requests for sectoral import commitments might prejudice the basis for any future accession negotiations following a Bulgarian application for membership to the GATT.

The rejection by the Eastern European countries of the European Community's requests for sectoral import commitments, and the unacceptability of tariff reductions on the part of the Eastern European countries, Hungary excluded, left the European Community with the prospect of receiving nothing in return for its own concessions. The Community was the largest trading partner of the Eastern European countries among the member countries of the GATT. However, although the Eastern European countries exported a wide variety of products to the Community, they were the principal suppliers of very few. As a result of the most-favored-nation application of tariff reductions agreed to in the MTN, the Eastern European countries stood to benefit from numerous concessions offered by the European Com-

munity to the principal suppliers of products of which the Eastern European countries exported small amounts to the Community. Moreover, due to the Eastern European countries position as minor suppliers of most of their exports to the Community, the Community was unable to withdraw concessions benefiting the Eastern European countries without upsetting the balance of negotiations with other participants in the Tokyo Round. Faced with the prospect of the Eastern European countries receiving, in effect, a "free ride", the European Community sought to negotiate reciprocal concessions from the Eastern European countries in some other fashion.

The problem of receiving reciprocity from Hungary was simplified by the acceptability of Hungarian tariff concessions. The Community engaged Hungary in tariff negotiations, which proved largely successful in striking a balance of concessions. The Community also sought commitments from Hungary to liberalize certain nontariff measures which could be used to moderate the trade expansion effect associated with the tariff reductions agreed to by Hungary.

The problem of identifying acceptable reciprocal concessions on the part of the other Eastern European countries was more difficult. Although somewhat skeptical of their value in terms of trade expansion, the Community requested concessions on business facilitation measures from Poland, Romania, Czechoslovakia, and Bulgaria. The Eastern European countries were not initially forthcoming in their response to the Community's requests. Cognizant of the Community's inability to effectively withdraw concessions of interest to them, and aware that the trade expansion effect of the tariff concessions offered by the Community would be limited by the Community's quantitative restrictions on their exports, the Eastern European countries were not readily inclined to respond with concessions of major significance. However, subsequent negotiations produced agreement on the part of the Eastern European countries to undertake certain business facilitation measures, primarily in the area of access to economic information, which would provide some degree of reciprocity to the European Community for its concessions of benefit to the Eastern European countries.

The United States also considered tariff reductions on the part of the Eastern European countries, except those of Hungary, to be of little present value, and inadequate as reciprocity for tariff concessions put forward by the United States in the Tokyo Round negotiations. However, during the early stages of the Tokyo Round, only Poland and Romania received most-favored-nation treatment from the United States, and as such were the only Eastern European countries which would benefit from U.S. concessions. As a result, U.S. negotiations with the Eastern European countries in the MTN were initially limited to seeking reciprocal concessions from Poland and Romania.

The United States rejected the tariff concessions put forward by Poland and Romania as reciprocity because neither country's tariff regime had been found by a GATT working party to be an effective regulator of foreign trade. The negotiation and acceptance of tariff concessions put forward by Poland and Romania might prejudice the findings of future working parties examining the Polish and Romanian tariff regimes. Moreover, the United States was concerned that accept-

ance of Polish and Romanian tariff concessions would have implications for the continued viability of Poland and Romania's annual import commitments. Having received de facto acceptance of their tariff regimes, Poland and Romania might choose to ignore the obligations entailed in their import commitments, pushing forward instead with attempts to replace them with tariff reductions as the basis for their GATT membership.

Although declining at the time to accept tariff reductions from Poland and Romania as adequate reciprocity for U.S. tariff concessions, the United States encouraged both countries to make reductions in their customs tariffs. At some point in time both countries might undertake sufficient economic liberalization so as to make their tariff regimes effective regulators of their foreign trade. In that event, in the absence of reductions in the interim, the other GATT member countries would then face inordinately high tariff walls in each of these countries, thereby restricting the expansion of trade.

Faced with the rejection of its tariff concessions as adequate reciprocity by both the European Community and the United States, and unable to secure commitments from either with regard to the outcome of a future examination of the Polish tariff regime by a GATT working party, Poland eventually withdrew its tariff offer. Romania, on the other hand, chose to implement the tariff reductions it offered in the Tokyo Round negotiations.

Unlike the European Community, the United States took the position that the negotiation of sectoral import commitments on the part of the Eastern European countries would lead to increased centralization of control over import decisions within the Eastern European countries, and result in an increased degree of bilateralism in their trade with other GATT member countries. The United States chose instead to seek reciprocal concessions from Poland and Romania in the form of measures which would facilitate the conduct of business by Western firms operating in the two countries. These requests centered upon access to economic and financial statistics, and rules and regulations limiting the ability of Western firms to conclude business transactions.

Poland was generally not forthcoming in its responses to the requests of the United States, agreeing to minor concessions involving economic information and business exchange rates. However, Romania and the United States reached agreement on a number of business facilitation measures which should enable Western businessmen to conclude business transactions with less difficulty in Romania.

With the conclusion of the United States-Hungarian bilateral trade agreement in mid-1978, Hungary also became eligible to benefit from tariff concessions offered by the United States in the Tokyo Round. The United States continued to invoke GATT Article XXXV in its trade relations with Hungary, and was therefore unable to enter into tariff negotiations with Hungary within the framework of the Tokyo Round. However, the U.S. invocation of Article XXXV did not prevent the two countries from entering into bilateral tariff negotiations, paralleling the MTN negotiations, but outside the framework of the GATT.

The United States considered tariff reductions on the part of Hungary, negotiated in this manner, to be the most effective means of gaining reciprocity for U.S. tariff concessions put forward in negotiations with other MTN participants, but of benefit to Hungary as well. After several rounds of intensive negotiations, the United States and Hungary reached agreement on reciprocal tariff concessions covering a wide variety of products of export interest to both countries. When combined with the tariff reductions effected by the mutual extension of most-favored-nation treatment, the tariff concessions agreed to by Hungary and the United States should result in a significant expansion in trade between the two countries.

As with Poland and Romania, the United States also sought commitments from Hungary on measures to facilitate the conduct of trade. Hungary was generally forthcoming in its responses, agreeing in principle to the elimination of present restrictions on the import of consumer goods, and to the conformity of its import licensing procedures with accepted international principles.

The United States also encouraged all three countries—Poland, Romania, and Hungary—to formally adhere to a number of the codes of conduct on nontariff measures negotiated in the MTN, in particular, the codes on standards, import licensing, and customs valuation. To date, Hungary and Romania have formally adhered to these codes. Poland has requested observer status to a number of the committees created to implement the codes, and formal adherence to several of the codes is still under consideration.

Czechoslovakia has formally adhered to the Anti-dumping Code. Bulgaria has become an observer of several of the code committees and has expressed an interest in formally adhering to the Standards Code.

VI. CONCLUSIONS

The results of the negotiations between the Eastern European countries and the other member countries of the GATT participating in the Tokyo Round were modest in trade terms. The concessions put forward by both sides will result in increased trade. However, the Eastern European countries were largely unsuccessful in their attempts to persuade their GATT trading partners to treat them on an equal basis. Similarly, the other member countries of the GATT were unable to persuade the Eastern European countries to reduce the trade barriers inherent in their centrally planned economies. Consequently, the expansion of trade resulting from the concessions put forward by both sides will continue to be limited by the nature of the Eastern European countries' domestic economic systems, and the various measures taken by their Western trading partners to insulate their domestic economies from the potentially disruptive effects of trade with centrally planned economies.

Nevertheless, the participation of the Eastern European countries in the Tokyo Round negotiations was significant in several respects. Foremost, the participation of the Eastern European countries in the Tokyo Round negotiations represents an important step in the

process of integrating East-West trade into the multilateral framework of the international trading system. The increased participation of the Eastern European countries in the international trading system will eventually lead to expanded trade with the West, and lessen somewhat their traditional dependence upon trade with the Soviet Union and their other CMEA partners. Moreover, increased participation in the international trading system will force the Eastern European countries to assume greater discipline in their trading practices, ensuring that East-West trade will be conducted on a more fair and equitable basis, in accordance with international rules and principles.

In addition to expanded trade between the Eastern European countries and their Western trading partners, the participation of the Eastern European countries in the international trading system will also increase the impact of the international economy upon their domestic economic systems. The increased influence of the international economy will stimulate pressures from within the domestic economic systems of the Eastern European countries for economic reform, decentralization, and the pursuit of more flexible, market-oriented policies.

The Eastern European countries' participation in the Tokyo Round negotiations was significant for another reason. The results of the negotiations between the Eastern European countries and their Western trading partners underscored the problems associated with assimilating countries with centrally planned economies into a multilateral trading system based on market principles. The difficulties encountered in identifying and negotiating concessions on the part of the centrally planned economy countries of equal value with the traditional concessions put forward by the Western market economy countries illustrates the inadequacy of the existing international framework in dealing with trade with countries with centrally planned economies.

The integration of the centrally planned economy countries into the international trading system will require the alteration of existing GATT rules in order to effectively deal with ability of the centrally planned economy to limit the effect of market forces on its foreign trade. Ideally, this reform would take the form of a new GATT section containing guidelines or codes of conduct applying to the instruments used in centrally planned economies to control foreign trade. However, it is highly unlikely that the Eastern European countries would agree to being singled out in this fashion. Whatever reform of the GATT that is undertaken to deal with the problem of trade with centrally planned economies should be designed to promote the development of more liberal market-oriented policies within the countries of Eastern Europe. However, in seeking to deal more effectively with the problems of trade with the Eastern European countries, the other members of the GATT must be careful to preserve the existing framework of rights and obligations underlying the international trading system. The burden of adjustment will clearly rest with the Eastern European countries.

TRIPARTITE INDUSTRIAL COOPERATION AND EAST EUROPE

By Patrick Gutman*

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OVERVIEW

At a time when redeployment appears to be one of the major difficulties of the Western economy, it is striking to see how little importance is attached in studies on the "New International Division of Labor" to the part played by the East European countries and to what extent the East-West axis appears to be treated in isolation from the North-South axis.

To a great extent this arises from the fact that the Eastern countries through their absence hitherto from the North-South dialog—which in consequence is a West-South confrontation—seem to have gained an important strategical advantage by leaving it to "the neo-colonialists" to shoulder the entire responsibility for its possible failure.

Tripartite Industrial Cooperation (TIC) is an important new development in that the East has joined the West in partnership to cooperate in southern third countries. Through the TIC approach, East and West are now *jointly* building industrial complexes in the

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East Europe refers to Bulgaria, Czechoslovakia, GDR, Hungary, Poland, Romania, USSR and Yugoslavia. These countries will also be referred to as the East or Eastern countries.

South. Western engineering firms in partnership with socialist Foreign Trade Organizations (FTOs) erect plants in developing or semi-industrialized countries in cooperation to a greater or smaller extent with local firms and industries.

This development, which only began to acquire momentum in the seventies, may result in a qualitative modification of East-West relations. While being in line with East-West détente, TIC has the additional advantage of contributing to the promotion of the relations which both of the industrial partners wish to have with the Third World.

Recent developments show the practice of TIC to be far more extensive than in 1965-1975. At least 88 new operations have been completed or started in 1976-1979, in contrast with only 138 during the ten-year period 1965-1975. A significant increase has also been registered in the number of protocol agreements (umbrella agreements for the implementation of future joint ventures) between Western firms and socialist FTOs for cooperation in third countries: 82 in the years 1976-1979 as opposed to 37 in the years 1965-1975.

TIC now embraces 56 countries in the Middle East, in the Maghreb countries of North Africa, in the rest of Africa, in Asia, in Latin America and in the Mediterranean and accounted for some 230 operations by the end of 1979.

It is thus not just a phenomenon limited to a few specific countries which, solely for political reasons, may have had recourse to this form of cooperation; it is a practice which is being generalized. It is arousing growing interest, particularly in the Eastern countries where it is very well received.

As a general rule East European economists consider that TIC is not just a "new form" of economic cooperation but that it will have or *has already* had structural consequences for international relations. For instance, Leon Zurawicki (Poland), states that "tripartite cooperation is not based on the usual model of trade exchanges between East, West and South, but signifies a qualitative change in the International Division of Labor".¹ And again, Jozsef Bogнар (Hungary) asserts that "TIC is the most constructive approach to the present problems of world economy. It favors the creation of a fairer world economy."²

As to the impact of TIC, great prudence must be observed but its very existence indicate the possibility of structural evolution, which will necessarily be determined by the course of East-West relations in general and by the dynamics of East-West Industrial Cooperation in particular. The approach to TIC cannot be determined in isolation. On the contrary, while focusing the analysis on the East, we shall have to consider the scope and significance of TIC in the light of the approach of both East and West, relative to their strategy towards the South.³

¹ Cf. L. Zurawicki "Perspektywy współpracy trójstronnej Wschod-Zachod-Południe" (The prospects for Tripartite Cooperation). *Sprawy Międzynarodowe*, No. 5/1978, p. 81.

² Cf. J. Bogнар, "Le Commerce Est-Ouest et la détente", *Mondes en Développement* No. 19, 1977, p. 573.

³ Most of the tables are given in appendixes so as not to burden the study with statistical matter.

I. EMERGENCE AND SPECIFIC CHARACTERISTICS OF EAST, WEST, AND SOUTH TRIPARTITE INDUSTRIAL COOPERATION

A satisfactory assessment of the rise and growth of East-West-South Tripartite Industrial Cooperation can be attempted only by a combined study of the different policies of the three poles (East, West and South,) their bilateral economic relations (East-West, East-South), and their conflicting interaction within the opposition of the East-West and North-South axes. This method should illuminate the forces—positive or negative elements—which, in the simultaneous interplay of these bilateral dynamics, have favored the emergence of TIC, and thus clarify the nature of the resulting East-West-South “triangle”. At the same time, an examination of the problematic question of the “agents”—firms and international organizations—who have contributed to promoting it, can provide valuable indications about the role which they are intended to play. This analysis cannot be dissociated from an examination of the dynamics at work in as far as there is a consensus⁴ on accepting the institutionalization of TIC.

A. The Concept of TIC

Before examining the circumstances in which East-West-South Tripartite Industrial Cooperation arose, it is important to pin down its precise meaning, and particularly the qualification of “tripartite” which has a special sense in this context. It must not be confused with “triangular commerce” or even with “trilateral cooperation”.

It is not “triangular commerce”, which is a kind of three-sided barter allowing the Eastern countries, and particularly the USSR—through two successive operations, the one East-South and the other East-West—to sell manufactured goods to the South in exchange for raw materials which are then resold to the Western countries to settle purchases of capital goods and technology. TIC, in effect, gives rise to the signature of two separate contracts as a general rule. In addition to the primary aim of limiting technical and financial responsibilities to the work done by each one, it makes it more difficult for East-South compensation agreements to be transferred automatically to the Western partner. Methodologically TIC, which is an *industrial arrangement*, can hardly be confused with triangular trade, which is a *commercial practice*.

Neither is it “trilateral cooperation”, which is used to describe two practices: in the sense used by the Development Center of OECD, the first means North-South-South cooperation between Western countries (which supply goods and technology), oil producing Arab countries (investors and/or lenders of excess capital⁵) and “poor” developing countries of the South; in the other sense the expression is used by the “Trilateral Commission” and refers to a three-fold industrial interaction between the United States, Japan and Europe.

⁴ In this context, “consensus” does not necessarily mean “recognition” but tacit acceptance in practice, particularly in USSR. We shall deal with this question in detail in Part II.

⁵ Chiefly through the Arab Development Funds and Banks.

It will be noted that in either form of "trilateral cooperation", whether North-South-South or North-North-North, the Eastern countries are noticeably absent. Consequently, the analysis of these concepts places them in categories of triangular cooperation which are quite distinct both as regards their underlying political intentions and the type of international division of labor to which they may give rise. TIC is thus the only method of triangular cooperation which can bring together simultaneously the representatives of different geo-political areas of the world economy. It is tripartite because it refers to the participation of at least one of each of the three constituting parts: East, West and South.⁶

We intend to discuss here only East-West-South Tripartite Industrial Cooperation, but the existence of a variant in the East-West-South triangle should be noted—"West-rich South-East" Tripartite Industrial Cooperation⁷ in which the Western firms provide the goods and/or technology (and accessorially participate in investment), the "rich" southern countries, chiefly Arab, furnish the necessary capital (a substantial but usually minority share) for the erection of industrial complexes in the Eastern countries. This triangular pattern usually originates in cooperation—generally financial and not necessarily industrial between OPEC and CMEA. It becomes TIC through the inclusion of Western firms to which a part of the work is sub-contracted. It is nevertheless still a very limited form of cooperation, and cannot be compared to the development of East-West-South industrial cooperation.

B. TIC, a Means of Reviving Trade in Relation to the Traditional Bilateral Circuits

Even if little has come of this in practice for the time being, TIC can be regarded as evidence of a desire to remove the obstacles which hamper the growth of East-West and East-South bilateral trade by the formation of a tripartite relationship aimed at improving dynamics all around. In this light, TIC can be explained in two ways:

1. A MANIFESTATION OF THE WILL TO EXTEND EAST-WEST DYNAMICS TO THE SOUTH

In the first instance, TIC is described as the will to make the South benefit from the dynamism of East-West relations. This concept is to be found both in Western and Eastern interpretations, which even if clothed in adroit phraseology, in fact relate to the economic constraints encountered in the exercise of East-West trading relations. Their growth rate has indeed been high, but this does not fundamentally alter the situation in which East-West commercial exchanges still remain marginal in terms of world trade. The repercussions of the Western economic crisis brought about an even greater imbalance in the

⁶ Whether part of the "rich" or "poor" South.

⁷ "West-rich South-East" tripartite cooperation developed as a result of the sharp rise in oil prices in 1973; it is thus much more recent than "East-West-South" tripartite cooperation. The circumstances in which it came into being explain the small number of projects implemented; nevertheless its extent is probably under-estimated inasmuch as when Western firms are called in as sub-contractors, the venture is usually referred to in the press as East-West cooperation, because they are given separate contracts, and consequently no reference is made to the pre-existing East-South arrangements.

trade structure and have aggravated the growing indebtedness of the Eastern countries which led them to reduce imports of plant, equipment and technology from the West after 1975 since they were experiencing greater difficulty in exporting to the West. The recent period underlines how much their import capacity depends on their policy of growth and their export possibilities towards the West; that is to say, on the absorptive capacity of Western markets with respect to Eastern products.

Appearances aside, it was logical under the circumstances that socialist East and capitalist West, after working together in joint-ventures, should try to resolve their difficulties by seeking to expand trade by extending their system of industrial cooperation to the South. They did so cautiously but on a high level—by building turnkey plants in third countries. This was a logical consequence of their earlier joint commercialization in third markets.

But it was only once the necessary conditions existed (normalization of international relations through détente, the habit of working together, and consequently the international normalization of techniques, i.e. the prime conditions for realizing joint ventures) that TIC could really be developed. It was the outcome of two clear tendencies which brought with them and continue to entail changes in the world economy, namely the growing interdependence of commercial exchanges and the internationalization of production.

2. A MANIFESTATION OF THE WILL OF THE EAST TO REVIVE EAST-SOUTH TRADE THROUGH THE FRAMEWORK OF INDUSTRIAL COOPERATION WITH THE WEST

An examination of the commerce of the Eastern countries during the period 1970–1977⁸ shows that all of the European countries of the CMEA with the exception of the USSR and of Poland to a lesser degree, have been experiencing a deterioration in their terms of trade since 1970. Their imports include more goods subject to price variations than do their exports. To all intents and purposes the deterioration is general, but it varies in intensity from country to country and from year to year.

Moreover, an examination of the evolution of East-South relations,⁹ and, more particularly the percentage share of “Eastern countries—LDCs” exchanges in the trade of each group of countries, shows a significant stability in socialist exports to the LDCs, which oscillate around 15 percent, and an increase in socialist imports from the LDCs from 8.8 percent in 1965 to 10.6 percent in 1976. On the other hand, for the LDCs, the Eastern countries lose ground in both exports and imports.

Thus the LDCs play a relatively more important part in the East's export trade than vice-versa: between 1965 and 1970 the exports of the Eastern countries to the LDCs increased more quickly than their imports (9.7 percent a year versus 6.2 percent), while between 1970

⁸ Cf. A. Tiraspol'sky, “Les termes de l'échange des pays de l'Est de 1970 à 1977”, *Courrier des Pays de l'Est*, No. 218, May 1978, pp. 3–29.

⁹ Cf. J. Diambou, “Les échanges des pays socialistes avec les pays en voie de développement: tendances globales sur longue période”, *Courrier des Pays de l'Est*, No. 215, February 1978, pp. 38–49.

TABLE 1.—PERCENTAGE SHARE OF EAST-SOUTH EXCHANGES IN THE TRADE OF EACH GROUP OF COUNTRIES

	In the trade of the Eastern countries		In the trade of the LDC's	
	Exports	Imports	Exports	Imports
1965	15.0	8.8	6.2	8.5
1970	15.7	10.0	5.7	8.9
1971	14.9	9.0	5.0	8.2
1972	14.3	8.8	5.0	8.1
1973	15.6	9.6	4.9	8.4
1974	16.3	11.2	3.6	6.8
1975	15.7	10.8	4.7	6.6
1976	15.5	10.6	4.1	6.7

Source: J. Diambou.

and 1975 this process was reversed (23 percent and 26 percent respectively).

These developments are all the more serious for the Socialist countries because their practice has always been to use the surplus obtained in the East-South framework to balance the deficit accumulated in East-West trade. Consequently TIC should not be assessed solely in relation to the difficulties encountered only in the East-South framework, even if they constitute an important element of the Eastern countries' interest in tripartite cooperation. Above all, it should be appraised in the light of the maintenance and continuation of East-West cooperation. This has become a prime, if not determining, factor in Eastern strategy. It follows that TIC can likewise be regarded as an attempt by the East to *solve its own problems* by embracing the South in its cooperation with the West.¹⁰

This point has also been raised by G. Wild, but in a different manner. He writes: "The relative blockage in East-South relations fits fairly easily into the more general context of the crisis in international relations and is one of its constituent elements. But it would not have been sufficient to put in question the system of which it has become a part. It had, in fact, given rise before the crisis broke out, to attempts to introduce the West in the East-South circuit in an attempt to lubricate its machinery. The chief flaw in these attempts was that they appeared to be East-West actions in the direction of the South: the 'residual' character of the participation of the LDCs remained. When they enhanced their position by pounding on the table, they made difficulties for the dominant partners, namely the Western countries. Thenceforth, the formulas of tripartite association were better received in each of the participating camps and took greater account of the interests of the LDCs."¹¹

¹⁰ This, at least is the assumption made by S. Amin in the course of discussions we had in January 1978 at a seminar on "The Future of North-South-East Economic Relations" organized in Paris by the GERPI. S. Amin considers that TIC internalizes the transfer of the East-South surplus towards the East-West circuit as a means of payment integrated in tripartite operations: the internalized compensation constituting for the Eastern countries a satisfactory but limited means of mitigating the consequences of their absence from the international monetary system.

As for us, we do not believe that TIC can be regarded as "triangular trade"—even if it does allow the practice of countertrade, and this principally in the East-South circuit—precisely to the extent that the signing of two separate contracts, stands in the way of counter trade being automatically carried over.

¹¹ Cf. G. Wild, "Les relations économiques entre l'Est et le Sud dans la perspective de la crise des échanges internationaux", *Courrier des Pays de l'Est*, No. 193, February 1976, p. E-10.

Actually it is precisely on this last point that TIC can give rise to controversy and requires all the more careful analysis. Better accounting for the interests of the South may be the publicly declared aim of both East and West, but the two chapter headings with interpretations given above of the origin of TIC point to its having been developed simply for the mutual benefit of the Northern parties. In both cases, it is true that the South is integrated in their arrangements, but as an external element, favoring the development of East-West dynamics.

C. Development and Institutionalization of TIC

1. ENGINEERING FIRMS AND TIC

Engineering firms contributed to the development of TIC, but they did so at first without any reference to the slogan of "Tripartite Industrial Cooperation".

In the course of our inquiry among French firms we were even struck to find that the setting up of joint East-West ventures in third countries gave little rise to any need for those taking part in this new development to publicize it specifically. Such ventures were regarded like any other operation and there was no wish to institutionalize them as a new method of approach. The only question which constantly came up was the significant correlation between the practice of TIC and previous participation in East-West industrial cooperation.¹²

It was only little by little that those concerned began to realize the significance of this phenomenon and the need to foster its expansion by the signature of "protocol agreements"—general framework accords binding the Western and Eastern partners to extend their joint projects to third countries in specific sectors corresponding to the activities of the participating firms. It was thus only as the practice extended that the firms realized the advantages they could gain in international industrial marketing by developing it into a particularly efficacious strategy of joint tendering in international bidding. (cf. Part III).

In this connection, the share and the determining role of the Eastern partners should be noted: the Socialist Foreign Trade Organizations very quickly understood the stakes involved and made more pressing appeals to Western engineering firms. Study of the press dealing with foreign trade—in particular the examination of industrial contracts—is significant in this context. Not only do the publications of the Socialist countries, destined in practice for the West, such as "Marketing in Hungary" and "Review of Polish Economy", but also articles in the Western business press develop very favorable arguments for broadening the practice of TIC and institutionalizing it. It will be seen that in this spirit TIC is in fact a method of East-West cooperation to which a third component has been added to form East-West cooperation in third markets. This is, moreover, very frequently mentioned in the communiqués of official visits and the statements of joint

¹² For further details, see P. Gutman and F. Arkwright (1975 and 1976).

inter-governmental meetings. It shows not only the will to promote the practice but also to institutionalize it.¹³

2. THE AGENTS OF ITS "INSTITUTIONALIZATION," THE INTERNATIONAL ORGANIZATIONS

The international organizations have not taken part, to date in the promotion of TIC—as for example the United Nations Development Organization does when it carries out technical assistance missions in the LDCs—but they have expressed the wish that TIC will play a favorable role as a factor contributing to the New Economic International Order.

We use "institutionalization" in inverted commas, because no institutional framework, in the strictest sense of the words has been set up and no directives for putting TIC into practice have been laid down.

At the level of international organizations, the United Nations Conference on Trade and Development (UNCTAD) has played an essential part in the study and promotion of "Tripartite Industrial Cooperation," notably through the Seminar which it organized in December 1975 on "Industrial specialization through various forms of multi-lateral cooperation."¹⁴

It should be particularly noted that TIC was considered by UNCTAD, the development forum of the United Nations system, as a way of using East-West relations to help in improving North-South relations. Interest in TIC was shown by the United Nations General Assembly, at its Seventh Special Session in its Resolution 3362 (S-VII); more recently TIC was the subject of a "supporting paper"¹⁵ presented in Manila during the Fifth Session of UNCTAD in May 1979.

It has also been studied by the Economic Commission for Europe.¹⁶

Seen from this angle, the contribution which the relations between developed countries of the East and West could make to a solution of the problems of the Third World would be the best justification for these links. The temptation is therefore great to demonstrate the validity of this justification and to present TIC as more natural and easier than it is in reality, because it is a way of "retrieving" East-West cooperation for the benefit of North-South relations.¹⁷

Playing the part of an "active neutral," UNCTAD lays stress on the advantages that the LDCs can reap from TIC, but its significance and implications must nevertheless be defined. It is important to clarify the link between the practice of TIC and the global strategy of those taking part in it—that is to say, the way TIC is embodied in the

¹³ By forming sectoral groups in third markets within intergovernmental joint committees. In France this practice has been developed considerably with most of the Eastern countries since 1972. In Austria skeleton agreements including the formation of specialized working groups have been signed with Czechoslovakia, Poland and Romania.

¹⁴ See "Tripartite Industrial Cooperation", *Study by the UNCTAD Secretariat* (TAD/SEM.1/2, November 25, 1975) and also papers presented by governmental experts and individuals.

¹⁵ Cf. "Tripartite Industrial Cooperation and cooperation in third countries", *Study by the UNCTAD Secretariat*, (TD/243/Supp.5, April 20, 1979).

¹⁶ See "Promotion of Trade through Industrial Cooperation, Tripartite Industrial Cooperation, Results of an Inquiry", *Note by the ECE Secretariat*, (TRADE/R.373/Add.1, October 12, 1978).

¹⁷ Cf. G. de Lacharrière, "The role of East-West Cooperation for the development of Tripartite Cooperation", p. 2, *UNCTAD Seminar, Geneva, December 2-5, 1975* (TAD/SEM.1/16).

dynamics of each of the systems, the East and the West, from which it has come into being, but above all the interaction of these dynamics between them and also in relation to the Third World.

3. FOR A POLITICAL ECONOMY OF TRIPARTITE INDUSTRIAL COOPERATION¹⁸

If TIC in fact appears to be at the cross-roads, merging the East-West and North-South axes, the specific nature of the meeting which takes place must be appraised: is it an artificial juxtaposition or a really integrated synthesis?

In other words, does TIC, or does it not amount to a clash of the systems? Besides, it would be curious, in either case, if the result were a draw. As with the theory of international trade, it is not sufficient to demonstrate that it is in the partners' interest to practice it, but the distribution of the resulting gain must also be analyzed.

Consequently, in the hope of removing the ambiguity which results from this duality, one must not be tempted to regard TIC simply as one of so many methods within a typology of agreements on industrial cooperation.¹⁹ It must be analyzed chiefly in regard to the dynamics of the systems. It then ceases to be a specific practice—within a range limited for the requirements of the study—and both its significance and its scope are seen in fact to result from the strategies of the powers, and, more precisely, from the way these strategies are brought into play in relation to one another. Recourse to TIC can thus be appraised as an element of a strategy of optimizing the penetration of the South by the two competing systems, the East and the West.

II. TIC AND THE EASTERN COUNTRIES

A. *Eastern Countries' Approach to TIC: Theory and Practice*

An analysis of Western participation in TIC can be made independently, since the practice is in no way bound up with any doctrine. On the other hand, when studying Eastern participation one must bear in mind that TIC clashes with officially expounded doctrine in the USSR. The Soviet approach is, therefore, more complex.

Besides, the Eastern countries cannot be considered as a homogeneous entity, for they are appreciably different in their approach.

1. ASSESSMENT OF TIC: THE IDEOLOGICAL ASPECT

The Soviet press is almost completely silent on this type of cooperation. Articles can be found on East-South relations, and others about the exploitation of the South by the West, but nothing, at any rate openly expressed, about tripartite operations. This silence is, in fact, the fruit of fundamental socialist doctrine which, in the final analysis, is at the root of the Soviet refusal to couple the Eastern countries with the rich industrialized West in a North-South relationship.

¹⁸ Title borrowed from the excellent survey by C. H. McMillan (1980); it is a formulation which perfectly fulfills the need for a global approach and interpretation of TIC.

¹⁹ We have nothing against the principle and necessity of a typology of agreements on industrial cooperation, but in the present case it would seriously limit the perception of TIC.

Ideologically, the doctrine rejects the conception of East-West-South cooperation. Mr. Malik, permanent representative of the USSR at the United Nations made this point clear when in September 1975 he declared at the U.N. General Assembly: "We will never accept, either in theory or in practice, the conception of a division of the world between rich and poor, between North and South, placing the socialist states on the same plane as the capitalist states." Thus, no official Soviet pronouncements on TIC for *internal consumption* exist. However, certain allusions to it can be found here and there. Probably the clearest reference was made in a small sentence buried in an article dealing with East-South relations. It said "the practice has started of making multilateral agreements with the participation of socialist, developing and capitalist countries."²⁰

On the other hand, the subject is discussed by Soviet experts in papers destined for consumption outside the USSR. The Chief of the Economic Division of the Institute for United States and Canadian Studies (Academy of Sciences) presented a paper to the UNCTAD Seminar on TIC.²¹ The public for which these papers are destined permits the Soviet experts to state the official line on *the practice* of TIC, as long as this line is not discussed for internal consumption. But it should be noted that these Soviet experts are as favorable as those of any other country.

For instance, Mr. Ivanov at the UNCTAD Seminar said: "As it makes a substantial step forward from simple commercial transactions, TIC offers the kind of advantages and trade-creating effects that are prevalent in the more common forms of industrial cooperation. Some of its advantages are: ability to take advantage of economies of scale because of specialization; production-sharing, with a minimization of incremental costs leading to an increasing exchange of specialized products and parts; the combination of financing, material resources, technology, managerial skills and marketing facilities: the creation of new industries; the development of hitherto untapped markets; and more generally, the expansion of exports, particularly through subcontracting for the production of goods which would otherwise be beyond the partners' manufacturing ability."²²

It is significant that the Soviet experts chose to commit themselves at UNCTAD, the forum of the Third World. From this it can be deduced that the USSR is cautiously but definitely interested in this type of cooperation.

Moreover, side by side with the ideological explanation for the absence of Soviet pronouncements on TIC, a political explanation exists which derives from the relative positions of the Eastern countries, as compared with the USSR, in the practice of TIC.

2. ANALYSIS OF THE PRACTICE ITSELF: THE POLITICAL ASPECT

From an examination of CMEA participation in TIC, shown in table 2, it will be seen that for the period 1965-1975 Hungary and Poland are the main countries involved. Not only are they at the top of the list of East European participants, but together they account

²⁰ Cf. I. Zevin, G. Prohorov, "Economic cooperation of the socialist and developing countries", *MEMO*, 3/1977, p. 47.

²¹ Cf. I. Ivanov, "Tripartite Industrial Cooperation: Recent situation, problems and prospects", *UNCTAD Seminar, Geneva, 2-5 December 1975*, (TAD/SEM.1/7).

²² I. Ivanov, *op. cit.*, p. 3.

for nearly half of the cases, with respectively 27.4 percent and 18.5 percent of the total. They occupy the same place during the period 1976-1979.²³ Again for the period 1965-1975, that followed in diminishing order, but with a certain lag, Czechoslovakia, the USSR, Romania, Yugoslavia, and finally much further down, Bulgaria and the GDR.

With regard to the more recent period of 1976-1979 the salient fact is the progress of the USSR which appears to have decided to take the plunge and signed a large number of protocol agreements to cooperate in third countries: its relative share grew from 2.7 percent for the period 1965-1975 to more than 18 percent for 1976-1979. This dynamic and planned policy resulted in the maintenance of its share of commitments which remains stable around 11 percent.

The development cannot be attributed simply to a temporary policy. It reveals the interest of the USSR in TIC and thus shows that after a hesitant start, reflecting a certain mistrust, accompanied by misgivings, it did not want to miss out on this form of cooperation. It is therefore probable that the Soviet Union finds TIC to be in its own interest.

TABLE 2.—EASTERN INVOLVEMENT IN TIC, 1965-75 AND 1976-79

Eastern involvements ¹	TIC concrete cases ²				Protocol agreements			
	1965-75: 138		1976-79: 88		1965-75: 37		1976-79: 82	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Bulgaria.....	7	4.8	0	-----	6	16.2	10	12.2
Czechoslovakia.....	19	13	6	6.7	1	2.7	1	1.2
German Democratic Republic.....	5	3.4	10	11.1	0	-----	4	4.9
Hungary.....	40	27.4	18	20	14	37.8	24	29.3
Poland.....	27	18.5	25	27.8	11	29.7	20	24.4
Romania.....	16	11	5	5.6	3	8.1	5	6.1
U.S.S.R.....	17	11.6	10	11.1	1	2.7	15	18.3
Yugoslavia.....	15	10.3	16	17.8	1	2.7	3	3.7
CMEA.....	131	89.7	74	82.2	36	97.3	79	96.3
Total, East.....	146	100	90	100	37	100	82	100

¹ The totals of involvements (146 and 90) differ from the totals of cases (respectively 138 and 88) because of the participation of more than 1 Eastern country in certain projects.

² Projects implemented or under way; (planned or under negotiation excluded).

It can be assumed that the U.S.S.R. first wanted to test TIC through its satellites, in accordance with its habit of treading warily before any change of line. In fact, the Soviet Union appears to have used the satellites as trial balloons because it did not want to enter into commitments without first assessing the resultant economic and geo-political advantages and drawbacks.

Apart from this, the different levels of Eastern participation in TIC give rise to two considerations:

The place occupied by Hungary and Poland, and at a lower level by Romania, is not surprising, considering that these countries were already the chief pillars of East-West Industrial Cooperation.²⁴ It is therefore normal to find them in the lead in the practice of TIC.

²³ With a certain advantage for Poland which seems to take a good lead over Hungary (27.8 percent as opposed to 20 percent), while the opposite is true for the number of protocol agreements they signed.

²⁴ These three countries account for nearly 60 percent of East-West Industrial Cooperation according to the ECE Secretariat (TRADE/R.392, October 9, 1979, Annex, p. 7).

The increased commitments of the GDR from one period to the other, the decline in Romanian participation and the double function of Yugoslavia in TIC must also be considered.

a. The case of the GDR

The small number of GDR ventures and the even smaller number of protocol agreements are striking. The lack of interest shown by the GDR can, however, be logically explained by the fact that it has never had extensive trade relations with the South as shown in table 3; it is at the bottom of the CMEA list for trade with the Third World, accounting for only 4 to 5 percent of the total volume.

In addition, when an East-German Foreign Trade Organization (FTO) undertakes to put up an industrial complex in the Third World, it does not necessarily need Western technological cooperation, and therefore prefers to use the bilateral East-South pattern of trade. It is the G.D.R.'s technological superiority which is the cause of its small participation in TIC.

TABLE 3.—RELATIVE SHARE OF LDC'S IN EAST EUROPEAN FOREIGN TRADE, BY COUNTRY
[In percent]

Eastern countries	1960	1965	1970	1973	1974	1975	1976	1977	1978
Bulgaria:									
Exports.....	3.15	4.42	6.23	6.88	11.98	9.62	8.08	10.52	11.90
Imports.....	2.08	3.14	4.42	4.67	7.05	3.77	4.27	4.66	4.01
Czechoslovakia:									
Exports.....	10.36	9.48	8.72	7.44	8.70	8.65	7.52	8.01	7.89
Imports.....	8.86	7.36	5.79	6.40	7.27	5.64	5.29	6.73	4.74
German Democratic Republic:									
Exports.....	4.03	4.24	3.93	3.60	3.99	4.03	4.06	4.33	NA
Imports.....	4.10	4.25	3.69	2.81	5.44	4.04	4.49	4.81	NA
Hungary:									
Exports.....	6.63	7.08	5.91	4.82	6.66	6.39	5.90	5.94	6.29
Imports.....	5.94	7.43	7.06	6.58	7.95	7.32	7.22	7.47	6.70
Poland:									
Exports.....	7.01	7.71	7.27	4.86	7.76	8.03	8	8.10	6.94
Imports.....	6.62	8.97	5.43	3.78	4.74	4.68	4.17	4.74	5.36
Romania:									
Exports.....	5.57	6.17	8.26	14.57	13.78	18.17	17.63	19.48	19.51
Imports.....	3.08	5.10	5.96	9.13	11.79	13.51	17.93	14.61	17.97
U.S.S.R.:									
Exports.....	6.35	13.94	15.75	18.29	16.46	14.21	13.70	15.46	15.67
Imports.....	9.72	10.23	10.87	11.18	12.80	11.27	9.84	10.15	8.13

Source: Calculated from "Handbook of Economic Statistics 1979—A Research Aid," CIA, August 1979, ER 79-10274.

A second reason, a corollary of the preceding one, lies in the fact that the GDR, having a more advanced technology than its CMEA partners, can enlist them as sub-contractors just as the Western countries do in the TIC "East-West-South" framework. Its advanced technology enables it also to compete with Western firms in certain Third-World markets. An important French engineering firm lost two contracts to the GDR which initially were to have been implemented as a joint France-East-South deal and took the form of a GDR-East-South arrangement.

However, since 1976, with the prospect of increased inter-German cooperation, the GDR seems to be more interested in TIC. This may be seen from recent agreements between Krupp GmbH and Unitechna for the construction of a cotton mill in Ethiopia, between Wagner-

Biro AG and two East German FTOs for the erection of a thermal power station in Greece, and from a growing number of arrangements reached with Austria,²⁵ in particular with the state-run Voest-Alpine group for a refinery in Mauritania and for the production and chemical treatment of lignite in Australia.

b. *The case of Romania*

The somewhat abrupt decrease in Romania's participation during the period 1976-1979 raises the question of whether it represented a disengagement resulting from a change in the Romanian political line. It was in the early seventies that policy statements began to show that Romania wanted to enter the ranks of the developing countries, without however renouncing her status as a socialist republic.

In other words, Romania wanted to be recognized as having a status similar to that of Yugoslavia. The supposition could be made that there was an inverse relationship between her participation in TIC and the political importance attached to the slogan "Romania is a developing country." Romania does not at all want to be identified with the industrialized North, since the percentage of its foreign trade with the Third World is the highest of the Socialist bloc and that of its trade within CMEA is the lowest.²⁶

c. *The case of Yugoslavia*

Yugoslavia needs to be studied separately, considering that it takes part in TIC both as an Eastern and a Southern country.²⁷ As a socialist partner, besides furnishing certain equipment, Yugoslavia exports labor—specialized assembly and civil engineering teams.²⁸ It has a double advantage in exporting specialists because there is more value-added to be gained and, when abroad, they send back foreign currency. The currency allows Yugoslavia to buy equipment from the West, either directly or through the TIC framework in which it then becomes a third country, a receiver of East-West turnkey plant, thus showing in a concrete manner its character as a non-aligned country.

In both ways, Yugoslavia registered from one period to the other substantial progress in its TIC participation. It was chiefly as an

²⁵ Cf. U. Dietsch, who explains that the GDR regards Austria as a neutral country, with low political risk, and the Voest-Alpine group as a particularly valid partner since it is state-run and alone accounts for a substantial percentage of Austria-GDR trade (40 percent in 1976) in *Intereconomics*, n° 9-10/1977, pp. 266-267.

With regard to Austria, see the interesting study made at UNCTAD request by Dr. F. Levelk and J. Stankovsky. "Recent trends in TIC: Austria's experience", 1978.

²⁶ To such an extent that the relative share of the LDCs in Romanian exports since 1976 is equal to or even higher than that of the USSR (in 1978 19.5 percent versus 17.5 percent): the same trend appears in Romanian imports: in 1976 and 1978 the relative share of the LDCs was higher than that of the USSR (in 1978 18 percent as opposed to 16 percent). Cf. "Handbook of Economic Statistics—A Research Aid", CIA, August 1979, ER 79-10274, pp. 106-107.

²⁷ It is significant that Yugoslavia is treated as a Third World country by UNCTAD but considered an Eastern partner by the Economic Commission for Europe.

²⁸ This is a policy which China seems to want to adopt as well, and she may very soon take part in tripartite operations. The first skeleton agreements which she signed in August and November 1979 with Western engineering firms are indicative of this policy. They provide for the Chinese National Public Works Company to furnish labor to Italsat, an Italian company of the state owned IRI, and to the French Building Federation, for public works in the civil engineering branch outside China—and, in particular, in the Third World. This development was made possible by the adoption at the end of June 1979 of the law on foreign investments in China which applies also to the creation of joint companies abroad using Chinese labor. cf. *Le Monde*, 8/8/1979, p. 19 and *Les Echos*, 7/8/1979, p. 3 & 28/11/1979, p. 11.

Eastern partner, thanks, in particular, to the activities of Ingra, Energoprojekt and Energoinvest, FTOs for which the average annual percentage of exports through TIC during the period 1971-1978 amounted to 15 percent of their total exports. This figure is slightly higher than the average percentage of the six socialist FTOs surveyed by the Secretariat of the Economic Commission for Europe.²⁹

In general—and despite national particularities—the analysis of the participation of the Eastern countries in TIC shows: 1) a substantial increase in recourse to it and 2) the generalization of the signature of protocol agreements—veritable reservoirs of potential projects.

An important consideration is that the practice of TIC does not seem to reflect the jolts to which the detente has been subjected lately. This is true essentially for two reasons: Because the field of action of TIC is above all micro-economic, bypassing political difficulties, even if they concern third countries, the pawns of ideological competition. Because in a period of crisis when international competition becomes keener, industrial redeployment becomes a necessity; TIC constitutes an attractive method for both East and West.

B. Eastern Countries, Dynamics of the Systems and TIC

By studying tables 4, 5, and 6, we shall examine the strategies of penetration and the structure of the links of the Eastern countries carrying out TIC. We shall endeavor to show their dominant features rather than to present an exhaustive statistical commentary.

TABLE 4.—INVOLVEMENT OF THIRD COUNTRIES IN TIC BY REGION, 1965-75 AND 1976-79

Third countries by region	1965-1975:138			1976-79:88		
	Number	Percent of world total	Percent of region	Number	Percent of world total	Percent of region
Algeria.....	9	6.5	12.3	6	6.8	12.8
Egypt.....	6	4.3	8.2	0		
Iran.....	9	6.5	12.3	8	9.1	17
Iraq.....	14	10.1	19.2	16	18.2	34
Jordan.....	1	0.7	1.4	1	1.1	2.1
Kuwait.....	5	3.6	6.8	3	3.4	6.4
Lebanon.....	4	2.9	5.5	0		
Libya.....	8	5.8	11	6	6.8	12.8
Morocco.....	9	6.5	12.3	0		
Syria.....	6	4.3	8.2	2	2.3	4.3
Tunisia.....	0			4	4.5	8.5
United Arab Emirates.....	1	0.7	1.4	1	1.1	2.1
Yemen.....	1	0.7	1.4	0		
Total, Maghreb and middle east.....	73	52.9	100	47	53.4	100
Cameroon.....	2	1.4	10	2	2.3	12.5
Congo.....	2	1.4	10	0		
Dahomey.....	1	0.7	5	0		
Ethiopia.....	0			1	1.1	6.3
Gabon.....	1	0.7	5	1	1.1	6.3
Guinea.....	3	2.2	15	1	1.1	6.3
Madagascar, Republic of.....	0			1	1.1	6.3
Mauritania.....	1	0.7	5	0		
Niger.....	0			2	2.3	12.5
Nigeria.....	5	3.6	25	4	4.5	25
Senegal.....	1	0.7	5	0		
Somalia.....	0			1	1.1	6.3
Sudan.....	0			3	3.4	18.8
Tanzania.....	1	0.7	5	0		
Togo.....	1	0.7	5	0		
Zambia.....	1	0.7	5	0		
Total, Africa.....	20	14.5	100	16	18.2	100

See footnote at end of table.

²⁹ Cf. ECE Secretariat, TRADE/B.375/Add.1, p. 13, 1978.

TABLE 4.—INVOLVEMENT OF THIRD COUNTRIES IN TIC BY REGION, 1965-75 AND 1976-79—Continued

Third countries by region	1965-1975:138			1976-79:88		
	Number	Percent of world total	Percent of region	Number	Percent of world total	Percent of region
Afghanistan.....	0			1	1.1	12.5
Australia.....	0			1	1.1	12.5
Bangladesh.....	0			1	1.1	12.5
India.....	12	8.7	60	1	1.1	12.5
Indonesia.....	0			2	2.3	25
Korea, Republic of.....	1	0.7	5	0		
Malaysia.....	2	1.4	10	0		
Pakistan.....	2	1.4	10	0		
Philippines.....	0			1	1.1	12.5
Singapore.....	2	1.4	10	0		
Sri-Lanka.....	1	1.4	5	0		
Thailand.....	0			1	1.1	12.5
Total, Asia.....	20	14.5	100	8	9.1	100
Argentina.....	2	1.4	14.3	0		
Bolivia.....	0			1	1.1	20
Brazil.....	4	2.9	28.6	0		
Chile.....	1	0.7	7.1	0		
Colombia.....	1	0.7	7.1	1		
Cuba.....	1	0.7	7.1	0		
Ecuador.....	0			1	1.1	20
Guyana.....	0			1	1.1	20
Paraguay.....	2	1.4	14.3	0		
Peru.....	1	0.7	7.1	1	1.1	20
Uruguay.....	1	0.7	7.1	1	1.1	20
Venezuela.....	1	0.7	7.1	0		
Total, Latin America.....	14	10.1	100	5	5.7	100
Cyprus.....	0			1	1.1	8.3
Greece.....	3	2.2	27.3	3	3.4	25
Turkey.....	8	5.8	72.7	8	9.1	66.7
Total, Mediterranean.....	11	8	100	12	13.6	100
Third world countries, total.....	138	100		88	100	

¹ Of which 1 unspecified North African case.

TABLE 5.—DISTRIBUTION OF EACH EASTERN COUNTRY'S LINKS WITH THE WEST, REGION BY REGION
(In number of projects and percent)

East-West links, 1965-79	Regions													
	Maghreb and Middle East		Africa		Asia		Latin America		Mediterranean		All regions		Of which in OPEC	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
Hungary:														
Federal Republic of														
Germany.....	10	27.8	1	25	2	28.6			2	20	15	25.9	9	29
Italy.....	7	19.4	1	25	2	28.6			5	50	15	25.9	7	22.6
Austria.....	8	22.2			2	28.6			1	10	11	19	5	16.1
Belgium.....	6	16.7									6	10.3	6	19.3
France.....	2	5.6	1	25							3	5.2	0	
United Kingdom.....							1	100	1	10	2	3.4	1	3.2
Sweden.....	1	2.8			1	14.3					2	3.4	1	3.2
Switzerland.....	1	2.8	1	25							2	3.4	2	6.5
Netherlands.....									1	10	1	1.7	0	
Spain.....	1	2.8									1	1.7	0	
Total.....	36	100	4	100	7	100	1	100	10	100	58	100	31	100
Poland:														
Federal Republic of														
Germany.....	9	39.1	3	25					5	62.5	17	32.7	7	31.8
France.....	6	26.1			4	66.7	2	66.7	3	37.5	15	28.8	4	18.2
Switzerland.....	2	8.7	3	25			1	33.3			6	11.5	5	22.7
Austria.....			5	41.7							5	9.6	0	
Japan.....	3	13			2	33.3					5	9.6	3	13.6
Italy.....	1	4.3	1	8.3							2	3.8	1	4.5
Belgium.....	2	8.7									2	3.8	2	9.1
Total.....	23	100	12	100	6	100	3	100	8	100	52	100	22	100

TABLE 5.—DISTRIBUTION OF EACH EASTERN COUNTRY'S LINKS WITH THE WEST, REGION BY REGION
 [In number of projects and percent]

East-West links, 1965-79	Regions										Of which in OPEC			
	Maghreb and Middle East		Africa		Asia		Latin America		Mediterranean		All regions		Number	Percent
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
USSR:														
France	4	36,4	1	33,3	1	50	2	28,6			8	30,8	3	30
United Kingdom			1	33,3			3	42,8	1	33,3	5	19,2	1	10
Italy	2	18,2					2	28,6			4	15,4	1	10
Federal Republic of Germany	1	9,1			1	50			1	33,3	3	11,5	1	10
Finland	2	18,2	1	33,3							3	11,5	2	20
Austria	1	9,1									1	3,8	1	10
Belgium	1	9,1									1	3,8	1	10
Netherlands									1	33,3	1	3,8		
Total	11	100	3	100	2	100	7	100	3	100	26	100	10	100
Czechoslovakia:														
Federal Republic of Germany	8	50	1	100			1	50			10	43,5	8	72,7
France	5	31,3			1	33,3					6	26,1	3	27,3
Austria	3	18,8			1	33,3					4	17,4	0	
Italy					1	33,3					1	4,3	0	
United Kingdom							1	50			1	4,3	0	
Finland									1	100	1	4,3		
Total	16	100	1	100	3	100	2	100	1	100	23	100	11	100
Romania:														
France	5	55,6			1	33,3					6	30	3	75
Federal Republic of Germany	1	11,1			2	66,7	1	25	1	100	5	25	0	
United States	2	22,2	1	33,3			1	25			4	20	1	25
Austria							1	25			1	5	0	
Canada	1	11,1									1	5	0	
Finland							1	25			1	5	0	
Japan			1	33,3							1	5	0	
United Kingdom			1	33,3							1	5	0	
Total	9	100	3	100	3	100	4	100	1	100	20	100	4	100
German Democratic Republic:														
Austria	2	50	2	50	2	100			2	100	8	61,5	2	40
Federal Republic of Germany			2	50							2	15,4	2	40
France							1	100			1	7,7	0	
Italy	1	25									1	7,7	0	
Ireland	1	25									1	7,7	1	20
Total	4	100	4	100	2	100	1	100	2	100	13	100	5	100
Bulgaria:														
France	1	50									1	25	1	33,3
Italy	1	50									1	25	1	33,3
United Kingdom					1	100					1	25	0	
United States			1	100							1	25	1	33,3
Total	2	100	1	100	1	100	0	0	0	0	4	100	3	100
Yugoslavia:														
France	6	37,5	3	37,5	3	100			1	100	13	43,3	7	46,7
United Kingdom	3	18,8	2	25							5	16,7	2	13,3
Italy	3	18,8									3	10	3	20
United States	2	12,5	1	12,5							2	6,7	0	
Federal Republic of Germany	1	6,2					1	50			2	6,7	0	
Switzerland			2	25							2	6,7	0	
Japan	1	6,2					1	50			1	3,3	1	6,7
Sweden							1	50			1	3,3	0	
Total	16	100	8	100	3	100	2	100	1	100	30	100	15	100
CMEA-West	101	86,3	28	77,8	24	88,9	18	90	25	96,2	196	86,7	86	85,1
East-West	117	100	36	100	27	100	20	100	26	100	226	100	101	100

1. STRATEGIES OF PENETRATION AND TIC

The patterns of penetration belong to two types of strategy—maximizing gains or minimizing losses—and they really concern only two sides of the triangle: the East and the West. The South is in fact essentially a recipient for the time being and is consequently considered more as a customer than as a partner. Thus, it is above all a stake, both economic and political, in as far as it represents a possibility for each system to extend its sphere of influence. Thus, the East and the West find themselves faced with a dilemma, the choice between two strategies:

a. an offensive strategy consisting of conquering new markets and penetrating the opposing sphere of influence.

b. a defensive strategy consisting of preserving vested interests in a zone which is beginning to manifest a will to self-reliance.

In both cases, TIC offers a solution to the dilemma by avoiding it. It offers the two systems, East and West, the possibility of avoiding a clear-cut choice between simply giving up or maintaining an untenable position, for it allows each of them to seek what might be called a "political-moral surety" in the opponent's sphere of influence. The surety does not even have to be advertised, for it is implicit in the execution of joint projects. TIC, thus provides East and West with the possibility of limited but effective cooperation in the South.

TABLE 6.—OVERALL REGIONAL STRUCTURE OF EACH EASTERN COUNTRY'S LINKS WITH THE WEST, COUNTRY BY COUNTRY

[In number of projects and percent]

East-West links, 1965-79	Regions													
	Maghreb and Middle East		Africa		Asia		Latin America		Mediterranean		All regions		Of which in OPEC	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
Hungary:														
Federal Republic of														
Germany.....	10	66,7	1	6,7	2	13,3			2	13,3	15	100	9	60
Italy.....	7	46,7	1	6,7	2	13,3			5	33,3	15	100	7	46,7
Austria.....	8	72,7			2	18,2			1	9,1	11	100	5	45,5
Belgium.....	6	100									6	100	6	100
France.....	2	66,7	1	33,3							3	100	0	
United Kingdom.....							1	50	1	50	2	100	1	50
Sweden.....	1	50			1	50					2	100	1	50
Switzerland.....	1	50	1	50							2	100	2	100
Netherlands.....									1	100	1	100	0	
Spain.....	1	100									1	100	0	
Total.....	36	62,1	4	6,9	7	12,1	1	1,7	10	17,2	58	100	31	53,4
Poland:														
Federal Republic of														
Germany.....	9	52,9	3	17,6					5	29,4	17	100	7	41,2
France.....	6	40			4	26,7	2	13,3	3	20	15	100	4	26,7
Switzerland.....	2	33,3					1	16,7			6	100	5	83,3
Austria.....			5	100							5	100	0	
Japan.....	3	60			2	40					5	100	3	60
Italy.....	1	50	1	50							2	100	1	50
Belgium.....	2	100									2	100	2	100
Total.....	23	44,2	12	23,1	6	11,5	3	5,8	8	15,4	52	100	22	42,3

TABLE 5.—DISTRIBUTION OF EACH EASTERN COUNTRY'S LINKS WITH THE WEST, REGION BY REGION—Continued
 [In number of projects and percent]

East-West links, 1965-79	Regions													
	Maghreb and Middle East		Africa		Asia		Latin America		Mediterranean		All regions		Of which in OPEC	
	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent	Num- ber	Per- cent
U.S.S.R.:														
France.....	4	50	1	12,5	1	12,5	2	25			8	100	3	37,5
United Kingdom.....			1	20			3	60	1	20	5	100	1	20
Italy.....	2	50					2	50			4	100	1	25
Federal Republic of														
Germany.....	1	33,3			1	33,3			1	33,3	3	100	1	33,3
Finland.....	2	66,7	1	33,3							3	100	2	66,7
Austria.....	1	100									1	100	1	100
Belgium.....	1	100									1	100	1	100
Netherlands.....									1	100	1	100	0	
Total.....	11	42,3	3	11,5	2	7,7	7	26,9	3	11,5	26	100	10	38,5
Czechoslovakia:														
Federal Republic of														
Germany.....	8	80	1	10			1	10			10	100	8	80
France.....	5	83,3			1	16,7					6	100	3	50
Austria.....	3	75			1	25					4	100	0	
Italy.....					1	100					1	100	0	
United Kingdom.....							1	100			1	100	0	
Finland.....									1	100	1	100	0	
Total.....	16	69,6	1	4,3	3	13	2	8,7	1	4,3	23	100	11	47,8
Romania:														
France.....	5	83,3			1	16,7					6	100	3	50
Federal Republic of														
Germany.....	1	20			2	40	1	20	1	20	5	100	0	
United States.....	2	50	1	25			1	25			4	100	1	25
Austria.....							1	100			1	100	0	
Canada.....	1	100									1	100	0	
Finland.....							1	100			1	100	0	
Japan.....			1	100							1	100	0	
United Kingdom.....			1	100							1	100	0	
Total.....	9	45	3	15	3	15	4	20	1	5	20	100	4	20
German Democratic														
Republic:														
Austria.....	2	25	2	25	2	25			2	25	8	100	2	25
Federal Republic of														
Germany.....			2	100			1	100			1	100	0	
France.....											1	100	0	
Italy.....	1	100									1	100	0	
Ireland.....	1	100									1	100	1	100
Total.....	4	30,8	4	30,8	2	15,4	1	7,7	2	15,4	13	100	5	38,5
Bulgaria:														
France.....	1	100									1	100	1	100
Italy.....	1	100									1	100	1	100
United Kingdom.....					1	100					1	100	0	
United States.....			1	100							1	100	1	100
Total.....	2	50	1	25	1	25	0	0	0	0	4	100	3	75
Yugoslavia:														
France.....	6	46,2	3	23,1	3	23,1			1	7,7	13	100	7	53,8
United Kingdom.....	3	60	2	40							5	100	2	40
Italy.....	3	100									3	100	3	100
United States.....	2	66,7	1	33,3							3	100	2	66,7
Federal Republic of														
Germany.....	1	50					1	50			2	100	0	
Switzerland.....			2	100							2	100	0	
Japan.....	1	100									1	100	1	100
Sweden.....							1	100			1	100	0	
Total.....	16	53,3	8	26,7	3	10	2	6,7	1	3,3	30	100	15	50
CMEA-West	101	51,5	28	14,3	24	12,2	18	9,2	25	12,8	196	100	86	43,9
East-West	117	51,8	36	15,9	27	11,9	20	8,8	26	11,5	226	100	101	44,7

The question, of course, arises whether the East is not gaining an inordinate advantage over the West by means of TIC itself. In this way, TIC might be interpreted as a new de Witte system³⁰ in which the partners are not the allies of the USSR, but on the contrary her adversaries who have not the political means to sustain the competition, and find it easier to buy their tranquility in this manner. It was the lapsing of allies into adversaries which marked the de Witte system.³¹

A study of the "spheres of influence" to which the southern countries subscribing to TIC agreements belong helps to provide an answer. Table 4 shows that it is essentially the "rich" countries belonging to the "useful" Third World—with raw materials and energy—which have the most recourse to TIC. To a great extent these countries belong to the Western sphere of influence, or, if they are not an integral part of it, are nevertheless not subject to communist influence.

Finally, we can see that the West penetrates Southern markets under Soviet influence with greater difficulty than the East penetrates those in the Western zones of influence, and that the socialist countries penetrate the West-South markets.

TIC would therefore appear to show the West to be more on the defensive, reacting to: (a) the East's strategy for increasing intervention in Southern markets, particularly in those of the "useful" Third World (OPEC); and (b) the growth of inward-looking autonomous trading areas among the developing countries seeking to adopt a policy of self-reliance.

It requires only a small step to deduce from this that TIC merely favors the international expansion of the Eastern countries, and numerous observers have made this assumption without seriously analyzing the question. Before accepting this hypothesis we must first consider the relative positions of the powers in the East-West-South TIC triangle.

2. TIC AND THE RELATIVE POSITIONS OF THE POWERS

The nature of the triangle is examined by Egon Kementes in discussing new forms of trade competition. He writes:³² "Cooperation (A), combining both Western Europe's spirit of innovation and the massive production capacities of the Eastern countries with the labor and natural riches of the developing countries would be fruitful. It would allow the resources of Western Europe's growth potential to be expanded by giving the region a more important role than that which it could hope to have in cooperation (B) limited to the United States and Japan (. . . .) It is evident that these forms of cooperation are not exclusive. The interest of Western Europe is to compensate the drawbacks of cooperation (B) with the advantages offered in cooperation (A). The participation of Western countries in cooperative ventures of type (A) is low. To strike a good balance it would be desirable to increase the number of these cooperative arrangements".

³⁰ A reference to the practice of the Finance Minister of Czars Alexander III and Nicholas II. It consisted of the subsidization of Russia's economic and military power by her allies, as the price of maintaining their alliances.

³¹ Cf. the analysis of detente made by A. Besançon, pp. 76-77, in "Court traité de sociologie à l'usage des autorités civiles, militaires et religieuses", Paris Hachette, 1976.

³² Cf. E. Kementes, "Phénomènes nouveaux de la compétition internationale contemporaine", pp. 53 & 55, in "Compétition internationale et Redéploiement géographique" Editions Masson, 1978, (Proceedings of the seminar organized by the University of Paris-IX and l'Institut de l'Entreprise, Paris, April 1977).

This argument makes it clear that for the Eastern countries TIC offers an alternative to "United States-Europe-Japan" cooperation recommended by the Trilateral Commission, from which both the East and the South are absent.³³

It is striking that this juxtaposition—in opposition—of these two conceptions of the triangle is made by an economist of a second rank CMEA country, in a context favorable to the furtherance of European development by East-West cooperation in which TIC would, of course, have a choice place. Eastern countries of second rank thus see the possibility of achieving a supplementary degree of autonomy by means of TIC. TIC among other things, allows them to obtain more oil supplies, as it is practised to a great extent in the OPEC countries. It thus helps Eastern Europe to solve its problems by enabling it to export capital goods and improve the balance of foreign trade.

But it also helps the West European countries to counteract the influence and preponderant weight of the United States. In fact, it offers the medium European powers the double possibility: (a) On the one hand, of asserting themselves against the super-power in their bloc; and (b) on the other hand, of asserting themselves in coexistence against the condominium of the United States and the Soviet Union.

Consequently, it is not surprising to find that the U.S. and the USSR play a minor part in TIC: they reserve for themselves the role of being the driving force within their spheres of influence. Neither is it surprising to find that the two super-powers are not side by side in the exercise of TIC. Their joint action would only too openly lay stress on the dual leadership which characterizes international relations.

This does not, however prevent the leaders of either bloc from taking part in joint ventures in third countries with partners of second rank of the other bloc. In particular, US firms cooperation with Romanian and Yugoslavian FTOs to penetrate certain countries of the Third World.³⁴

III. TRIPARTITE INDUSTRIAL COOPERATION OR EAST-WEST COOPERATION IN THIRD COUNTRIES?

Far from being an exercise in semantics, a reply to this question is vital for the future of TIC. It involves its *raison d'être* as a means of using East-West relations for improving North-South relations.

A. TIC and International Industrial Marketing

1. PHASE 1: UNCERTAINTIES OF INTERNATIONAL TENDERS

Far from being the outcome of a definite strategy carefully prepared by Western engineering firms and socialist FTOs TIC deals before 1972, depended on the hazards and procedures of international bid-

³³ A Polish author, notes that the experts of the Trilateral Commission are absolutely against making the North-South dialogue depend on the East-West dialogue, maintaining that North-South relations are a separate matter, mainly involving economic problems. Cf. Gowin in *Sprawy Międzynarodowe*, n° 3/1978, p. 90.

³⁴ For example, Occidental Petroleum has agreed to cooperate with Romanian companies in offshore oil drilling and secondary recovery, the exploitation of bituminous shale, the production of chemicals, synthetic materials and fertilizers, and the establishment of joint companies both in Romania and third countries. cf. *Business Eastern Europe*, 1/7/1977, p. 206. & 24/8/1979, p. 270.

In addition, US-Yugoslav or US-Romanian cooperation on third markets can take the form of joint bidding on the World Bank.

ding. At that time some of the Third World countries tried to apply their policy of non-alignment to their commercial dealings. They would consider not so much the intrinsic merits of a tender but the political complexion of the country in which they placed a contract.

A number of other factors, such as the overall economic situation, explain why Eastern FTOs and Western firms decided on joint deals, but at that time there was little organized strategy. For instance:

A Western firm may have wanted to do a good turn to an Eastern FTO with which it was on excellent terms;

During a boom period, a Western main contractor may have preferred to sub-contract with an Eastern FTO for low-cost equipment or parts in short supply, enabling it to concentrate on its own account on manufactures with higher returns and to expand its overall productive capacity; and

An Eastern FTO, acting as principal for the erection of a complex in an LDC may have needed Western technological assistance and processes, or the LDC itself may have insisted on Western technology.

As the practice of TIC grew and its advantages were better understood, the Eastern and Western partners institutionalized it by establishing protocol agreements as frameworks for their joint ventures.

2. PHASE 2 : GENERALIZATION

Thenceforward, the considerations of the authorities of Third World countries in placing contracts became less and less important. LDCs came to expect that their invitations for international bidding might be answered by joint East-West tenders. TIC has been particularly successful in lowering the total costs of projects. This has been so well understood that it has become a more and more frequent practice, to submit one or even several joint East-West tenders in international bidding.

This was the case at the end of 1977 for the construction in Algeria for S.N.I.C. of sodium carbonate works with an annual capacity of 150,000 tons at a cost of 200 million dollars. The bids included two East-West joint tenders. The first was made by an Italian consortium under Italconult Spa and the Romanian FTO Industrialexport. The second tender came from the West German Klockner Industrieanlagen GmbH and the Polish FTO, Polimex-Cekop.³⁵

The fact that Western firms with East European partners competed against one another shows how important TIC has become at a time of ever keener international competition. Western firms and socialist FTOs learned that a geo-political area traditionally depending on one bloc could paradoxically be approached by a representative of the other bloc, shouldered by his competitor of yesterday.

So, there are now few categories of Third World countries which cannot be penetrated through TIC. The approach has become decisive in conquering markets, because TIC, without doing away with spheres of influence, reduces their significance by favoring dual intervention through the international distribution of labor.

A new departure from the usual procedure of protocol agreements has been the formation of joint East-West companies for cooperation

³⁵ Cf. *East-West Markets*, 22/8/1977, p. 11.

in third countries. For instance, in May 1976, Technipex, a joint Franco-Polish company, was created to strengthen economic relations between the two countries, but more importantly, to promote joint ventures in third countries. Fifty percent of Technipex's capital is French (40 percent Technip and 10 percent Banque Nationale de Paris) and 50 percent Polish (45 percent Polimex-Cekop and 5 percent Polska Kassa Opiecki).³⁶ In September 1977, Tecnicon SA, a 50-50 venture between the IRI engineering affiliate, Italtipianti, and Licensintorg of Moscow, was promoted in Genoa, Italy, under the chairmanship of Alberto Capanna, head of Finsider. Tecnicon specializes in the design and construction of tin and steel mills in third countries.³⁷

This type of association of East-West engineering firms and banks constitutes a new stage in industrial cooperation and cannot in any way be considered mere joint East-West marketing in third countries.

The specific character of TIC and its relation to the distribution of work need to be examined to see whether it is the result of complementarity or, on the contrary, the outcome of competition between the partners.

TABLE 7.—TIC "France-East-South" (1965-75), partners' contributions by type of work¹

<u>FRENCH FIRMS</u>	<u>SOCIALIST FTOS</u>	<u>THIRD COUNTRY FIRMS</u>
Planning and constructional engineering 82,5%	Assembly Civil engineering 30%	No work 65%
	Sub-contracting Assembly & Civil engineering 35%	
	Sub-contracting 17,5%	Industrial engineering & Sub-contracting 17,5%
	Planning and cons- tructional engineering 17,5%	Assembly & Civil engineering 30%

¹ The percentages are arrived at by taking the average of partners' contributions in 40 projects.

³⁶ Cf. *East-West Markets*, 17/5/1976, p. 3.

³⁷ Cf. *Moscow Narodny Bank Press Bulletin*, 21/9/1977, p. 12 from *International Herald Tribune*, 16/9/1977.

TABLE 8.—TIC "FRANCE—EAST—SOUTH" (1955-75) RELATIVE SHARE IN MONETARY VALUE OF EACH PARTNER'S CONTRIBUTION

(In millions of francs)

	Frances' share				Eastern countries' share				Third countries' share				
	Proj- ects	Per- cent	Value	Per- cent	Proj- ects	Per- cent	Value	Per- cent	Proj- ects	Per- cent	Value	Per- cent	
Percentage of cost of each project:													
0 to 1.....													
1 to 20.....	10	29,4	438	15,9	22	64,7	491	8,7	21	61,8			8,8
21 to 50.....	6	17,6	257	9,4	6	17,6	270	4,8	8	23,5	90,3		22,9
51 to 75.....	7	20,6	616	22,5	2	5,9	254	4,5	4	11,8	234,7		68,3
76 to 100.....	11	32,3	1,431	52,2	4	11,8	4,605	81,9	1	2,9	700		
Total.....	34	100	2,742	100	34	100	5,620	100	34	100	1,025	100	
Percentage of total cost of the 34 TIC projects ¹		25.7				52.7 ²				9.6			

¹ The total amount does not come to 100 percent because a few Western non-French subcontractors have not been included in the table; the 12 percent roughly corresponds to the purchase of foreign technological processes by French main contractors.

² The high figures are explained by the fact that the U.S.S.R. obtained 3 exceptionally big contracts; consequently there is a considerable discrepancy between the relative share of certain socialist countries in terms of number of projects and in terms of the value of these same projects. The U.S.S.R. itself which only represents 18 percent of the total Eastern commitments however accounts for 85 percent of the total value obtained by all Eastern countries in the TIC exercise. Cf. P. Gutman and F. Arkwright (1976).

B. TIC and the International Distribution of Labor³⁸

A detailed study of forty cases of TIC practised between France, the East and Third countries shows that the main cost advantages for the LDCs in joint East-West bids are the very low prices quoted for furnishing certain Eastern equipment and assembly work, coupled with unbeatable credit and financing terms.

Table 7 enables us to make the following assessment of the all-round strategy:

The West needs to integrate materials manufactured and assembled by the Eastern countries so as to take advantage of their highly competitive prices. By doing so through TIC, Western engineering firms: (a) improve their chances of winning contracts in international bidding; (b) gain the political advantage in the Third World of working in partnership with Eastern FTOs; and (c) avert cut-throat competition from East European countries.

The East. Thanks to their price and credit approach, Eastern FTOs have been able to force the export of their plant and equipment through TIC, either: (a) by winning difficult contracts in stiff bidding, as main contractors with the inclusion of Western technology; or (b) by being included as sub-contractors in capitalist projects.

The South, at least theoretically, gets the best out of the commercial and financial competition between East and West in international bidding. Third countries, by taking the most favorable credit terms offered by the East and West through TIC can considerably reduce the burden of financing the industrial complexes which they want to build. Moreover the existence of a clearing system between the East and third countries can be a supplementary advantage for the latter inasmuch

³⁸ We shall not examine here the TIC approach sector by sector, but statistical elements can be found in the appendix. For further analysis, see P. Gutman (1980).

as it reduces their foreign currency requirements for payment. Settlements are made through buy-back or counter-trade arrangements,³⁹ which improve the balance of payments of the third countries and at the same time give them foreign market outlets.

TIC brings down the *immediate* cost of a project for the South, but the analysis of the division of work between the partners shows that the industrial share of third countries, nearly always limited to assembly and civil-engineering work, is small or negligible. Thus the third countries are all the less active partners in building their own industrial complexes, as the socialist FTOs, which are specialized in assembly work themselves, entice them through favorable commercial and financial terms to renounce using their own local labor even though it is often technically qualified for the work.

The resultant imbalance in the cooperation of the three East-West-South partners is seen in tables 7 and 8.

Table 7, setting out the relative share in the work, type by type, of the partners in 40 projects, shows that TIC, at any rate for the time being, is a dual process with marked complementarity between East and West, and at the same time, with manifest competition between East and South. It also shows the minor share of the third countries in the work on the projects.

Table 8, setting out in detail the relative value of each partner's share in the work in 34 East-West-South projects (the West being France), shows the South to have an even smaller share in monetary value than when set out by type of work in Table 7. Table 8 shows the average share in the work of the South to be less than 10 percent (9.6 percent) of the global value of the projects. Study of the figures in detail reveals the great extent of East-West complementarity. The figures for France and the East studied side by side in the "1 percent-20 percent" and the "76 percent-100 percent" brackets show such complementarity that the residual share of the southern third countries is negligible.⁴⁰

TIC in its present stage is thus seen to be East-West cooperation *in* third countries rather than tripartite cooperation in the real sense of the words. The very mechanism of invitations for international bidding makes for competition rather than cooperation.

However, the relationship of today might hopefully evolve from one of "East-West seller"—"South buyer" to that of a partnership. This would require a radical change of perspective.

The practice for the time being of cooperating simply in the erection of industrial complexes would develop into a permanent relationship in which the partners took part in *tripartite joint ventures for production and marketing*. Besides, if the three partners were to contribute capital on a more equal basis, this would necessarily lead to a continuing process of transferring to the South technology for improving production, as the partnership would involve the distribution of profits and losses.

³⁹ For further details, see P. Gutman and F. Arkwright (1976).

⁴⁰ That is why the ECE Secretariat includes in its study (1978) only projects in which southern firms participate directly under the terms of the contract. Even with this approach, the contribution of the South is a minor one. According to six FTOs interviewed by the ECE, the southern share in monetary value varies between 15 percent and 40 percent, being usually much nearer the former than the latter. Cf. ECE Secretariat, TRADE/R.375/Add. 1, p. 13, 1978.

Certain multilateral coproduction ventures exist already:

The Mifergui Nimba joint coproduction venture in Guinea for mining iron ore; ⁴¹ partners are to receive part of the return on their investments in the form of iron ore; quantities of extracted ore not purchased by the partners will be jointly marketed abroad.

In Nigeria, Imarsel Chemical Ltd. has been functioning for several years as an example of a tripartite mixed company. It was jointly established by Medimpex (Hungary), which has a 40 percent equity share, Medimpex's affiliate Pharma Labatec S.A. (Switzerland), 20 percent equity. Initially the company engaged only in commercial activity, marketing Hungarian pharmaceuticals. Its activities have expanded to local manufacture on the basis of components imported largely from Hungary. Sales in 1977 amounted to 5.6 million dollars.⁴²

CONCLUSION: SCOPE AND SIGNIFICANCE OF TIC FOR THE FUTURE

What ultimate importance should be attached to the fact that the Eastern countries take part in TIC?

Does their participation in TIC imply a radical or minor change of policy? Is it a tactical or strategic change?

It would be a strategic change if their participation in the TIC East-West-South triangle could be interpreted as their implicit recognition that a real "World System" was being established. As a concrete manifestation of this development, TIC would bring about multilateralization of trade.

It is too early to draw such a conclusion from the actual practice of TIC. Even so, the approach cannot be interpreted as a mere change of day-to-day practice. TIC is not regarded by the East as just a second best solution.

The analysis of the Eastern countries' strategy and work shows that the way they take part in TIC gives it its specific characteristics. TIC enables them to have a more important place in the International Division of Labor: it allows them to be joint exporters with the West of capital goods to the developing countries. The participation of the Socialists in TIC, and particularly their acceptance of the international distribution of work undertaken, cannot be regarded as non-committal. By acting as sub-contractors and even as principals, Eastern FTOs adapt themselves to the Western conception—both in technology and practice—of erecting the industrial complexes which they help to build.

Consequently, even if the FTOs are not the main vehicles of this international normalization of techniques, they take part in it, and in doing so, endorse it. The new part they play has become an important factor in their attitude to world economy. The change has to a great extent been brought about as a result of working arrangements with

⁴¹ With the following capital distribution: Guinean Government (50 percent) and nine other partners: Nigerian Government (13.5 percent), Libyan Government (10 percent), Algerian Government (7 percent), Nichimen (Japan) (7 percent), INI-Sierra-Mineral-Cofel (Spain) (5.75 percent), Mineral Import-export (Romania) (2.5 percent), Solmer (France) (2 percent), Usinor (France) (2 percent) and Liberian Government (0.25 percent) cf. *Le Moniteur du Commerce International*, n° 229, 19/6/1978, p. 16.

⁴² Cf. C. McMillan (1980), Appendix, p. 37, v.b.

the multinationals in the East.⁴³ These have even led the East to develop a commercial—and soon productive—infrastructure abroad now extending both to the South and to the West.⁴⁴

Thus, the decade of the seventies appears to us to coincide with the emergence of a "World Economic System" characterized by an internationalization of production which is *greater than the internationalization of capitalist production alone*.

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⁴³ Cf. our paper, "Multinationalization and the Countries of Eastern Europe", pp. 205-215, in G. Modelski (ed.), "Transnational Corporations and World Order", W. H. Freeman and Co., San Francisco, 1979.

⁴⁴ See also, P. Gutman, "East-West Cooperation Agreements in the Automotive Industry and International Division of Labor", *The ACES Bulletin* (forthcoming in Fall or Winter 1980).

⁴⁵ Cf. C. C. McMillan, "Soviet Investment in the Industrialized Western Economies and in the Developing Economies of the Third World", pp. 625-647 in *Soviet Economy in a Time of Change*, A Compendium of Papers submitted to the JEC, Washington, 1979, and also by the same author, "Growth of External Investments by the Comecon Countries," *The World Economy*, Vol. 2, n°3, pp. 363-386, September 1979, Elsevier Scientific Publishing Company, Amsterdam.

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APPENDIX A

TABLE A-1.—WESTERN INVOLVEMENT IN TIC 1965-75 AND 1976-79

	TIC concrete cases ²				Protocol agreements			
	1965-75:138		1976-79:88		1965-75:37		1976-79:82	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Western participations ¹ :								
Austria	19	11	13	13,1	6	16,2	6	7,3
Belgium	9	5,2	3	3	1	2,7	7	8,5
Canada	1	0,6	0	---	0	---	2	2,4
Denmark	1	0,6	0	---	0	---	1	1,2
Finland	4	0,6	4	4	0	---	9	11
France	46	26,7	15	15,2	9	24,3	9	11
Federal Republic of Germany	36	20,9	24	24,2	11	29,7	21	25,6
Ireland	1	0,6	0	---	0	---	0	---
Italy	22	12,8	8	8,1	2	5,4	9	11
Japan	4	2,3	6	6,1	1	2,7	3	3,7
Netherlands	1	0,6	2	2	2	5,4	2	2,4
Spain	5	2,9	0	---	0	---	0	---
Sweden	4	2,3	1	1	1	2,7	5	6,1
Switzerland	8	4,7	8	8,1	0	---	3	3,7
United Kingdom	10	5,8	10	10,1	1	2,7	3	3,7
United States	4	2,3	5	5,1	3	8,1	2	2,4
EEC	126	73,3	62	62,6	26	70,3	52	63,4
Total West	172	100	99	100	37	100	82	100

¹ The totals of participations (172 and 99) differ from the total of cases (respectively 138 and 88) because of the involvement of more than 1 Western country in certain projects.

² Projects implemented or under way; (planned or under negotiation excluded).

TABLE A-2.—RELATIVE SHARE OF EACH EASTERN COUNTRY IN PROTOCOL AGREEMENTS SIGNED BY THE WEST, COUNTRY BY COUNTRY: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79
[In percent]

Western partners	Eastern partners							Western country's PA's with CMEA as percent of it's PA's	Western country's Share of PA's with Eastern countries as percent of all western PA's
	Bulgaria	Czechoslovakia	German Democratic Republic	Hungary	Poland	Romania	U.S.S.R.		
Austria:								100	16,2
1965-75	16,7			66,7	16,7			100	7,3
1976-79			16,7	16,7	33,3		33,3	100	2,7
Belgium:				100				100	8,5
1965-75					85,7			100	
1976-79	1,3								
Canada:								100	2,4
1965-75					50	50		100	
1976-79									
Denmark:								100	1,2
1965-75								100	
1976-79			100						
Finland:								100	11
1965-75				22,2		33,3	44,4	100	
1976-79									

France:									
1965-75	44,4	11,1	11,1	22,2	11,1				
1976-79	33,3		22,2	33,3					
Federal Republic of Germany:									
1965-75							11,1	100	24,3
1976-79								88,9	11
Italy:									
1965-75	14,3	4,8	45,4	36,4	18,2			100	29,7
1976-79			42,8	19		19		100	25,6
Japan:									
1965-75				50	50			100	5,4
1976-79	11,1	11,1	33,3	11,1		22,2	11,1	88,9	11
Netherlands:									
1965-75			100					100	2,7
1976-79			33,3			66,7		100	3,7
Netherlands:									
1965-75				50	50			100	5,4
1976-79	50							100	2,4
Sweden:									
1965-75								100	2,7
1976-79	20	20	40				100	80	6,1
Switzerland:									
1965-75									
1976-79			33,3	66,7					3,7
United Kingdom:									
1965-75								100	2,7
1976-79			66,7	100				100	3,7
United States:									
1965-75	33,3					33,3		100	8,1
1976-79			50	33,3	50	33,3		100	2,4

TABLE A-3.—DISTRIBUTION OF EACH WESTERN COUNTRY'S LINKS WITH THE EAST, REGION BY REGION

[In number of projects and percent]

West-East links, 1965-79	Regions													
	Maghreb and Middle East		Africa		Asia		Latin America		Mediterranean		All regions		Of which in OPEC	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Federal Republic of Germany:														
Poland	9	30	3	42,9					5	55,6	17	31,5	7	25,9
Hungary	10	33,3	1	14,3	2	40			2	22,2	15	27,8	9	33,3
Czechoslovakia	8	26,7	1	14,3			1	33,3			10	18,5	8	29,6
Romania	1	3,3			2	40	1	33,3	1	11,1	5	9,3	0	
U.S.S.R.	1	3,3			1	20			1	11,1	3	5,6	1	3,7
German Democratic Republic			2	28,6							2	3,7	2	7,4
Yugoslavia	1	3,3					1	33,3			2	3,7	0	
Total	30	100	7	100	5	100	3	100	9	100	54	100	27	100
France:														
Poland	6	20,7			4	40	2	40	3	75	15	28,3	4	19
Yugoslavia	6	20,7	3	60	3	30			1	25	13	24,5	7	33,3
U.S.S.R.	4	13,7	1	20	1	10	2	40			8	15,1	3	14,3
Czechoslovakia	5	17,2			1	10					6	11,3	3	14,3
Romania	5	17,2			1	10					6	11,3	3	14,3
Hungary	2	6,9	1	20							3	5,7	0	
Bulgaria	1	3,4									1	1,9	1	4,8
German Democratic Republic											1	1,9	0	
Total	29	100	5	100	10	100	5	100	4	100	53	100	21	100
Austria:														
Hungary	8	57,1			2	40			1	33,3	11	36,7	5	62,5
German Democratic Republic	2	14,3	2	28,6	2	40			2	66,7	8	26,7	2	25
Poland			5	71,4							5	16,7	0	
Czechoslovakia	3	21,4			1	20					4	13,3	0	
U.S.S.R.	1	7,1									1	3,3	1	12,5
Romania											1	3,3	0	
Total	14	100	7	100	5	100	1	100	3	100	30	100	8	100
Italy:														
Hungary	7	46,7	1	50	2	66,7			5	100	15	55,6	7	53,8
U.S.S.R.	2	13,3					2	100			4	14,8	1	7,7
Yugoslavia	3	20									3	11,1	3	23,1
Poland	1	6,7	1	50							2	7,4	1	7,7
Bulgaria	1	6,7									1	3,7	1	7,7
Czechoslovakia					1	33,3					1	3,7	0	
German Democratic Republic	1	6,7									1	3,7	0	
Total	15	100	2	100	3	100	2	100	5	100	27	100	13	100
United Kingdom:														
U.S.S.R.			1	25			3	60	1	50	5	33,3	1	25
			2	50							5	33,3	2	50
											2	12,3	1	25

Total	3	100	4	100	1	100	5	100	2	100	1	6,7	0
Switzerland:													
Hungary	1	33,3	1	16,7									
Poland	2	66,7	3	50					2	20	2	28,6	
Yugoslavia			2	33,3		1	100		6	60	5	71,4	
Total	3	100	6	100	0		1	100	0		10	100	7
Belgium:													
Hungary	6	66,7							6	66,7	6	66,7	
Poland	2	22,2							1	22,7	2	22,2	
U.S.S.R.	1	11,1							1	11,1	1	11,1	
Total	9	100	0		0		0		0		9	100	9
United States:													
Romania	2	50	1	33,3		1	100		4	50	1	25	
Yugoslavia	2	50	1	33,3					3	37,5	2	50	
Bulgaria			1	33,3					1	12,5	1	25	
Total	4	100	3	100	0		1	100	0		8	100	4
Japan:													
Poland	3	75			2	100			5	71,4	3	75	
Romania			1	100					1	14,3	0		
Yugoslavia	1	25							1	14,3	1	25	
Total	4	100	1	100	2	100	0		0		7	100	4
Finland:													
U.S.S.R.	2	100	1	100					3	60	2	100	
Czechoslovakia									1	20	0		
Romania						1	100	1	100	1	20	0	
Total	2	100	1	100	0		1	100	1	100	5	100	2
Sweden:													
Hungary	1	100			1	100			2	66,7	1	100	
Yugoslavia								1	100	33,3	0		
Total	1	100	0		1	100	1	100	0		3	100	1
Netherlands:													
Hungary								1	50	1	50	0	
U.S.S.R.								1	50	1	50	0	
Total	0		0		0		0		2	100	2	100	0
Ireland: German Democratic Republic	1	100	0		0		0		0		1	100	1
Spain: Hungary	1	100	0		0		0		0		1	100	0
Canada: Romania	1	100	0		0		0		0		1	100	0
EEC-East	87	74,4	18	50	19	70,4	15	75	22	84,6	161	71,2	75
West-East	117	100	36	100	27	100	20	100	26	100	226	100	101
													100

TABLE A-4.—OVERALL REGIONAL STRUCTURE OF EACH WESTERN COUNTRY'S LINKS WITH THE EAST, COUNTRY BY COUNTRY

[In number of projects and percent]

West-East links, 1965-79	Regions													
	Maghreb and Middle East		Africa		Asia		Latin America		Mediterranean		All regions		Of which in OPEC	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Federal Republic of Germany:														
Poland.....	9	52,9	3	17,6					5	29,4	17	100	7	41,2
Hungary.....	10	66,7	1	6,7	2	13,3			2	13,3	15	100	9	60
Czechoslovakia.....	8	80	1	10			1	10			10	100	8	80
Romania.....	1	20			2	40	1	20	1	20	5	100	0	
U.S.S.R.....	1	33,3			1	33,3			1	33,3	3	100	1	33,3
German Democratic Republic.....			2	100							2	100	2	100
Yugoslavia.....	1	50					1	50			2	100	0	
Total.....	30	55,6	7	13	5	9,2	3	5,6	9	16,7	54	100	27	50
France:														
Poland.....	6	40			4	26,7	2	13,3	3	20	15	100	4	26,7
Yugoslavia.....	6	46,2	3	23,1	3	23,1			1	7,7	13	100	7	53,8
U.S.S.R.....	4	50	1	12,5	1	12,5	2	25			8	100	3	37,5
Czechoslovakia.....	5	83,3			1	16,7					6	100	3	50
Romania.....	5	83,3			1	16,7					6	100	3	50
Hungary.....	2	66,7	1	33,3							3	100	0	
Bulgaria.....	1	100									1	100	1	100
German Democratic Republic.....							1	100			1	100	0	
Total.....	29	54,7	5	9,4	10	18,9	5	9,4	4	7,5	53	100	21	39,6
Austria:														
Hungary.....	8	72,7			2	18,2					11	100	5	45,5
German Democratic Republic.....	2	25	2	25	2	25			2	25	8	100	2	25
Poland.....			5	100							5	100	0	
Czechoslovakia.....	3	75			1	25					4	100	0	
U.S.S.R.....	1	100									1	100	1	100
Romania.....							1	100			1	100	0	
Total.....	14	46,7	7	23,3	5	16,7	1	3,3	3	10	30	100	8	26,7
Italy:														
Hungary.....	7	46,7	1	6,7	2	13,3			5	33,3	15	100	7	46,7
U.S.S.R.....	2	50					2	50			4	100	1	25
Yugoslavia.....	3	100									3	100	3	100
Poland.....	1	50	1	50							2	100	1	50
Bulgaria.....	1	100									1	100	1	100
Czechoslovakia.....					1	100					1	100	0	
German Democratic Republic.....	1	100									1	100	0	
Total.....	15	55,6	2	7,4	3	11,1	2	7,4	5	18,5	27	100	13	48,1

Bulgaria.....				1	100			1	50			2	100			1	50
Czechoslovakia.....												1	100			0	
Romania.....				1	100			1	100			1	100			0	
Total.....	3	20	4	26,7	1	6,7	5	33,3	2	13,3	15	100	4	26,7			
Switzerland:																	
Hungary.....	1	50	1	50													
Poland.....	2	33,3	3	50								2	100	2	100		
Yugoslavia.....			2	100			1	16,7			6	100	5	83,3			
Total.....	3	30	6	60	0		1	10	0		2	100	0				
Belgium:																	
Hungary.....	6	100															
Poland.....	2	100									6	100	6	100			
U.S.S.R.....	1	100									2	100	2	100			
Total.....	9	100	0		0		0		0		1	100	1	100			
United States:																	
Romania.....	2	50	1	25			1	25									
Yugoslavia.....	2	66,7	1	33,3							4	100	1	25			
Bulgaria.....			1	100							3	100	2	66,7			
Total.....	4	50	3	37,5	0		1	12,5	0		1	100	1	100			
Japan:																	
Poland.....	3	60			2	40											
Romania.....			1	100							5	100	3	60			
Yugoslavia.....	1	100									1	100	0				
Total.....	4	57,1	1	14,3	2	28,6	0		0		1	100	1	100			
Finland:																	
U.S.S.R.....	2	66,7	1	33,3													
Czechoslovakia.....											3	100	2	66,7			
Romania.....											1	100	0				
Total.....	2	40	1	20	0		1	20	1	20	5	100	2	40			
Sweden:																	
Hungary.....	1	50			1	50											
Yugoslavia.....											2	100	1	50			
Total.....	1	33,3	0		1	33,3	1	33,3	0		1	100	0				
Netherlands:																	
Hungary.....											1	100	1	100	0		
U.S.S.R.....											1	100	0				
Total.....	0		0		0		0		2	100	2	100	0				
Ireland: German Democratic Republic.....	1	100															
Spain: Hungary.....	1	100									1	100	1	100			
Canada: Romania.....	1	100									1	100	0				
EEC-East.....	87	54	18	11,2	19	11,8	15	9,3	22	13,7	161	100	75	46,6			

TABLE A-5.—SECTORAL STRUCTURE OF WESTERN COUNTRIES' INVOLVEMENT IN TIC: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79

West	Agriculture		Energy		Mining		Intermediate goods industries		Equipment goods industries		Consumer goods industries		Building and public works		Commerce, services		Transportation		Various		All sectors	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Austria:																					18	100
1965-75			11	61,1	1	1,6	4	22,2			2	11,1					0		0		12	100
1976-79			3	25	0		6	50			1	8,3					1	8,3	1	8,3		
Belgium:																					7	100
1965-75			5	71,4			2	28,6													2	100
1976-79			1	50			1	50														
Canada:																					1	100
1965-75			1	100																	0	
1976-79			0																			
Finland:																					1	100
1965-75			0				1	100													4	100
1976-79			4	100			0															
France:																					39	100
1965-75			12	30,8	1	2,6	18	46,1	2	5,1	4	10,3					2	5,1	0		14	100
1976-79			4	28,6	0		6	42,9	3	21,4	0						0		1	7,1		
Federal Republic of Germany:																					32	100
1965-75			7	21,9	1	3,1	10	31,3	3	9,4	10	31,3	0		1	3,1					22	100
1976-79			9	40,9	1	4,5	6	27,3	0		5	22,7	1	4,5	0							
Ireland:																					1	100
1965-75											1	100									0	100
1976-79											0											

Italy:																
1965-75	1	5	14	70												
1976-79	1	14,3	2	28,6	2	10			3	15	0					
Japan:																
1965-75			2	66,7	1	33,3			0							20
1976-79			1	25	3	75			2	28,6	1	14,3				7
Netherlands:																
1965-75			0													3
1976-79			1	50	1	50										4
Spain:																
1965-75																0
1976-79								1	100							2
Sweden:																
1965-75			0		1	50			0							1
1976-79			1	100	0	50	1	50								0
Switzerland:																
1965-75			0	1	1	33										2
1976-79			5	71,4	0		2	28,6		2	66,7					1
United Kingdom:																
1965-75			3	42,9	0		2	28,6	1	14,3	1	14,3	0			3
1976-79			1	12,5	1	12,5	0		1	12,5	1	12,5	2	25	0	7
United States:																
1965-75			0		1	33,3	1	33,3							1	12,5
1976-79			4	80	0		0		1	20			0	33,3	1	12,5
EEC:																
1965-75	1	0,9	41	38,3	3	2,8	34	31,8	6	5,6	19	17,8	0		1	0,9
1976-79	1	1,8	18	32,7	2	3,6	15	27,3	4	7,3	8	14,5	4	7,3	2	1,9
West:																
1965-75	1	0,7	55	39,9	6	4,3	41	29,7	8	5,8	23	16,7	0		2	1,4
1976-79	1	1,1	36	40,9	2	2,3	26	29,5	4	4,5	10	11,4	4	4,5	2	2,3
															0	3,4
															138	100
															88	100

TABLE A-6.—RELATIVE SHARE OF EACH WESTERN COUNTRY IN TIC, SECTOR BY SECTOR: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79

West	Agriculture		Energy		Mining		Intermediate goods industries		Equipment goods industries		Consumer goods industries		Building and public works		Commerce services		Transportation		Various		All sectors	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Austria:			11	20	1	16,7	4	9,8			2	8,7					0		0		18	13
1965-75			3	8,3	0		6	23,1			1	10					1	50	1	33,3	12	13,6
1976-79																					7	5,1
Belgium:			5	9,1			2	4,8													2	2,3
1965-75			1	2,8			1	3,8														
1976-79																					1	0,7
Canada:			1	1,8																	0	
1965-75			0																			
1976-79																					1	0,7
Finland:			0				1	2,4													4	4,5
1965-75			4	11,1			0															
1976-79																						
France:			12	21,8	1	16,7	18	43,9	2	25	4	17,4					2	100	0		39	28,3
1965-75			4	11,1	0		6	23,1	3	75	0						0		1	33,3	14	15,9
1976-79																						
Federal Republic of Germany:			7	12,7	1	16,7	10	24,4	3	37,5	10	43,5	0		1	50					32	23,2
1965-75			9	25	1	50	6	23,1	0		5	50	1	25	0						22	25
1976-79																						
Ireland:											1	4,3									1	0,7
1965-75											0										0	
1976-79																						

TABLE A-7.—SECTORAL STRUCTURE OF WESTERN COUNTRIES' INVOLVEMENT IN PROTOCOL AGREEMENTS: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79

West	Agriculture		Energy		Mining		Intermediate goods industries		Equipment goods industries		Consumer goods industries		Building and public works		Commerce, services		Transportation		Various		Multisector		All sectors			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Austria:																										
1965-75			1	16,7	0		2	33,3	0		1	16,7							1	16,7	1	16,7	6	100		
1976-79			0		1	16,7	3	50	1	16,7	0							0		1	16,7	6	100			
Belgium:																										
1965-75							0				1	100								6	85,7			1	100	
1976-79							1	14,3			0													7	100	
Canada:																										
1965-75			0				0																	0		
1976-79			1	50			1	50																2	100	
Denmark:																										
1965-75																			0					0		
1976-79																		1	100					1	100	
Finland:																										
1965-75			0				0															0		0		
1976-79			2	22,2			2	22,2													5	55,6		9	100	
France:																										
1965-75					1	11,1	1	11,1	1	11,1	2	22,2	0		0		0		0		4	44,4	0		9	100
1976-79					0		2	22,2	0		0		1	11,1	1	11,1	1	11,1	0		4	44,4	4	44,4	9	100

Federal Republic of Germany:														
1965-75	0	0	1	9,1	4	36,4	4	36,4						
1976-79	2	9,5	1	4,8	2	9,5	4	36,4						
Italy:														
1965-75	1	50	0		0		0		0	0	1	50	0	
1976-79	1	11,1	1	11,1	1	11,1	1	11,1	1	11,1	0	50	0	
Japan:														
1965-75	0		1	100			0						0	
1976-79	1	33,3	1	33,3			1	33,3					3	33,3
Netherlands:														
1965-75	0													
1976-79	1	50											1	50
Sweden:														
1965-75			0		0								0	
1976-79			1	20	0		1	20	0		0		0	
Switzerland:														
1965-75	0													
1976-79	1	33,3			0		0							
United Kingdom:														
1965-75	0													
1976-79	1	33,3			2	66,7								
United States:														
1965-75													1	100
1976-79			1	33,3									0	
EEC:														
1965-75	0		1	3,8	1	3,8	2	7,7	5	19,2	7	26,9	0	
1976-79	0		5	9,6	1	1,9	8	15,4	6	11,5	6	11,5	2	3,8
West														
1965-75	0		2	5,4	1	2,7	7	18,9	5	13,5	8	21,6	0	
1976-79	0		10	12,2	3	3,7	17	20,7	10	12,2	8	9,8	2	2,4
													1	2,7
													1	2,4
													2	2,4
													1	2,7
													2	2,4
													7	18,9
													5	6,1
													23	28
													37	100
													82	100

TABLE A-8.—RELATIVE SHARE OF EACH WESTERN COUNTRY IN PROTOCOL AGREEMENTS, SECTOR BY SECTOR: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79

West	Agriculture		Energy		Mining		Intermediate goods industries		Equipment goods industries		Consumer goods industries		Building and public works		Commerce, services		Transportation		Various		Multisector		All sectors			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Austria:																										
1965-75			1	50	0		2	28,6	0		1	12,5						1	14,3	1	20	6	16,2			
1976-79			0		1	33,3	3	17,6	1	10	0							0		1	4,3	6	7,3			
Belgium:							0				1	12,5														
1965-75							0				1	12,5														
1976-79							1	5,9			0										6	26,1	7	8,5		
Canada:							0																			
1965-75			0				0																			
1976-79			1	10			1	5,9																2	2,4	
Denmark:																										
1965-75																		0								
1969-79																		1	20					1	1,2	
Finland:							0																			
1965-75			0				0																			
1976-79			2	20			2	11,8															5	2,7	9	11
France:					1	100	1	14,3	1	20	2	25	0		0		0									
1965-75					0		2	11,8	0		0		1	50	1	50	1	50	4	57,1	0		9	24,3		
1976-79					0		2	11,8	0		0		1	50	1	50	1	50	0		4	17,4	9	11		

Federal Republic of Germany:

1965-75	0	0	1	14,3	4	80	4	50															
1976-79	2	20	1	33,3	2	11,8	4	40	5	62,5		1	100	1	14,3	0		11	29,7				
Italy:																							
1965-75	1	50	0		0		0		0		1	100		0	3	60	4	17,4	21	25,6			
1976-79	1	10	1	5,9	1	10	1	12,5	1	50	0			0	1	20	0	3	13	2	5,4		
Japan:																							
1965-75	0		1	14,3					0											2	5,4		
1976-79	1	10	1	5,9					1	12,5										9	11		
Netherlands:																							
1965-75	0						0													1	2,7		
1976-79	1	10					1	10												3	3,7		
Sweden:																							
1965-75	1	10					1	10						1	14,3	1	20			2	5,4		
1976-79			0	14,3	0		0		0		0		0	0		0				2	2,4		
Switzerland:																							
1965-75	0						1	10	1	12,5		1	50	1	50					1	2,7		
1976-79	1	10	1	33,3	0		1	10	1	12,5		1	50	1	50					5	6,1		
United Kingdom:																							
1965-75	0						2	20												0			
1976-79	1	10					2	20												3	3,7		
United States:																							
1965-75	1	10			2	11,8											1	20		1	2,7		
1976-79					2	11,8											0			3	3,7		
E.E.C.:																							
1965-75	0	1	50	1	100	2	28,6	5	100	7	87,5	0		1	100	1	100	6	85,7	2	40	26	70,3
1976-79	0	5	50	1	33,3	8	47,1	6	60	6	75	2	100	1	50	1	50	5	100	17	73,9	52	63,4
Total West:																							
1965-75	0	2	100	1	100	7	100	5	100	8	100	0	100	1	100	1	100	7	100	5	100	37	100
1976-79	0	10	100	3	100	17	100	10	100	8	100	2	100	2	100	2	100	5	100	23	100	82	100

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APPENDIX B

TABLE B-1.—RELATIVE SHARE OF EACH WESTERN COUNTRY IN PROTOCOL AGREEMENTS SIGNED BY THE EAST, COUNTRY BY COUNTRY: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79
[In percent]

Eastern partners	Western partners											Eastern country's share of PA's with EEC as percent of its PA's	Eastern country's share of PA's with Western countries as percent of all Eastern PA's					
	Austria	Belgium	Canada	Denmark	Finland	France	Federal Republic of Germany	Italy	Japan	Netherlands	Sweden			Switzerland	United Kingdom	United States		
Bulgaria:														16,7	66,7	16,2		
1965-75	16,7						66,7								90	12,2		
1976-79		10					30	30	10		10				100	2,7		
Czechoslovakia:							100								100	1,2		
1965-75																		
1976-79																		
German Democratic Republic:																		
1965-75															50	4,9		
1976-79	25			25				25			25				64,3	37,8		
Hungary:							7,1	35,7	7,1	7,1	7,1		8,3	4,2	8,3	4,2	66,7	29,3
1965-75	28,6	7,1					8,3	37,5	12,5	4,2							90	29,7
1976-79	4,2				8,3												75	24,4
Poland:							18,2	36,4	9,1				9,1		9,1		100	8,1
1965-75	9,1	10	30	5			15	20	5			9,1					100	6,1
1976-79	10											10						
Romania:							33,3	66,7							20			
1965-75																		
1976-79			20		60										100			2,7
U.S.S.R.:														6,7			46,7	18,3
1965-75																		
1976-79		13,3			26,7			26,7		13,3								2,7
Yugoslavia:															100		66,7	3,7
1965-75							33,3		33,3						33,3			
1976-79																		

TABLE B-2.—SECTORAL STRUCTURE OF EASTERN COUNTRIES' INVOLVEMENT IN TIC: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79

East	Agriculture		Energy		Mining		Intermediate goods industries		Equipment goods industries		Consumer goods industries		Building and public works		Commerce services		Transportation		Various		All sectors	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Bulgaria:																						
1965-75	1																					
1976-79	0	25																				
Czechoslovakia:																						
1965-75			8	44,4			4	22,2	2	11,4					1	25	1	25			4	100
1976-79			3	60			2	40							0		0				0	
German Democratic Republic:																						
1965-75			1	33,3			1	33,3													18	100
1976-79			1	10			5	50													5	100
Hungary:																						
1965-75	0		18	45	3	7,5	5	12,5	3	7,5	11	27,5					0					
1976-79	1	5,6	8	44,4			2	11,1	3	16,7	3	16,7									10	100
Poland:																						
1965-75			10	37			13	48,1	0		3	11,1	0								0	
1976-79			8	32	1	4	13	52	1	4	0		1	4	1	3,7					1	5,6
Romania:																						
1965-75			3	20	2	13,3	8	53,3	1	6,7	0										0	
1976-79			3	60			1	20	0		1	20									1	4
U.S.S.R.:																						
1965-75			11	64,7			5	29,4			1	5,9									1	6,7
1976-79			6	66,7			1	11,1			1	11,1	0								0	
Yugoslavia:																						
1965-75			4	28,6	1	7,1	5	35,7	2	14,3	2	14,3	0									
1976-79			7	43,7	1	6,3	2	12,5			2	12,5	0								0	
CMEA:																						
1965-75	1	0,8	51	41,1	5	4	36	29	6	4,8	21	16,9	0		2	1,6	2	1,6	0			
1976-79	1	1,4	29	40,3	1	1,4	24	33,3	4	5,5	8	11,1	2	2,8	0		1	1,4	2	2,8	124	100
East:																						
1965-75	1	0,7	55	39,9	6	4,3	41	29,7	8	5,8	23	16,7	0		2	1,4	2	1,4	0			
1976-79	1	1,1	36	40,9	2	2,3	26	29,5	4	4,5	10	11,4	4	4,5	0		2	2,3	3	3,4	138	100
																					88	100

TABLE B-3.—RELATIVE SHARE OF EACH EASTERN COUNTRY IN TIC, SECTOR BY SECTOR: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79

East	Agriculture		Energy		Mining		Intermediate goods industries		Equipment goods industries		Consumer goods industries		Building and public works		Commerce services		Transportation		Various		All sectors	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Bulgaria:											1	4,3			1	50	1	50			4	2,9
1965-75	1	100									0				0		0				0	
1976-79	0																				18	13
Czechoslovakia:			8	14,5			4	9,8	2	25	4	17,4									5	5,7
1965-75			3	8,3			2	7,7	0		0											
1976-79																	0				3	2,2
German Democratic Republic:			1	1,8			1	2,4			1	4,3					1	50			10	11,4
1965-75			1	2,8			5	19,2			3	30										
1976-79																			0		40	29
Hungary:			18	32,7	3	50	5	12,2	3	37,5	11	47,8							1	33,3	18	20,5
1965-75	0		8	22,2	0		2	7,7	3	75	3	30									27	19,6
1976-79	1	100																	0		25	28,4
Poland:			10	18,2			13	31,7	0		3	13	0		1	50					15	10,9
1965-76			8	22,2	1	50	13	50	1	25	0		1	25	0						5	5,7
1976-79																			0		25	28,4
Romania:			3	5,5	2	33,3	8	19,5	1	25	0										17	12,3
1965-75			3	8,3			1	3,8	0		1	10									9	10,2
1976-79																						
U.S.S.R.:			11	20			5	12,2			1	4,3	0									
1965-75			6	16,7			1	3,8			1	10	1	25								
1976-79																						
Yugoslavia:			4	7,3	1	16,7	5	12,2	2	25	2	8,7	0									
1965-75			7	19,4	1	50	2	7,7			2	20	2	50							14	10,1
1976-79																					16	18,2
CMEA:			51	92,7	5	83,3	36	87,8	6	75	21	91,3	0		2	100	2	100	0		124	89,9
1965-75	1	100	29	80,6	1	50	24	92,3	4	100	8	80	2	50	0		1	50	2	66,7	72	81,8
1976-79	1	100																				
Total, East:			55	100	6	100	41	100	8	100	23	100	0		2	100	2	100	0		138	100
1965-75	1	100	36	100	2	100	26	100	4	100	10	100	4	100	0		2	100	3	100	88	100
1976-79	1	100																				

TABLE B-4.—SECTORAL STRUCTURE OF EASTERN COUNTRIES' INVOLVEMENT IN PROTOCOL AGREEMENTS: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79

East	Agriculture		Energy		Mining		Intermediate goods industries		Equipment goods industries		Consumer goods industries		Building and public works		Commerce, services		Transportation		Various		Multisector		All sectors		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Bulgaria:																									
1965-75					0		1	16,7	1	16,7	0														
1976-79					1	10																			
Czechoslovakia:																									
1965-75			0																	2	33,3	2	33,3	6	100
1976-79			1	100																0		7	70	10	100
German Democratic Republic:																									
1965-75																				1	100			1	100
1976-79																				0				1	100
Hungary:																									
1965-75			2	14,3	0		2	14,3	1	7,1	6	42,9	0		1	25	0		0		0		0		0
1976-79			2	8,3	1	4,2	7	29,2	7	29,2	3	12,5	0		1	4,2			1	25	1	25	4	100	
Poland:																									
1965-75			0		1	9,1	3	27,3	2	18,2	2	18,2							2	14,3	1	7,1	14	100	
1976-79			2	10	1	5	4	20	1	5	2	10							2	8,3	1	4,2	24	100	
Romania:																									
1965-75			0				0		1	33,3					0		1	9,1	1	5	1	9,1	11	100	
1976-79			1	20			1	20	0						1	33,3	0		1	5	8	40	20	100	
U.S.S.R.:																									
1965-75			0				0		0		0				0				1	33,3	0		3	100	
1976-79			3	20			5	33,3	1	6,7	2	13,3			0				0		3	60	5	100	
Yugoslavia:																									
1965-75			0				1	100											0		1	100	1	100	
1976-79			1	33,3			0												1	6,7	3	20	15	100	
CMEA:																									
1965-75			2	5,6	1	2,8	6	16,7	5	13,9	8	22,2	0		1	2,8			2	66,7			1	100	
1976-79			9	11,4	3	3,8	17	21,5	10	12,7	8	10,1	2	2,5	2	2,5	1	2,8	7	5	5	19,4	36	100	
East:																									
1965-75			2	5,4	1	2,7	7	18,9	5	13,5	8	21,6	0		1	2,7			7	5	5	18,9	37	100	
1976-79			10	12,2	3	3,7	17	20,7	10	12,2	8	9,8	2	2,4	2	2,4	2	2,4	7	5	5	6,1	82	100	

TABLE B-5.—RELATIVE SHARE OF EACH EASTERN COUNTRY IN PROTOCOL AGREEMENTS, SECTOR BY SECTOR: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79

East	Agriculture		Energy		Mining		Intermediate goods industries		Equipment goods industries		Consumer goods industries		Building and public works		Commerce, services		Transportation		Various		Multisector		All sectors			
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Bulgaria:																										
1965-75					0		1	14,3	1	20	0								2	28,6	2	40	6	16,2		
1976-79					1	33,3	0		1	10	1	12,5						0		7	30,4	10	12,2			
Czechoslovakia:																										
1965-75			0																							
1976-79			1	10																				1	2,7	
German Democratic Republic:																										
1965-75														0	50	0	50			0		0	4,3	4	4,9	
1976-79														1	50					1	20	1	4,3	24	29,3	
Hungary:																										
1965-75			2	100	0		2	28,6	1	20	6	75														
1976-79			2	20	1	33,3	7	41,2	7	70	3	37,5			1	50					2	28,6	1	20	14	37,8
Poland:																										
1965-75			0		1	100	3	42,8	2	40	2	25			0		1	100								
1976-79			2	20	1	33,3	4	23,5	1	10	2	25			1	50	0				1	14,3	1	20	11	29,7
Romania:																										
1965-75			0				0		1	20					1	100										
1976-79			1	10			1	5,9	0						0						1	14,3	0		3	8,1
U.S.S.R.:																										
1965-75			0				0		0		0															
1976-79			3	30			5	29,4	1	10	2	25									0		1	20	15	18,3
Yugoslavia:																										
1965-75							1	14,3																		
1976-79			1	10			0														2	100			3	3,7
CMEA:																										
1965-75			2	100	1	100	6	85,7	5	100	8	100	0		1	100	1	100			7	100	5	100	36	97,3
1976-79			9	90	3	100	17	100	10	100	8	100	2	100	2	100	0				5	100	23	100	79	96,3
Total, East:																										
1965-75			2	100	1	100	7	100	5	100	8	100	0		1	100	1	100			7	100	5	100	37	100
1976-79			10	100	3	100	17	100	10	100	8	100	2	100	2	100	2	100			5	100	23	100	82	100

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APPENDIX C

TABLE C-1.—SECTORAL STUDY OF TRIPARTITE INDUSTRIAL COOPERATION: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79
[In number of projects and percentage]

Sectors	TIC concrete cases						Protocol agreements					
	1965-75		1976-79		1965-79		1965-75		1976-79		1965-79	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Agriculture.....	1	0,7	1	1,1	2	0,9	0	-----	0	-----	0	-----
Energy (production, distribution).....	55	39,9	36	40,9	91	40,3	2	5,4	10	12,2	12	10,1
Mining.....	6	4,3	2	2,3	8	3,5	1	2,7	3	3,7	4	3,4
Intermediate goods industries.....	41	29,7	26	29,5	67	29,6	7	18,9	17	20,7	24	20,2
Equipment goods industries.....	8	5,8	4	4,5	12	5,3	5	13,5	10	12,2	15	12,6
Consumer goods industries.....	23	16,7	10	11,4	33	14,6	8	21,6	8	9,8	16	13,4
Building and public works.....	0	-----	4	4,5	4	1,8	0	-----	2	2,4	2	1,7
Commerce, services.....	2	1,4	0	-----	2	0,9	1	2,7	2	2,4	3	2,5
Transportation.....	2	1,4	2	2,3	4	1,8	1	2,7	2	2,4	3	2,5
Various.....	0	-----	3	3,4	3	1,3	7	18,9	5	6,1	12	10,1
Multisector.....	0	-----	0	-----	0	-----	5	13,5	23	28	28	23,5
Total.....	138	100	88	100	226	100	37	100	82	100	119	100

TABLE C-2.—SECTORAL STRUCTURE OF TIC IN THIRD COUNTRIES, REGION BY REGION: COMPARATIVE ANALYSIS, 1965-75 AND 1976-79

Regions	Agriculture		Energy		Mining		Intermediate goods industries		Equipment goods industries		Consumer goods industries		Building and public works		Commerce services		Transportation		Various		All sectors		
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Maghreb and Middle East:																							
1965-75	1	1,4	27	37	2	2,7	18	24,7	4	5,5	19	26	0	-----	2	2,7	0	-----	73	100			
1976-79	0	-----	16	34	1	2,1	16	34	2	4,3	6	12,8	2	4,3	2	4,3	2	4,3	47	100			
Africa:																							
1965-75	0	-----	5	25	3	15	6	30	2	10	2	10	0	-----	2	10	-----	-----	20	100			
1976-79	1	6,3	7	43,7	1	6,3	2	12,5	1	6,3	3	18,7	1	6,3	0	-----	-----	-----	16	100			
Asia:																							
1965-75	-----	-----	9	45	1	5	9	45	-----	-----	1	5	-----	-----	-----	-----	-----	-----	20	100			
1976-79	-----	-----	2	25	0	-----	4	50	-----	-----	1	12,5	-----	-----	-----	-----	-----	-----	8	100			
Latin America:																							
1965-75	-----	-----	6	42,9	-----	-----	6	42,9	2	14,3	-----	-----	0	-----	-----	-----	-----	-----	14	100			
1976-79	-----	-----	3	60	-----	-----	1	20	0	-----	-----	-----	1	20	-----	-----	-----	-----	5	100			
Mediterranean:																							
1965-75	-----	-----	8	72,7	-----	-----	2	18,2	0	-----	1	9,1	-----	-----	-----	-----	-----	-----	11	100			
1976-79	-----	-----	8	66,7	-----	-----	3	25	1	8,3	0	-----	0	-----	-----	-----	-----	-----	12	100			
All regions:																							
1965-75	1	0,7	55	39,9	6	4,3	41	29,7	8	5,8	23	16,7	0	-----	2	1,4	2	1,4	0	-----	138	100	
1976-79	1	1,1	36	40,9	2	2,3	26	29,5	4	4,5	10	11,4	4	4,5	0	-----	2	2,3	3	3,4	88	100	
Of which in OPEC:																							
1965-75	1	1,9	15	28,8	2	3,8	12	23,1	4	7,7	16	30,8	0	-----	1	1,9	1	1,9	0	-----	52	100	
1976-79	0	-----	20	41,7	2	4,2	16	33,3	0	-----	5	10,4	2	4,2	0	-----	1	2,1	2	4,2	48	100	

CMEA'S ECONOMIC "WESTPOLITIK" BETWEEN GLOBAL LIMITATIONS AND ALL-EUROPEAN POTENTIALS

By Max Baumer and Hanns-Dieter Jacobsen*

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I. INTRODUCTION

In light of the structural changes in international economic relations in the last years as well as of the efforts being made to reorganize these relations, it would seem sensible to investigate the future role of the USSR and the East European countries in the world economy, to outline the observable trend in the development of East-West economic relations and to describe any possible latitude these countries may enjoy in the development of these relations.

Since those countries united in the Council for Mutual Economic Assistance (CMEA) began more than ten years ago to expand their trade with the West, to accept new forms of economic cooperation and gradually to become a part of the institutional network of the world economy, they have gained experience and are now better able to decide which countries are the most attractive partners, what would be the optimal form of cooperation and which regions of the West should be favored for economic relations.

The period of relative détente existing in the 1970s resulted in an expansion of East-West economic relations, in particular between Western and Eastern Europe. It is difficult at the present time to predict to what extent growing tensions between the superpowers caused by events taking place outside of Europe or in noneconomic sectors will have an effect upon the whole range of relations between both parts of Europe. It is understandable that the United States expects supportive measures from its allies for its own actions and for the preservation of sensitive Western interests. One must, however, take into consideration that West European countries, because of their geographic position, their limited political options, and

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finally, their economic involvement with the CMEA, do not share a general convergence of interests with the USA.

Similarly, there exists no far-reaching convergence of interests between the Soviet Union and its CMEA partners, although the control mechanisms are far more clearly defined.

The purpose of this study, any possible political and security policy changes aside, is to examine the economic basis for the on-going development of economic relations in Europe made possible by the atmosphere of détente and to outline any existing potential for further development.

II. THE FOREIGN ECONOMIC POLICY STRATEGIES OF CMEA COUNTRIES HAVE CHANGED

The economic policy goals of the Soviet Union and the other member countries of the CMEA have actually not changed in the last decades. In politico-economic reality, however, the "Basic Economic Law of Socialism", i.e. the striving for economic growth and a parallel development of man's potential in the socialistic sense, has led to various foreign economic policy strategies. This is not surprising since the CMEA countries differ from one another not only in their levels of development, the size of their domestic markets, and their raw material resources, etc., but also in the extent of their actual or perceived freedom to pursue national development concepts. These factors, which change with the passage of time, will be more closely examined later, to the extent that they are important to the questions being discussed here.

Not least because of the decline in economic growth evident during the last years¹ has Soviet interest in technology imports from the West grown, in order to compensate at least partially for the existing lag in innovative technology. The already existing Soviet interest in Western credits will become even stronger because, due to the low level of internal growth, it must expect a decline in industrial exports and foreign exchange revenues. Certainly, the "terms of trade" of the USSR (like Poland's) have improved, particularly because of the worldwide increase in the price of crude oil and coal,² thus concealing any resultant structural problems. If, however, the pessimistic Western prognoses about a bottleneck in Soviet oil production in the 1980's³ are correct, the realization of the so basic postulate of economic growth in socialist countries could encounter considerable difficulties. Also, there would be a growing threat of domestic political destabilization.

One of the difficulties which could arise from an intense involvement by CMEA countries in the world economy is the growing impact of external disturbances which could affect the CMEA countries. Western

¹ The reasons cannot be pursued here. From the prognoses of, among others, the CIA, Abram Bergson and Phillip Hanson, one can infer the reason must be a deficiency in innovation caused less by a shortage of expenditures for research and development than by problems in applying the results in production.

² See for example A. Köves, "Integration into the World Economy and Direction of Economic Development in Hungary", in *Acta Oeconomica* 20/1-2 (1978) pp. 108 ff. and Economic Commission for Europe, *The Economic Survey for Europe in 1978* Part I, Table 6.5.

³ As a recent example see J. Bethkenhagen, *Energieprobleme in der Sowjetunion und ihre Auswirkungen auf die wirtschaftlichen Entwicklungen in den osteuropäischen Ländern* (Energy Problems in the Soviet Union and Their Impact for the Economic Developments in Eastern Europe). (Berlin: Deutsches Institut für Wirtschaftsforschung, November 1980).

recession and inflation flow through the channels of economic relations between East and West into the rather inflexible centrally planned economies (CPE). These economies, just like those of the West, must then accept the fluctuations in demand for their products and in the prices of the goods they desire, and must be able to include these fluctuations in their centralized planning.⁴

Here the Soviet Union, with its "talent for independence," is naturally less likely to be affected than the other East European countries. Their considerably greater dependence on stable raw material imports as well as on export markets, which bring in foreign currencies, and in particular their existing involvement with the West (in 1979 the CMEA's share of trade with the West was 27.3 percent of exports and 30.1 percent of imports) makes them extremely sensitive to the above-mentioned economic disruptions, so that they are forced to adapt their foreign policy strategies to the altered situation.

The policy of détente of the 1970s served the economic needs of the USSR and the East European countries well. Eastern authors in particular emphasize repeatedly the connection between improved economic exchanges and the maintenance of the status quo as well as the renunciation of the use of force in Europe.⁵ The stronger economic orientation toward the industrialized West should primarily insure continued economic growth without having a destabilizing effect on the socialist countries. Correspondingly, they did not originally develop a comprehensive new concept for their economic policy toward the West. Rather, they carefully approached new possibilities and forms of economic cooperation. Until the end of the 1960s, the socialist countries made more or less sporadic advances, and their success or failure depended to a considerable extent on the existing state of the East-West relationship. Thus any Soviet participation (and also that of several East European countries) in the new order of the international monetary and trade systems up to the end of the 1940's (involvement in the discussions on the founding of an International Currency Agency and an International Trade Organization) within the framework of a growing East-West conflict became impossible. Also, the Soviet advances during the first United Nations Conference on Trade and Development (UNCTAD) in 1964 had as their primary goal—aside from the obvious intention of gaining stronger consideration for non-market-economy mechanisms in the world economy—to counter with corresponding measures the American initiatives for the expansion of world trade.⁶

Poland and Romania made the first concrete advances toward integration of CMEA member countries in the international economic

⁴ See E. Neuberger and I. Tyson, ed., *The Impact of Western Economic Disturbances on Eastern Europe and the Soviet Union* (New York: Pergamon Press, 1980).

⁵ See for example N. Shmelev, "Problems of an All-European Economic Cooperation", in *Acta Oeconomica* 19/3-4 (1977) pp. 379 ff.; E. Faude, "Die Stellung der RGW-Gemeinschaft in der Weltwirtschaft" (The Position of the CMEA Community in the World Economy) in *Deutsche Außenpolitik* 24/1 (1979), pp. 27-43; A. Inotal, *The EEC at the End of the Seventies* (Budapest: 1979), in particular pp. 82 ff.

⁶ In the Trade Expansion Act, signed on November 11, 1962, Congress granted the American administration the power to take initiatives directed at expanding world trade. These culminated in the Kennedy Round, named after the then U.S. president, which was the 6th tariff reduction round of the General Agreement on Tariffs and Trade (GATT), which began its work in Geneva in May 1964, during the expiration of UNCTAD I.

organizations of the West. Without doubt these smaller East European countries were thereby attempting to increase their economic maneuverability and take advantage of an international division of labor which was not limited to the sphere of CMEA. This was done in addition to an intensification of integration within the CMEA which was supposed to result from passage of the Comprehensive Program in 1971. Since the beginning of the 1960s, Romania had rejected USSR proposals for the development of a common plan within CMEA which, if accepted, would probably have led to even greater Soviet dominance within CMEA. Romania's actions were certainly in the interest of other East European CMEA members and contributed to the establishment of a more independent foreign and foreign economic policy. Thus Romania became, after the CSSR (founding member since 1947) and Poland (1967) and before Hungary (1973) a member of GATT in 1971, and is presently the only CMEA country to be a member of the IMF and the World Bank (since 1972).

These efforts of certain East European countries behind which lies an attempt to achieve treatment as a most-favored nation and to widen the basis for receiving credit on Western capital markets, were supplemented by the gradual establishment of contacts with institutions of the European Community. These CMEA countries were certainly motivated to take these initiatives by the creation of a Common Trade Policy of the EC: trade agreements with EC members can no longer be negotiated on a bilateral basis, since the Commission assumed this competence in January 1, 1975.

At this point it should be pointed out and this is quite typical of the perceptual and conceptual changes in Eastern Europe and the USSR—that establishment of contacts with the EC was preceded and then accompanied by a remarkable process of ideological reorientation. This process has by no means been completed. What had formerly been called an imperialistic and hostile “economic equivalent of NATO” became more and more a “reality in Europe,” whose economic merits could not be completely denied.

If one summarizes the activities of the East European countries and the Soviet Union, starting with the beginning of détente between East and West and proceeding to the second half of the 1970s,⁷ one can see that the Centrally Planned Economies (CPEs) were generally concerned with improving their position in the world economy, taking into consideration the political and system-affected limitations which they faced, and thereby aiding their own national economic development. In the forefront, clearly, stood the need to make large hard-currency earnings in order to be better able to finance Western imports. Where international economic organizations were concerned, they tried to achieve this by eliminating trade barriers and in particular by achieving most-favored-nation status.

In addition, more Western credit and better terms of repayment were to assist the smaller CMEA countries in particular to increase economic growth and advance their economic modernization. The necessary process of adaption should lead to an improvement in the

⁷ For a detailed analysis of this phase see Max Baumer and Hanns-Dieter Jacobsen, “CMEA and the World Economy” in U.S. Congress, Joint Economic Committee, *East European Countries Post-Helsinki* (Washington D.C.: GPO, 1977), pp. 999–1018.

economic flexibility of the CMEA countries and thus also have favorable political consequences. It was also accepted that ideological reservations about the possible dangerous consequences for the socialist system were to be stifled and are today no longer to be heard. In order to realize these ideas, the CMEA countries—and this is not difficult to deduce from their actions—have had no common or even uniform concept. Much more, the individual efforts seem today to have been an attempt to take soundings on how possible it would be, for example, to improve their own economic standing through membership in GATT, to develop relations with the underdeveloped nations through initiatives within the UNCTAD, or to secure additional sources of credit through membership in the World Bank.

As will later be shown, these institutions have only been able to a very small extent to satisfy the expectations of the CMEA countries, since these institutions have themselves been subject to alteration due to certain structural changes in the world economy as well as to the appearance of new actors and problems.⁸ The Soviet Union, at least since the failure of the International Trade Organization in 1948, has always considered the political price of full cooperation in world economic institutions like the IMF or GATT to be much too high when compared with the economic advantages of such cooperation. It has not, however, blocked the membership of certain CMEA countries in GATT and has even accepted Romania's membership in the IMF. The very meager results of the Tokyo Round of GATT for the CPEs and the ever more strident demands which the underdeveloped countries are making on Eastern industrialized countries, for example at the UNCTAD V in Manila, seem to mark the end of both a learning process of the CMEA states and, quite apparently, of a period characterized by a comparatively broad and undifferentiated foreign economic policy strategy toward the world economy and its organizations. Rather, a new strategy seems to be developing which would take much less advantage of the whole spectrum of world economic organizations, as it is more problem-oriented and geared to regional concepts. This process of change will be discussed in the following chapter.

III. THE INTEREST OF THE CMEA STATES IN STRONGER REPRESENTATION IN THE IMPORTANT GLOBAL ECONOMIC ORGANIZATIONS HAS NOT GROWN

In the last years, speculation surrounding the entrance of CMEA member-states to the IMF has been heard repeatedly. As early as 1968 there were rumors concerning Hungary's activities, and then in 1972 Romania became a member. Because of China's appearance on the world economic scene, and based on certain initiatives, there was legitimate speculation about the potential membership of China in the IMF.⁹ This speculation turned out to be correct. The technical difficulties which could thus arise are in principle no different from those

⁸ On this trend, see Max Baumer and Hanns-Eleer Jacobsen, "Changing Role of International Institutional Actors in East-West and North-South Relations", in Carl McMillan and Zbigniew Fallenbuehl, ed., *Partners in East-West Economic Relations—The Determinants of Choice* (New York: Pergamon Press, 1979) pp. 91-110. See also R. Portes, "Ouest et Sud: le rôle des économies centralement planifiées dans l'économie internationale," in *Revue d'Etudes Comparatives Est-Ouest* 10/3 (1979) pp. 31-73.

⁹ See *Nene Züricher Zeitung* (April 20, 1980), p. 11.

associated with membership of CMEA states, since here too one is dealing with a socialist centrally planned economy.

Actually, the real economic situation in some CMEA countries (in view of the growing economic ties with the West as well as the effects of economic reform) further encourage such speculation. Hungary, for example, would certainly be in a position of pursuing an economic policy oriented toward at least limited convertibility. Thus, for example, the state economic policy has led to a larger allocating function for prices, more decision-making authority at the enterprise level and a closing of the gap between the officially-established exchange rate of the forint and the forint rate on Western currency markets. This gap is much smaller than the corresponding one experienced by other CMEA currencies.¹⁰

From the point of view of the IMF, a series of adaptation processes have taken place as a consequence of the collapse of the Bretton-Woods-System which have proved beneficial to the membership possibilities of the CPEs. According to the statutes, for example, there are extensive alternatives available in the new exchange rate system (from fixed to flexible). The European Monetary System (EMS) for example, which can be regarded as a regional subsystem of the IMF, is in full accord with the IMF's statutes.¹¹ An analogous application of the statutes for a CMEA country seeking membership is certainly conceivable.

The main advantage which CPEs could derive from membership is to be found in the increased possibility of getting credit to compensate for temporary balance of payments difficulties and—with simultaneous membership in the World Bank (IBRD)—in the possibility of obtaining long-term credits in convertible currencies at favorable interest rates. The growing debts of CMEA countries in the West and their continued great interest in obtaining credits are a good indication that such membership could be an important inducement for East European countries and the Soviet Union.

However, East European states are unlikely to join the IMF within the next few years. Besides information-related problems,¹² system-related difficulties could arise from such membership. Economic integration in the CMEA is first of all integration in the production sector, and even the moderate step toward internal convertibility of CMEA currencies, envisioned in the program of 1971, not to mention the establishment of a "collective currency" in the form of a transferable ruble, has lagged far behind aspirations. Theoretically, the question whether a convertible transferable-ruble is necessary to the progress of CMEA integration remains unanswered.¹³

¹⁰ Not only here does Hungary break new ground. On November 9, 1979 in Budapest, a Central European International Bank (CEIB) with western majority participation was founded which could result in new dimensions for East-West cooperation.

¹¹ See Dieter Hiss, "Zur Stellung des Europäischen Währungs-systems im Rahmen des Weltwährungs-systems" (On the Position of the European Monetary Union in the World Monetary System), in *Kredit und Kapital* 12/3 (1979) pp. 354-362.

¹² These refer to the publication of previously inaccessible economic data from socialist countries made necessary by their membership in the IMF, in particular figures on their balance of payments such as debts, servicing of debts, currency reserves, etc. The detailed statements are required in Article VII, Paragraph 5 of the IMF Statutes.

¹³ On the Western side, the idea has become prevalent that without fundamental changes in the planning system of the CMEA states it would be impossible to realize this kind of convertibility. This relationship is most clearly illustrated by F. D. Holzman, "Some Systemic Factors Contributing to the Convertible Currency Shortages of Centrally Planned Economies," in *American Economic Review* PaP 69/2 (1979) pp. 76-80.

In reality, in any case, a trend seems to be developing which is more likely to lead to intra-bloc convertibility of national currencies or which could, through increasing financial transactions in parallel currencies (dollar, D-mark, etc.) make even this convertibility superfluous. If their national currencies were only convertible on a limited basis within the CMEA, it would be politically possible for one or even more CMEA countries to join the IMF only with the consent of the Soviet Union.¹⁴ Given the disruption of the internal CMEA process of integration resulting from such a step, this consent is not to be expected (thus Romania's initiative in 1972 must in fact be interpreted as an atypical step). Due to the magnitude of the situation, Soviet membership in the IMF would cause serious problems. The result would be not only a new allotment of quotas within the IMF or Soviet demands for its own executive director, but also in all probability there would be consequences for the formulation of policy within the IMF.

Independent of the attitude of IMF members, such a step is not necessarily sensible from the point of view of the USSR. It could secure a whole range of economic advantages by other means (for example through credits granted in bilateral agreements or through the Euro-credit markets). Furthermore, the political costs and risks of membership in an institution dominated by Western industrialized nations would be relatively high: the Soviet Union would not only be required to publish the above-mentioned economic data and to begin to seek a solution to the problem presented by its price and exchange rate systems; the leader of the CMEA would also be forced to relinquish at least partially its freedom to make decisions in the important economic sphere of monetary policy.

While one is dealing here primarily with political arguments against membership of socialist countries in the IMF, it was primarily for economic reasons that their originally large interest in GATT has abated. Certainly the motive of those CMEA countries which joined GATT¹⁵ of obtaining most-favored-nation status from the other contracting parties played an important role.¹⁶ Inversely, the corresponding question, to what extent Poland, Romania and Hungary must guarantee reciprocity, that is, grant reciprocal concessions, could not be settled during the intricate membership negotiations. However, the basic problem remained: to what extent could the CPEs, with their foreign trade monopoly, make suitable concessions at a world-wide tariff reductions round, where they could behave in a protectionist manner just by completely ignoring the attempts to sell by foreign producers? To this extent, the concentration of GATT-activity on non-tariff trade years has certainly coincided with the structures and interests of the East European member countries.

¹⁴ And this is without doubt one of the main reasons that J. Fekete, Vice President of the Hungarian National Bank, has emphasized that for Hungary alone IMF membership would be impossible; such a step would be conceivable only in concert with other CMEA members. See Vilaggazdasag 202 (October 19, 1973) p. 1.

¹⁵ The following East European countries are members of both CMEA and GATT: TSSR, Poland, Romania, and Hungary. Bulgaria is only an associate member of GATT, but did, however, take part in the multilateral negotiations of the Tokyo Round and signed the concluding agreements.

¹⁶ This is discussed in detail in the study by M. Kostecki, apparently written as early as the mid-1970s. *East-West Trade and the GATT System* (London: 1979), pp. 10 ff. as well as in the case study by John W. Evans, "GATT as a Framework for East-West Trade". In The Atlantic Council Committee for East-West Trade, ed. *East-West Trade* (Boulder, Colo.: 1977) pp. 122 ff. New developments are discussed in the essay by M. Kostecki, "L'U.R.S.S. face au système de commerce multilatéral". in *Revue d'Etudes Comparatives Est-Ouest* 10/3 (1979) pp. 75-89.

But as was the case in the Kennedy Round, the major burden of the trade negotiations in the Tokyo Round, has been placed on the main partners in world trade, the EC, the USA and Japan. The underdeveloped countries have claimed repeatedly that they were not sufficiently represented at the negotiations, although they have come to enjoy a number of advantages, for example through special regulations granting favored treatment to developing countries.¹⁷ In particular, the introduction of a code of safeguard clauses which would permit selective measures directed against individual countries is interpreted as an instrument with strong overtones of discrimination which is directed against them.¹⁸ These fears could also be expressed by the East European members of GATT, using the same argument. These members, like the underdeveloped countries, not only have no interest in such protective regulations, but also are in competition with these countries for access to the markets of the Western industrialized countries.

The fact that it would soon become apparent how the negotiations would end could have contributed to the fact that the East European GATT members neither came forward as a group nor made any spectacular demands, but rather have accepted and already initialed the resulting regulations. And this is certainly one of the main reasons that the USSR has until now refused to join GATT. Since the discussions about an International Trade Organization (ITO) in the years immediately following the Second World War, and since presenting its proposals in 1968 for a new world economic order, it has left no doubt that it does not wish to oppose the goals of the underdeveloped countries and emphasizes that it supports these goals. In fact, the proposals which the USSR made at the UNCTAD on March 26, 1964 in Geneva¹⁹ contained at least in the economic sphere a series of concepts which shortly thereafter were again to be found in the "Charter of Algiers" of the Group of 77, dated October 24, 1967, and today are still part of the goals of the Third World.²⁰

In the successive UNCTAD conferences (up to UNCTAD V, which ended in June 1979 in Manila), the USSR and the East European countries repeatedly emphasized their interest in cooperating with the developing countries and on important questions have always taken a stand, together with the Group of 77, (which now numbers almost 120 countries) against the Western industrialized countries. They have received little thanks. Rather, the countries of the Group

¹⁷ See the conclusions of the group "Framework" of GATT, Doc., MTN/FR/W/20/Rev. 2, o.O. o.J., in particular Points 1. "Differential and More Favourable Treatment," and 4. "Reciprocity and Fuller Participation of Developing Countries."

¹⁸ From the until now preliminary analyses of the results of the Tokyo Round which are concerned with the points mentioned here, see the two articles: Victoria Curzon Price, "Surplus Capacity and What the Tokyo Round Failed to Settle", and Hugh Corbet, "Importance of being Earnest about Further GATT Negotiations", in *The World Economy* 2/5 (September 1979) pp. 305 ff. and 319 ff.

¹⁹ To this belongs the foundation of a new world trade organization under the auspices of the United Nations which would replace GATT and contribute by means of, among other things, an agreement on international commodities, to price stabilization, growth of export proceeds and formation of a program for development aid. See *Facts on File* 24/1260 (December 17, 1964) p. 442.

²⁰ A summary of these goals and the resulting strategies is to be found in W. Howard Higgins, "Third World Strategies for Change—The Political Context of North-South Interdependence". In 1980s Project/Council on Foreign Relations, *Reducing Global Inequities* (New York: 1978) pp. 21-117.

of 77 have, for example, extended to the CMEA states their demands that industrialized countries make 0.7 per cent of their gross national product available to the Third World as development aid and have no doubt drawn the obvious conclusions from declarations of solidarity which have remained only verbal thus far.²¹

No fewer than fifteen points criticizing the behaviour of the USSR and the other socialist countries could be counted in the Manila Declaration of 1976. Among the most important were not only that the level of development aid was too low, that this aid was offered primarily on a bilateral basis, or that the developed CMEA countries imported goods from the Third World to an insufficient extent, but also that the underdeveloped countries enjoyed no preferential treatment.²² The reaction of the CMEA states to these demands in both their Joint Statement at UNCTAD IV²³ and their Declaration of Principles at UNCTAD V²⁴ was extremely limited. They refused, instead, to accept the thesis that the richer nations (including the developed CMEA states) should be required to make financial aid available to the poorer. After all, there is a "basic difference between the two socio-economic systems, between the capitalist and socialist, and a very basic difference in the attitudes of these countries to their relations with the developing countries."²⁵

The socialist countries never were colonial powers and are therefore not responsible for any present underdevelopment in the Third World. But it is not only the growing pressure which has put a damper on the economic initiatives of the USSR and Eastern Europe. Also, at least for the present, the failure of the attempt to build a "New International Economic Order" in the sense of the Group of 77 has certainly contributed to the fact, that any initiative toward increasing the strength of the USSR in the Third World is for now highly unlikely. However, as William Diebold correctly indicated,²⁶ the USSR would certainly not withdraw from basic initiatives made under the auspices of the United Nations.

In view of the manifold economic and political issues, it is not possible within the limits of this study to describe sufficiently the complex structure of Soviet-East European interest vis-à-vis the changing structures and general conditions of world economic development or to deduce from it the foreign economic and political strategies of the CMEA states.

²¹ Compared to their gross national products, the countries of the Organization for Economic Cooperation and Development (OECD), which formed the Development Assistance Committee (DAC), gave six times as much bilateral development aid in 1978 as the socialist countries (0.3 per cent versus 0.05 per cent). For data, although the computation of the gross national product of the socialist countries obviously poses some methodological problems, see National Foreign Assessment Center. *Handbook of Economic Statistics ER 80-10452*. (Washington, D.C.: October 1980), pp. 10, 11, and 100.

²² See "Manila Declaration and Program Action", *UNCTAD-Doc.*, TD/195, Feb. 2, 1976.

²³ See "Joint Statement by Socialist Countries at the Fourth Session of UNCTAD". *UNCTAD-Doc.* TD/211, May 28, 1976.

²⁴ See "Evaluation of the World Trade and Economic Situation and Consideration of Issues, Policies and Appropriate Measures to Facilitate Structural Changes in the International Economy". *UNCTAD-Doc.* TD/249 from April 19, 1979.

²⁵ A. Manshulo (Deputy Foreign Minister of the USSR) and G. Krasnow. "International Forum für Handels- und Wirtschaftsprobleme. Zu den Ergebnissen der V. UNCTAD-Tagung" (International Forum for Trade and Economic Problems, On the Results of UNCTAD V). In *Aussenhandel*, No. 9 (Moscow: 1979), p. 21.

²⁶ See W. Diebold, Jr., "The Soviet Union in the World Economy", in U.S. Congress. *Soviet Economy in a Time of Change. A Compendium of Papers Submitted to the Joint Economic Committee*, Washington, D.C.: 1979, p. 62.

However, recent developments seem to indicate that the already halting advances of the East European countries, the USSR in particular, to the important institutions of the world economy will probably be retracted rather than increased.

The end of the 1960s to the beginning of the 1970s was a time which, after the conclusion of the Kennedy Round, led to a remarkable reduction in trade restrictions for East European countries. Also, within the framework of the IMF restructuring processes, political currency regulations serving the interests of the CMEA states were at least not precluded. And finally, at the start of the second development decade, due to certain activities of the developing countries, basic changes in the world economic order became possible. The CMEA states were then obviously willing to end the deep economic isolation in which they found themselves in order to profit from these developments. The world-wide process of détente, in particular between the USA and the USSR, was certainly of considerable significance since it contributed to a relative expansion in the economic sphere and to acceptance of an interdependent structure in the East-West relationship.

In the meantime, however, skepticism is growing and endeavors on the part of the CMEA countries to develop a more carefully planned and effective foreign economic policy strategy which would be in greater accord with changes in the world economic structures (in particular with the rise in the price of crude oil on the world market) seem to have intensified.

That economic and political relations with West European countries and in particular the EC play a special role can be attributed in no small measure to the fact that the Soviet-American relationship has been subjected to considerable stress since the mid-1970s, and obviously, for the foreseeable future, no comprehensive and long-term cooperation is likely to develop. In addition, America tends to evaluate any economic exchange with CMEA states in political terms. Given this attitude and the world-wide competitive relationship between the USA and the USSR, it seems unlikely that a broad move toward economic cooperation could begin largely independent of political developments.²⁷ In fact, it has become evident in the last years that Soviet efforts to establish various levels of cooperation in Europe have intensified; this impression deepens when one compares these efforts with the rather more retrogressive efforts vis-à-vis the rest of the world.²⁸

IV. ECONOMIC AGREEMENTS ON THE ALL-EUROPEAN LEVEL HAVE BECOME RELATIVELY MORE IMPORTANT TO THE CMEA STATES

It has already been indicated that the attitude of the socialist countries toward the West European process of integration has changed. The Eastern polemic against the EC has yielded gradually to a far

²⁷ For a more detailed discussion see Hanns-Dieter Jacobsen, "Die Ostwirtschaftspolitik der USA. Möglichkeiten und Grenzen von 'Linkage'-Politik" (The Foreign Policies of the USA Towards the East. Possibilities and Limits of 'Linkage'-Policy). (Ebenhausen: Stiftung Wissenschaft und Politik SWP-S 279, 1980).

²⁸ It is incidentally mentioned that Y. Ivanov, in a recently published essay, "The Council for Mutual Economic Assistance and International Economic Relations", in *International Affairs* No. 10. (Moscow: 1979) pp. 24-32, was concerned almost exclusively with EC-CMEA relations. Particularly in the case of Soviet authors such an emphasis is no accident.

more differentiated viewpoint.²⁹ Not only have they come to accept the EC as a reality during the last few years, but more importantly, the legal positions—important prerequisites for the conclusion of any agreement between the two systems of economic integration in Europe, the EC and CMEA, have become less a subject of dispute, at least on the part of the CMEA.³⁰

In the course of increasing economic exchanges and also in the quite apparent change of pace in the preparatory negotiations for the Conference for Security and Cooperation in Europe (CSCE),³¹ formal contacts between representatives of both integration systems were finally made in 1974. The Eastern states, of course, pursued much more ardently their goal of concluding an agreement.

Since January 1, 1975, there was a non-contractual agreement in the sphere of trade policy between the members of the CMEA and the EC. The cause of this state of affairs is the Common Trade Policy of the EC, which established that on December 31, 1974, the bilateral trade agreements between the EC members and the CMEA states would expire and the competence for signing trading agreements would be finally passed on to the EC Commission. The Community had, indeed, in good time (as early as 1974), given the CMEA states a draft of the trade agreement; however, no CMEA member, with the exception of Romania,³² reacted seriously.

As mentioned before, the bargaining positions have become less divergent in the last five years. In the course of a number of exchanges of notes and mutual visits, however slowly and minutely, progress has been made. Thus, in the fall of 1979, the EC took up the long-maintained demand of CMEA for dealing with questions of trade in an agreement between the EC and CMEA. In a very general and not very meaningful formulation it conceded that the expansion of trade and the reduction of restrictions would be desirable. The EC still insists that trade agreements can only be concluded between the EC and individual CMEA member countries, but it no longer refuses to mention even the term "trade" in talks with CMEA. In the fall of 1979, both parties agreed for the first time to establish a joint working group which is to draw up the draft for a treaty.

²⁹ This process is described in detail by Eberhard Schulz, *Moskau und die Europäische Integration* (Moscow and European Integration) (Munich/Vienna: 1975). He depends here primarily on Margarita M. Maximova's study, which has since become a standard work on the subject, *Economic Aspects of Capitalist Integration* (Moscow: Progress Publishers, 1973).

³⁰ This becomes apparent from remarks, which can be considered to be official, of, for example, the Soviet expert on international law V. I. Kusenzow; "The contracts between the CMEA and the EEC demonstrate that the CMEA could come to recognize the legal existence of the EEC". *Sowjetwissenschaft. Gesellschaftswissenschaftliche Beiträge*, No. 9, (1978) pp. 945-954, quote from p. 950.

³¹ For more details, see Max Baumer and Hanns-Dieter Jacobsen, "EEC and CMEA: Intricate Negotiations Between the Two Integration Systems in Europe", in W. J. Feld, ed., *West Europe's Global Reach: Political Cooperation and World Interests* (New York: Pergamon Press, 1980, pp. 110-124).

³² Here also Romania made its special position clear not only by applying for—and receiving from the EC—generally preferential treatment, but also by showing a willingness to sign a bilateral trade agreement with the EC without awaiting further developments in the EC-CMEA negotiations. Because of Romania's behaviour, speculation is growing in the West (and particularly in the EC Commission) that one needs only to continue to maintain a hard line in order to free the other countries one after the other from the grasp of the CMEA. Such an attitude obviously is unrealistic and ignores the role of outsider which Romania can play in the CMEA and the Warsaw Pact. For a discussion of the basic problem see A. H. Smith, "Romanian Economic Relations with the EEC", in *Jahrbuch für die Wirtschaft Osteuropas*, Vol. 8, (Munich/Vienna: 1979) pp. 323-361.

Despite these more encouraging developments a number of substantial problems remain to be solved. The chief stumbling block seems to be that neither party is really prepared to acknowledge the competence of the other side to accept and, in a way, by concluding an agreement to sanction the internal, politico-economic state of affairs in the other camp. Apart from these political questions, the negotiation process is hampered by the fact that the negotiating countries do not share identical economic motives for the conclusion of a treaty since economic pressures and expected gains vary widely. Thus, some EC negotiators claim to be at a loss when asked what economic gains the EC could derive from the conclusion of an agreement or what they should demand in return for Western concessions. There are considerable differences of opinion among EC members with respect to the extent to which the Western markets can or should be open to Eastern exports in certain sectors that are thought to be sensitive. Beyond the consideration that some EC nations might fear national, competitive losses in Eastern markets from a more coordinated EC policy, the distribution of potential, additional gains among the EC countries remains a delicate and unresolved question. As far as the CMEA countries are concerned, the exports of the smaller East European nations are much more affected by EC import restrictions than the primarily raw material exports of the USSR. Due to this factor, and because their share of foreign trade in GNP is much higher than in the case of the Soviet Union, their interest in an agreement is comparatively higher.

The changes and partial reorganizations in the world economy did not eliminate Eastern reservations about closer integration into the global economic organizations, particularly since the continuing political and military rivalry between the USA and the USSR seems to prevent closer economic cooperation between the two superpowers. Viewed against this background, CMEA's initiatives vis-à-vis the EC, the Eastern proposals for closer all-European economic cooperation in general, gain new dimension. The CMEA countries, in particular the Soviet Union, seem to concentrate their international economic efforts and strategies on Western Europe. Emphasis seems to lie on considering the potentials for a long-term economic division of labor in Europe, improvement of the European infrastructure, etc., and not so much on more short-term economic gains. In this, geographical proximity (transport costs, knowledge of internal political, social and economic conditions, etc.) plays a rôle as well as the fact that almost all high technology and credit needs can be met by West European sources at competitive prices. Furthermore, rarely have West European countries found it useful to link economic concessions explicitly with demands for a certain political conduct.

An agreement between the EC and the CMEA can only provide the skeleton for expanding economic relations. Such a skeleton agreement would have to be filled out by concrete projects and regulations between the two institutions and/or their member countries, according to the mutual competences in each case under consideration. The skeleton should be large enough to be able to handle the volume and the expansion of mutual politico-economic relations. From this point

of view a treaty, covering only the areas in which an understanding has already been achieved (statistics, standardization, etc.) will not suffice. However, a broader, more extensive agreement which could build the basis for a long-term diversified foreign economic policy presupposes the political will to put an end to the lasting quarrel over mutual competences; i.e., the underlying resistance to mutual recognition would have to be abandoned. One of the reasons why the EC has been hesitant in this respect is the fact that—beyond considerations of conflicts of interest within the EC—one member clearly dominates the CMEA—the Soviet Union.³³

A successful conclusion of the negotiations between the EC and CMEA might also be desirable as a counterweight to the slowdown or even stagnation in the détente process. Their postulate of economic growth requires that the CMEA countries continue to open their economies to the West, and in particular to Western Europe. If the expansion of economic relations with the CMEA countries were given a long-term politico-economic dimension by concluding an agreement with the CMEA, there would be a better chance of overcoming traditional structures and of creating moderating constraints within the CMEA countries. West European decision-makers will have to take this into account when—in the light of increased tensions between the superpowers—reconsidering their policy vis-à-vis in the CMEA countries.

Apart from the EC-CMEA negotiations, a number of other proposals have been made with the goal of closer economic ties between Eastern and Western Europe. Linked with the CSCE negotiations and the UN Economic Commission for Europe, these proposals—essentially put forward by the Eastern European countries and the Soviet Union—cover a wider range of macro—as well as microeconomic fields such as the creation of an all-European free trade area, installation of joint facilities for better financing of East-West economic relations, and East-West European cooperation in the fields of energy, transport and environmental protection.

As far as trade is concerned, the creation of a free-trade zone is the most far-reaching proposal.³⁴ It entails not only mutual granting of MFN but the gradual abolishment of internal tariff and non-tariff trade barriers. Irrespective of undoubtedly very serious political problems, the question of reciprocity would still be more difficult to solve than in the case of the EC-CMEA negotiations. Finland has been the first OECD member to try to find a solution to this problem at the bilateral level. After signing a cooperation agreement with the CMEA in 1973,³⁵ Finland concluded free-trade agreements with most CMEA member countries. The question of reciprocity between countries hav-

³³ Cf. J. Pinder, "Integration in Western and Eastern Europe: Relations between the EC and CMEA", in *Journal of Common Market Studies*, Vol. XVIII, No. 2 (December 1979), p. 128.

³⁴ Cf. R. Lawniczak, "The Free Trade Area Idea and East-West Trade Promotion", in *EFTA-Bulletin*, No. 1 (1975), pp. 11-14. In an International Political Science Association (IPSA) conference in Moscow, August 12-18, 1979. M. Schmidt, Director of the GDR's Institute for International Politics and Economics (IPW), reactivated the idea of an all-European free trade area. Cf. M. Schmidt, "Economic Cooperation as a Factor in Giving Substance to Relations Peaceful Coexistence Between States with Differing Social Systems." Manuscript.

³⁵ In contrast to the treaty between Finland and the EC (1973), the treaty between Finland and the CMEA does not deal with questions of trade (texts are reprinted in: *Europa-Archiv*, Vol. 29, No. 5 (1974), pp. D 99-D112).

ing different economic systems has been tackled in Article 9 of the treaty with the Czechoslovak Socialist Republic (CSSR). (1974). There it is stipulated that the CSSR use all instruments available within the limits of its economic system to assure that its imports from Finland enjoy the same privileges as Finnish imports from the CSSR.³⁶ This rather imprecise, nonbinding formulation demonstrates that a magic key to the problem of reciprocity could not be found and that confidence in mutual goodwill is crucial. However, there are also some safeguard clauses to be found in the agreement which are not customary for free-trade agreements between developed market economies. Only experience can show whether such bilateral compromises are functional and to what extent they are acceptable by other West-European countries.

The Soviets proposed All-European arrangements in the fields of energy, transport, and environmental protection. This reflects their interest in finding common interests in certain economic sectors with neighboring Western Europe. The sectors chosen are—even though to a varying degree—also of interest and importance to the West European countries. The conference on environmental protection, held by the ECE in the fall of 1979, dealt with question of trans-border air pollution, environmentally acceptable technologies, and the protection of water, wildlife and plants.³⁷

No spectacular results were to be expected from this first conference. However, the process is to continue and it is conceivable that problems of nuclear technology, e.g. disposal and storage of nuclear waste, will also be placed on the agenda.

Preparations for a conference on energy have proceeded far enough to expect an all-European energy meeting at the 1981 CSCE meeting in Madrid. The EC member countries have so far been unable to arrive at a joint energy policy and coordination seems difficult to achieve. However, the economic problems arising in this sector are much felt, and the specific types of energy problems in Eastern and Western Europe seem to differ to such a degree that negotiations promise to be difficult.³⁸ The potential for political tensions arising from insufficient energy and power supplies could be reduced by cooperating in the planning and construction of implementing measures, energy transport systems, measures for the saving of energy: for example, the electrical power systems of Western and Eastern Europe could be more closely interconnected to their mutual advantage.³⁹

An all-European conference on questions of transport and traffic—the third of the sectors proposed for negotiations—could usefully strive to find methods of coordination in the expansion of East-West transport ways and systems, including such problems as establishing standards and norms. Controversial issues, like the Eastern quest for improved East-West transport routes and facilities, and the Western

³⁶ The Finland-Czechoslovakia Free Trade Agreement, in *Journal of World Trade Law*, Vol. 11, No. 5 (Sept./Oct. 1977), pp. 479 ff.

³⁷ An introduction to related problems is given by J. Füllenbach, *Umweltschutz zwischen Ost und West* (Environmental Protection. Issue Between East and West) (Bonn: 1977).

³⁸ Cf. F. Müller, "Gesamteuropäische Zusammenarbeit im Energiebereich" (All-European Cooperation in the Energy Sector), in *Europa-Archiv*, Vol. 34, No. 11 (1979), pp. 313-322.

³⁹ Cf. R. Botzian, "Ost-West-Stromverbund und alte Mitteleuropaldee" (East-West Electricity Grid and the Old Central European Idea), in *Aussenpolitik*, Vol. 30, No. 4 (1979), pp. 372-381.

demand for economically calculated international transport rates could be brought into a bargaining context and possibly be solved. The West European countries have reacted rather reservedly to the project of an all-European conference on transport. This may be explained by the lack of a joint or even coordinated transport policy within the EC.

V. THE PRESENT SITUATION REQUIRES THAT THE WEST MAKE CERTAIN BASIC POLITICAL DECISIONS

The study presented here comes to the conclusion that the CMEA countries, and in particular the U.S.S.R., at present are pursuing a foreign economic policy strategy which concentrates far more heavily on Western Europe and the European Community than in previous years. Naturally, Western Europe has always played a special role in Soviet policy towards the West—the efforts surrounding the inception of the CSCE are the best example—and the conclusion is to this extent not surprising.

Domestic economic problems became increasingly important to the CMEA states in particular; they could reverse the process of their integration into the world economy only at great cost. And if the CMEA states, on the basis of previous experience, seem to come to the conclusion that it makes sense for them to place more emphasis on Europe, the West European countries are thereby being offered an important chance to be politically effective.

Developments in the 1970s have shown that East-West economic relations are of decisive importance to détente and the long-term stabilization of political relations between East and West, in particular in Europe: A hardening of the Soviet-American relationship must not necessarily overshadow the politico-economic interest of the European countries to such an extent that they can no longer be pursued.

In light of the difficulties in arriving at meaningful conclusions in the negotiations on Baskets I and III of the CSCE, and in view of the fact that the economic problems and development prospects in West and East, at least since the oil price crisis of 1973/74, have gained dramatically in importance, questions of all-European economic cooperation have become the pivot for all future developments.

It should be obvious from the preceding discussion that any initiatives on the European scale which went beyond bilateral agreements actually emanating only from the East European countries. The West European countries were unable to counter these initiatives with their own concept; rather, they reacted uncertainly and in several different ways. These East-West relations, however, seem to have culminated at a point where it is absolutely necessary to stabilize the existing complex network of bilateral regulations by means of multi-lateral agreements. This means that the possibilities open to and the limits on the relations with the East European countries must be re-examined by those politically responsible, not only in the foreign or security policy sector, but also in the economic sphere. The resulting political decisions and concepts should ensure development of a clear framework within which entrepreneurs, ministers, and not the least, functionaries of international organizations like the EC can operate