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LETTER OF TRANSMITTAL

AUGUST 10, 1981.

To the Members of the Joint Economic Committee:

Transmitted herewith for the use of the members of the Joint Economic Committee and other Members of Congress is a study concerning the economy of the Soviet Union entitled "Consumption in the USSR: An International Comparison." The authors of this study are Gertrude E. Schroeder and Imogene Edwards. Mrs. Schroeder, professor of economics at the University of Virginia, was commissioned to direct the study by the Office of Economic Research of the Central Intelligence Agency.

This study, together with others to be published in the near future, will form the third volume in the series first issued in 1979 entitled "Soviet Economy in a Time of Change." The first two volumes in this series have already been published.

The present study presents somewhat revised values for the Soviet-U.S. comparisons published in the earlier volumes, extends the comparison to include several European countries and Japan, and considers in a comparative framework the growth and change in composition in the USSR since 1950.

Much of the research in this study and those that are forthcoming in this series was directed by the late Rush V. Greenslade. Mr. Greenslade was responsible for a number of pioneering efforts in the area of Soviet economic analysis. The committee is deeply grateful for the major contributions he made in this and earlier committee studies of the Soviet Union.

The views expressed in this study are those of the authors and do not necessarily represent the position of the Joint Economic Committee or individual members of the committee.

Sincerely,

HENRY S. REUSS,
Chairman, Joint Economic Committee.

Consumption in the USSR: An International Comparison

Overview

About 20 years ago, the Communist Party of the Soviet Union unveiled a grandiose program designed to provide the Soviet people with "the highest living standard in the world by 1980." Events have turned out quite differently. Real per capita consumption in the USSR currently is less than a third of that in the United States. The gap was narrowed in the 1960s, but began to widen in the 1970s. The Soviets also lag far behind the major West European countries and Japan, and except for the United Kingdom, the differences have increased considerably since 1960. Rather than overtaking and surpassing its capitalist rivals, the USSR has managed only to gain a little on some of its socialist partners in Eastern Europe, where living standards are still generally higher. In the 1980s, living standards in the USSR are likely to improve much more slowly than in the past because of the projected severe constraints on economic growth.

Comparative Levels of Living

These are some of the major findings of an extensive comparison of per capita consumption in the USSR and the United States in 1976 based on detailed expenditure data and new purchasing power parities. In 1976, real per capita consumption in the Soviet Union was 34.4 percent of that in the United States: this value is the geometric mean of comparisons in rubles (27.6 percent) and in dollars (42.8 percent). These comparisons, moreover, are believed to be biased in favor of the USSR because of the inability to allow fully for the notoriously poor quality and narrow assortment of Soviet consumer goods and services. The comparisons also cannot take into account the erratic, primitive distribution system and random shortages that make shopping difficult for Soviet consumers.

Based on a geometric mean comparison, Soviet consumers come nearest to their American counterparts in consumption of food, beverages, and tobacco (54 percent) and soft goods (39 percent). The Soviet lag is massive (less than 20 percent of the US level) in consumer durables and household services. In terms of housing services, for example, the Soviet level is only one-seventh of that in the United States. In contrast, the Soviets exceed the United States in per capita consumption of alcoholic beverages (especially hard liquor) and in provision of public transportation. Education and health services, which the USSR supplies mainly without direct charge, are at about half the US level, with a considerably better showing in education (77 percent) than in health (33 percent). Over the past 20 years, the Soviets have made the most progress in "catching up" in food, soft goods, and durables, but have retrogressed relative to the United States in housing, recreation, education, and health.

Per capita consumption in the USSR in 1976 also was well below that in major Organization for Economic Cooperation and Development countries. Updating a recent United Nations study of comparative national products, we estimate, for example, the Soviet level to be roughly half that of West Germany and France, about two-thirds of that in Japan, and about three-fourths of the level in Italy. Although these comparisons are derived indirectly by relating all countries to the United States, they probably are of the order of magnitude that would be shown by direct comparisons. A variety of evidence suggests that Soviet consumers also are less well off than consumers in most of Eastern Europe.

Rates of Growth

Personal consumption per capita in the Soviet Union has increased at an average annual rate of 3.6 percent since 1950, but growth has been slowing markedly. Nonetheless, the lags in living standards have increased relative to most major non-Communist countries. In the past two decades, Japan caught up with, and raced ahead of, the USSR; France, West Germany, and Italy widened their leads over the Soviets. The USSR was able to gain substantially on the United Kingdom, however, and on the United States as well, but by a relatively small margin. It also managed to gain on four of its socialist partners in Eastern Europe and to maintain its relative position with respect to others. On the whole, living standards have improved far less rapidly in Eastern Europe than in the West over the past two decades. The picture is not changed in the USSR's favor, even when government expenditures on health and education are taken into account.

Composition of Consumption

The pattern of expenditures on consumption in the USSR is markedly different from that in the United States and Western Europe, and the differences are greater than might be expected from relative levels of development. The Soviet pattern also differs considerably from the composition of consumption in Hungary and most closely resembles that in Poland, Spain, and Portugal. The Soviet pattern in many respects conforms to that in the less developed countries, and remarkably little progress toward a more modern pattern has been made in recent decades. In this and other respects, the USSR is indeed the world's most "underdeveloped developed country."

Food, beverages, and tobacco made up nearly half of Soviet household consumption, compared with about one-fifth in the United States and 25 to 40 percent in West European countries. The Soviet share exceeds that in Greece and Spain, countries with far smaller per capita GNPs. The share

has fallen little in the USSR since 1960, while large declines have been experienced elsewhere. The USSR also stands out for its extraordinarily large share (17 percent) of hard liquor in the total, compared with 1 to 6 percent elsewhere. The data do not include production of home brew, which adds substantially to Soviet consumption, making the USSR a leader in the world hard-liquor-drinking league and creating serious social and economic problems.

The share of expenditures related to housing in the USSR is the smallest among the countries that were compared, as is the share for education and health. The low share for health (4 percent) may seem surprising, given the system of universal "free" health care and the Soviet claim to have the most doctors per capita in the world. The explanation lies mainly in the inferior quality of Soviet health services, the relatively sparse use of materials, and the low wages paid to health services personnel.

Consumption Shares of GNP

Under Khrushchev and Brezhnev, consumption has been accorded relatively greater priority than it had under Stalin. Nonetheless, its share in total GNP (54.0 percent in 1976) has continued to decline, whether measured in current or constant prices. Moreover, the share of consumption is uniquely low by comparison with other countries, particularly for personal consumption.

Outlook

In the USSR, long-continued investment priorities favoring heavy industry and defense, coupled with a rigid and cumbersome system of economic organization, have combined to produce a consumer sector that not only lags badly behind both the West and Eastern Europe, but also is in many respects primitive, grossly unbalanced, and in massive disequilibrium. Shoddy goods and services, queues, and shortages have become characteristic features of everyday life, along with endemic black markets and corruption. These negative aspects cannot be captured in quantitative comparisons, which, as a consequence, overstate the level of consumer well being in the Soviet Union relative to other countries. To modernize the consumer goods industries and to redress the past neglect of housing and personal services would take enormous investment resources that would have to be siphoned off from other claimants. To tailor the quality and assortment of goods to consumer demand and to provide an efficient distribution network would require a fundamental reform of the economic system.

In the 1980s, overall economic growth probably will slow markedly under the impact of sharply declining increments to the labor force, energy shortages, and sluggish productivity advance. As a result, the Soviet leadership faces a painful dilemma. A boost in consumption will be needed to meet expectations of gradual improvements in living standards and to maintain work incentives. At the same time, more investment will be required to raise productivity and spur economic growth. The decision probably will be a compromise on resource allocation as well as on economic reform. Consequently, progress in raising living standards in likely to slow to a crawl, and the consumer sector will remain fourth class when compared with Western economies.

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List of Standard Citations

Full Citation	Abbreviated Citation
USSR Central Statistical Administration, Statistical Handbooks	
Narodnoye khozyaystvo SSSR v 19—godu (National Economy of the USSR in 19—)	*Narkhoz 19—*
Sovetskaya torgovlya (Soviet Trade), Moscow, 1964	*Sov torg 1964*
Gosudarstvennyy byudzhet SSSR i byudzhety soyuznykh respublik (State Budget of the USSR and Budgets of the Union Republics)	
1961-1965	*Gosbyudzhet, 1966*
1966-1970	*Gosbyudzhet, 1972*
1971-1975	*Gosbyudzhet, 1976*
Soviet Periodicals	
Voprosy ekonomiki (Problems of Economics)	*Vop ek*
Vestnik statistiki (Herald of Statistics)	*Vest stat*
Ekonomika i organizatsiya promyshlennogo proizvodstva (Economics and Organization of Industrial Production)	*EKO*
Ekonomicheskaya gazeta (Economic Gazette)	*Ekon gaz*
US Government Publications	
CIA, *USSR: Gross National Product Accounts, 1970* A (ER) 75-76, November 1975	CIA, *GNP 1970*
A Comparison of Consumption in the USSR and the US, January 1964	CIA, *A Comparison*—, 1964
Joint Economic Committee, Congress of the United States,	
Soviet Economic Prospects for the Seventies, June 1973	JEC, *1973*
Soviet Economy in a New Perspective, October 1976	JEC, *1976*
Soviet Economy in a Time of Change, October 1979	JEC, *1979*
USSR Gross National Product of the USSR, 1951-1980 (forthcoming, 1981)	JEC, *GNP 1950-80*
Other Publications	
Irving B. Kravis, Zoltan Kenessey, Alan Heston, and Robert Summers, *A System of International Comparisons of Gross Product and Purchasing Power*, United Nations International Comparisons Project, Phase I (Baltimore: The Johns Hopkins University Press, 1975)	*ICP*, Phase I
Irving B. Kravis, Alan Heston, and Robert Summers, *International Comparisons of Real Product and Purchasing Power*, United Nations International Comparison Project, Phase II (Baltimore: The Johns Hopkins University Press, 1978)	*ICP*, Phase II
A.S. Becker, *Soviet National Income, 1958-1964*, Berkeley, University of California Press, 1969	Becker, 1969
Abram Bergson, *The Real National Income of Soviet Russia Since 1928*, Cambridge, Mass., Harvard University Press, 1961	Bergson, 1961
Abram Bergson, *Productivity and the Social System: The USSR and the West*, Cambridge, Mass., Harvard University Press, 1978	Bergson, 1978

Consumption in the USSR: An International Comparison

Introduction

This study presents the results of a detailed comparison of consumption in the Soviet Union and the United States in 1976. The comparison is based on a new set of purchasing power parity ratios. A previous study entitled *A Comparison of Consumption in the USSR and US* was published by the Central Intelligence Agency in 1964 and dealt with consumption in 1955. This study follows the methodology used in the earlier report, which was patterned after that used by Gilbert and Kravis in their comparison of the national products of several Western countries.[1]

This study for 1976 represents a considerable improvement in methodology. The sample of goods and services priced numbers 334 items—more than double the 152 items in the 1955 comparison. The 1976 comparisons also draw on a pathbreaking United Nations study of comparative national products for help in sample selection and product specification.[2] The critically important task of matching Soviet products with comparable US products to derive relative price ratios was greatly facilitated by the expert evaluations provided by US manufacturers and retailers. Finally, the estimates of expenditures in the USSR rest on a better understanding of Soviet published data than did the 1955 comparison.

This study will first describe, in summary form (part I), the nature of the Soviet-US comparison of consumption and its methodological underpinnings. Part II will present the results of the comparison of Soviet and US consumption in 1976 and will consider recent trends in quantities and prices in the two countries. Part III modifies the system of classification of consumption expenditures and broadens the comparison to include several countries covered in the UN project: comparative per capita growth rates are also assembled for these and other countries. Finally, part IV places the Soviet experience and policy choices with respect to consumption in broader historical perspective and speculates on future choices and their likely impact on the relative status of Soviet consumers vis-a-vis their counterparts elsewhere. Appendixes A through F present full descriptions and documentation for the comparisons.

[1] Milton Gilbert and Irving B. Kravis, *An International Comparison of National Products and the Purchasing Power of Currencies*, OEEC, Paris, 1953.

[2] *ICP*, Phase I, and *ICP*, Phase II.

Part I: Methodological Considerations

Statistical Methods

The comparisons of Soviet and US consumption in 1976 are of a conventional sort, based on purchasing power parities and calculations of each country's expenditures in its own prices and in those of the other country. The final result is a binary comparison of per capita consumption of goods and services of a quantitative nature, resulting from valuation of both countries' consumption in 1976 in dollars and in rubles, and taking the geometric mean of the comparison in dollars and the comparison in rubles. The concept of consumption includes household purchases of goods and services, the imputed value of consumption-in-kind of goods and housing services, and government noncapital expenditures on health and education.

Briefly, the steps in constructing the comparisons are: (1) selection of a representative sample of identical goods and services to be priced in both countries; (2) calculation of ruble-dollar and dollar-ruble ratios from the sample prices; (3) aggregation of the price ratios into categories using appropriate expenditure weights for each country; and (4) conversion of each component of Soviet consumption from a ruble value to a dollar value by multiplying the ruble value by the appropriate dollar-ruble price ratio, and the reverse conversion of US consumption to rubles by multiplying the dollar value of each component by the appropriate ruble-dollar price ratio. The results are four sets of values, two with both countries' consumption valued in dollars and two with both valued in rubles. A more general description of the procedures, including their algebraic expression, is given in JEC, *1979*, p. 374.

Consumption expenditures are in 1976 prices. For the United States, these values are given in the personal consumption expenditures component of the US national accounts and in components of government expenditures related to current outlays for education and health (for details see appendixes A through D). For the USSR, the values are derived as components of the CIA estimates of GNP in current prices in 1976 (sources and methods are given in appendix E). Such estimates are required because the Soviet Government does not publish aggregates suitable for direct international comparison. Soviet consumption of purchased goods and services is valued at retail prices, consumption-in-kind at average prices received by producers, and government-provided education and health services at cost.

Price data for the sample of goods and services purport to represent national average prices in both countries. For the United States, for the most part, product prices were provided by US retailers and manufacturers and by the Bureau of Labor Statistics. Soviet prices came from a variety of sources (see appendixes A through C for a discussion of prices used in estimating purchasing power parities). Education and health services were priced by calculating separate price ratios for wages and for materials (see appendix D).

The Sample

The sample of goods and household services priced numbers 334 items—110 food products, 163 types of soft goods and durables, 59 specific household services, and education and health services. The representativeness of the food sample is quite good. It covers all major groups of food, beverage, and tobacco products in both countries. The sample better reflects the Soviet consumption pattern than that of the United States, where highly processed, packaged, and variegated products predominate. For 20 processed foods, which were purchased in the USSR and brought to the United States, the US prices for products of comparable quality were provided by US manufacturers in laboratory tests of the quality of the products. The sample of nonfood products includes 105 items classified as soft goods and 58 items classified as durables. Although the sample includes most major items in the relevant expenditure groups in both countries, it is more characteristic of the Soviet pattern, where relatively simple, standarized products predominate, than of the highly styled, fabricated, and diverse product mix in the United States. More than 90 percent of the items in the nonfood sample were purchased in the USSR and brought back to the United States for matching with comparable US products; the matches and their corresponding US national average price were provided by qualified US business firms.

The 59 individual household services priced cover most of the important services that are common in both countries. They include: housing rent and repair; household utilities; postal, telegraph and telephone services; public transportation; automotive services (which are large in the US mix); various items of recreation; and a variety of individual repair and personal care services. The service-oriented US economy, however, produces many kinds of services (mainly financial) that are not found in the USSR. Probably least satisfactory is the comparison for housing, where the price ratio reflects a matching of rent paid for a typical urban apartment in the USSR with a two-room apartment in a multiple unit in deteriorating condition in the United States. Most Soviet urban families live in crowded, state-owned and subsidized apartments, and often shared kitchens and baths; the typical rural family lives in a small two- or three-room farmhouse, devoid of modern facilities except electricity. In the United States, the four- or five-room, single-family individual dwelling with all modern facilities is most common. Aside from housing, the least satisfactory part of the sample probably is recreation, where patterns in the two societies differ greatly.

The price ratios for education and health are based on a sample of labor and material inputs that includes the bulk of total current expenditures on these services in both countries. In education, wage ratios are calculated separately for two levels of education—primary-secondary and higher; for health, the wage ratio represents the weighted average of earnings in nine key occupations, matched as carefully as possible. The price ratios for inputs of materials (books, medicines, utilities, and the like) are calculated using the appropriate product price ratios developed for household purchases, along with expenditure weights obtained from budget data for the USSR and input-output data for the United States.

Evaluation of the Comparisons

General. The broad objective of this comparison of consumption in the USSR and the United States, as with all such international comparisons, is to provide some quantitative notion of relative levels of living. This general aim has an added dimension in the case of the USSR and the United States, because we are comparing consumption in a state-directed economy having a collectivist bias with consumption in a market-oriented economy, where consumer preferences hold sway. Although the results surely are not precise (even if "precision" could be defined), their credibility does not suffer seriously by comparison with the binary results in the United Nations ICP studies. In Phase II of that project, the authors had the task of matching products and prices in such diverse countries as India, Iran, Hungary, France, and the United States, where wide differences in levels of development exist. To the extent allowed by Soviet data, the US-Soviet comparison was patterned after the ICP, and every effort was made to match its rigorous standards. Index number ambiguity attaches to the results, as it does in all international comparisons of levels of production, but the boundaries (the ruble comparison and the dollar comparison), perhaps, at least define limits for the value we seek. (For further discussion of these points, see JEC, *1979*, pp. 375-376.) The geometric mean of the comparison in rubles and in dollars may be thought of as an indicator of quantities available to the two populations. Indeed, the ICP comparisons are explicitly labeled "quantities per capita."

Uncertainties. Although the US-Soviet comparison probably is about as good as existing data will support, uncertainties still abound and the comparison clearly is biased in favor of the Soviet Union. The uncertainties stem largely from familiar problems with Soviet data, although the present comparison suffers less in this regard than did the earlier CIA study. Official consumption aggregates published by the Soviet Government are couched in the Marxist framework of material product, with merely a twofold disaggregation. Hence, consumption in Western definition and comparable disaggregation must be constructed *de novo* from published data that leave much to be desired. The results rest on Soviet classification and statistical procedures, which are inadequately described and often contain large unexplained residuals (for example, in reported retail sales). Much detective work is required to wrestle the refractory data into forms suitable for comparison with Western GNP accounting systems.[3] Consumption-in-kind of food products, an important share of total food consumed, is not an announced aggregate and had to be estimated product by product from price and quantity information. Data are especially scarce for household expenditures on services, such as housing, transportation, and recreation; of necessity, use had to be made of statistics of uncertain coverage found in research reports of individual Soviet authors. Although the resulting values for consumption and major components are not grossly in error, they lack the precision and reliability of the comprehensive and careful statistics of national product prepared by Western governments.

A considerable measure of uncertainty also attaches to the price data, which are notoriously scarce for the USSR. Fortunately, a number of standard items (for example, salt, tobacco, and most soft goods and durables) are sold at uniform prices throughout the country. Many foods and some services have regional price differentials; perishables have seasonal prices; prices for fresh foods in state stores differ from those in collective farm markets; prices for personal and repair services provided in state shops are different from those charged by private suppliers. Allowances for these factors had to be made to arrive at national average prices. The information for doing so is far from definitive. Average wages by occupation in health services had to be estimated from a variety of fragmentary information. The price selected to represent housing rents rests on a statement in a single Soviet source. One wishes for better things. Every effort, however, was made to find cross-checks, for example, numerous reports indicate that the average rate used for rents is reasonable. Although many of the Soviet prices cannot be accorded the confidence that would be given to the sample of prices collected in the United States through a market survey by the Bureau of Labor Statistics, all in all, it is believed that few are seriously in error. The reliability of product matches was improved, and the assignment of US national average prices was made much more accurate by the purchase and expert evaluation of a large physical sample of goods.

[3] For a detailed discussion of these problems, see the paper by John Pitzer, in JEC, *GNP 1950-1980* (forthcoming, 1981).

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Biases. In quantitative expressions, the Soviet-US comparisons may be close to the mark, but as carriers of quantitative and qualitative notions about relative levels of living in the two countries they surely overstate the Soviet position. Several diverse considerations bear on this point. First, there is the question of accuracy of the product and price matchings of goods and services in the sample. Most accuracy attaches to the samples of food and clothing products and a lesser degree to services. To the maximum extent possible, the matchings allowed for differences in the qualitative aspects of the product by making appropriate adjustments in the price ratios. For goods, these judgments were made mostly by qualified US manufacturers and retailers. For services, the adjustments were largely analysts' judgments, based on a variety of relevant evidence. In the case of health and education services, where the comparison in based on inputs, they are assumed to be of equal quality in the two countries—on the principal "a doctor is a doctor." The inferior quality of the training of Soviet medical personnel is thus ignored (emigre doctors must be radically retrained to practice medicine in the West). Also ignored is the presumed better quality of health care and perhaps education that is associated with more capital per worker in the United States, although a crude adjustment is made for health care when the comparison is extended to include countries other than the United States.

On the less tangible aspects of quality, the bias is unmistakably in the USSR's favor. All observers, along with a strident Soviet press, agree that Soviet manufactured goods are sadly deficient in style, design, and attractiveness in appearance when compared with Western models. The comparisons could not take these important aspects of consumer satisfaction into account. Similarly, allowance could not be made for the notoriously poor quality of retail services in the USSR; only the added costs are reflected in product prices. The same point holds for various kinds of services, where differences in the environment in which they are provided—an ingredient of utility—could not be captured in relative prices. The inferior quality of Soviet distribution and service facilities and of services per se is the direct legacy of the "second class" status long accorded the sector in the government's scheme of things.

Another source of upward bias in the USSR-US comparisons is the fact that the sample of goods and services necessarily reflects the Soviet mix much better than it does the US mix. Simplicity, standardization, and slowness to modernize design are hallmarks of the Soviet production pattern. Hence, matches often had to be made using an item that, in fact, represents the typical product purchased by Soviet consumers, but is not representative of purchases in the United States. This problem affects consumer durables in particular. To illustrate: the price ratio for refrigerators is based on comparing the typical Soviet one-door, 7-cubic-meter capacity unit with a small (9-cubic-meter) apartment size unit not at all typical of the sales mix in the United States. For sewing machines, the typical Soviet model was judged a copy of an old Singer model of the 1920s. The Soviet semiautomatic washing machine was matched with a US apartment-size model, which could hardly find a market.[4]

Still another source of bias is to be found in the lack of variety in color, style, and design that characterizes the Soviet mix; the relative choice factor, of course, differs among products but must be at least fivefold in most relevant cases. The narrowness of the range of choice available to Soviet consumers arises partly from the fact that planners' choices rather than consumer preferences determine the diversity of product mix, and in part because producers, in response to the incentives facing them, have shown a persistent preference for quantity production of a few standardized items. For these reasons, also, the Soviet-US comparison is especially bedeviled by the problem of unique products—a stumbling block in any international comparison of an advanced country with one considerably less advanced. Numerous products that are quite common in US households could not be included in the sample, either because the USSR does not produce them at all or produces them in miniscule quantities, for example, electric dishwashers, toaster ovens, blue jeans, and air conditioners.

[4] Residential size, fully automatic washers dominate the US product mix, whereas even as late as 1973, two-thirds of all Soviet washing machines produced were of the hand-wringer type (R. A. Lokshin, *Spros, proizvodstvo, torgovlya,* Moscow, 1975, p. 204).

Another nonquantifiable aspect of the comparison of consumption relates to the balance of supply and demand, both in the aggregate and for individual goods and services. The Soviet Government fixes the prices for consumer goods and boasts of the stability of the retail price level. Yet, in 1976, overall excess demand in consumer markets was in evidence, manifesting itself in a rising marginal propensity to save, much queueing, and black markets.[5] More serious, however, are the pervasive disequilibriums in the supply and demand for individual goods and services. A mass of anecdotal evidence demonstrates this situation. Random shortages prevail—toothpaste today, soap powder tomorrow, film the next day, and on and on in infinite variety. In a speech in November 1979, Brezhnev himself referred to shortages of "medicines, soap, detergents, toothbrushes, and toothpaste, needles, thread, diapers and other goods produced in light industry."[6] Random surpluses accompany the shortages. Sewing machines pile up at retail stores in Moscow, but are not to be found in Frunze; unsalable surpluses of clothing and footwear appear periodically and the goods must be heavily discounted in price or scrapped. Consumers spend inordinate amounts of time standing in line or trudging from store to store in search of desired items. These perennial features of the consumer milieu in the USSR cannot be captured in any international comparison of prices and quantities, but they are important aspects of utility.

With growing interest in the so-called "second economy" in the USSR, the question arises as to its likely impact on international comparisons of consumption. If the second economy is defined as all economic activity on private account, then legal private activity already has been taken into account in the calculation of total household expenditures in the USSR (and of course in Western countries). Soviet consumption includes household incomes in money and in kind from private agricultural pursuits, realized and imputed incomes from privately owned housing, and estimated incomes from the provisions of a variety of personal services. Other aspects of the second economy not included in national accounts for the USSR or any other country are such phenomena as black market sales, theft from enterprises for personal use or resale, bribery and corruption, and illegal production and consumption of goods (for example, *samogon* (moonshine) in the USSR. It has been argued that such deviant activities are more prevalent in the USSR than in developed Western countries,[7] because bureaucracies run Soviet society and because the economic system is tailor made for creating shortages. It may be, however, that the incidence of such behavior, albeit for different reasons, is fairly evenly spread around the globe. In any event, there is no way to measure the phenomena. Moreover, many of them—bribery and corruption, black markets—merely raise prices and redistribute income. They do not create additional goods and services, the quantification of which is the aim of international comparisons.

Part II: Soviet and US Consumption in 1976

Levels of Consumption

The results of the comparison of per capita consumption in the USSR and the US are summarized in table 1. Three comparisons are shown—one in which consumption is valued in rubles in both countries, another in which consumption is valued in dollars, and a third representing the geometric mean of the ruble and dollar measures. The geometric mean comparison is presented in greater detail in figure 1.

In 1976, Soviet consumption per capita was 27.6 percent of the US level, measured in rubles, and 42.8 percent measured in dollars; the geometric mean was 34.4 percent. For consumption as a whole and for all major categories the Soviet level is nearer to the US level when consumption is valued in US prices (dollars) in both countries. This is the usual result of international comparisons of real products and reflects the inverse relationship between quantities produced and prices in the respective countries. The relative prices and costs of production of various goods differ substantially between any two countries. Moreover, each country tends to produce more of the goods that

[5] Joyce Pickersgill, "Recent Evidence on Soviet Household Savings Behavior," *Review of Economics and Statistics*, Vol. LXII, No. 4, November 1980, pp. 628-633.

[6] *Pravda*, 28 November 1979.

[7] For a discussion of these matters, see: Gregory Grossman, "The Second Economy of the USSR," *Problems of Communism*, 26:5, Sept-Oct 1977, pp. 25-40; Gregory Grossman in JEC, *1979*, pp. 834-855; Gertrude E. Schroeder and Rush V. Greenslade, "On the Measurement of the 'Second Economy' in the USSR," *ACES Bulletin*, 21:1, 1979, pp.3-22.

Table 1

USSR and US: Consumption Per Capita in 1976, by Major Category [1]

	Ruble Comparison			Dollar Comparison			Geometric Mean Comparison
	Consumption in Rubles		USSR as Percent of US	Consumption in Dollars		USSR as Percent of US	USSR as Percent of US
	USSR	US		USSR	US		
Total consumption	**1,115.8**	**4,039.0**	**27.6**	**2,395.8**	**5,598.5**	**42.8**	**34.4**
Food, beverages, and tobacco	546.2	1,092.2	50.0	651.4	1,130.5	57.6	53.7
Soft goods	239.7	740.2	32.4	312.4	651.5	47.9	39.4
Durables	102.5	1,031.0	9.9	132.8	749.1	17.7	13.3
Household services	116.0	822.3	14.1	438.2	1,955.8	22.4	17.8
Communal services	111.5	353.7	31.5	861.2	1,111.5	77.5	49.4
Education	69.8	110.5	63.2	456.7	491.2	93.0	76.6
Health	41.7	243.3	17.1	404.5	620.3	65.2	33.4

[1] In this table and all other tables, percentages were calculated from unrounded data.

Table 2

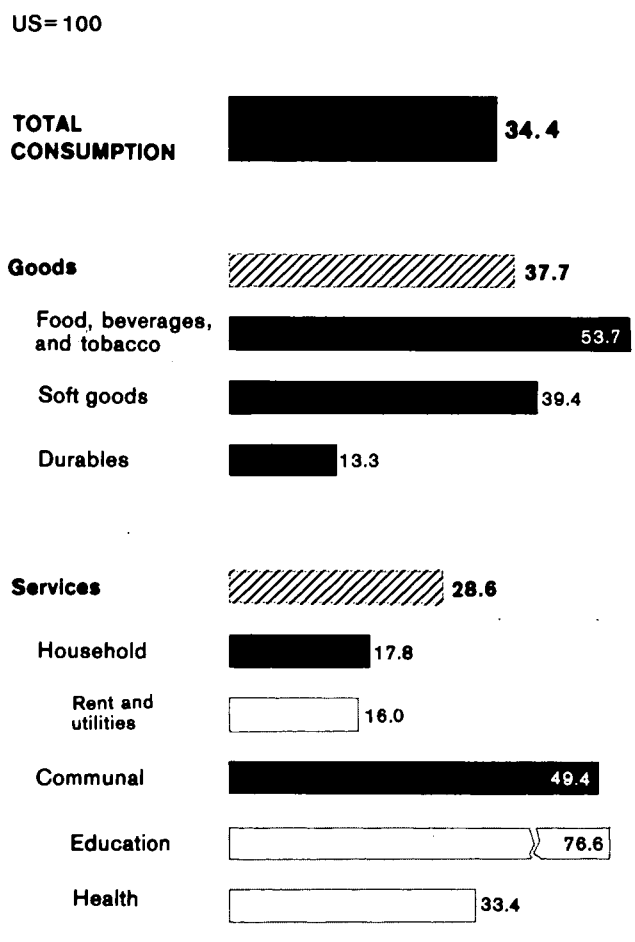
USSR and US: Consumption Per Capita of Selected Food, Beverages, and Tobacco Products in 1976

	Ruble Comparison			Dollar Comparison			Geometric Mean Comparison
	USSR	US	USSR as Percent of US	USSR	US	USSR as Percent of US	USSR as Percent of US
Meat and poultry	101.3	293.0	34.6	95.4	281.6	33.9	34.2
Fish	16.6	42.9	38.7	56.6	48.4	116.9	67.3
Fats and oils [1]	10.5	36.1	29.1	8.1	26.4	30.7	29.8
Dairy products and eggs [2]	82.2	141.5	58.1	97.4	143.2	68.0	62.9
Sugar and confectioneries	43.9	57.0	77.0	49.1	35.1	139.8	103.7
Bread and cereals	59.4	67.5	88.0	114.4	110.3	103.7	95.5
Potatoes	16.3	18.1	90.1	12.2	13.5	90.0	90.0
Vegetables	18.3	94.9	19.3	21.4	110.5	19.4	19.3
Fruit	20.0	98.3	20.3	11.6	60.7	19.1	19.7
Nonalcoholic beverages [3]	10.7	30.6	35.0	20.4	53.6	38.1	36.5
Alcoholic beverages	138.3	102.1	135.5	139.2	133.0	104.7	119.1
Tobacco	14.8	82.2	18.0	13.6	75.3	18.1	18.1

[1] Excludes butter.
[2] Includes butter.
[3] Includes coffee and tea.

USSR and US:
Relative Per Capita Consumption, 1976

Figure 1



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are relatively cheap. Thus, country A's prices times country B's quantities tend to overstate country B's position, and vice versa. For example, the high US price for fish makes Soviet consumption relatively large when valued in dollars; conversely, the high Soviet price for automobiles makes US consumption relatively large when valued in rubles. Since both comparisons are theoretically valid, we use the geometric mean to express relative levels in a single number.[8]

In private consumption (excluding health and education), Soviet consumers came nearest to their US counterparts in consumption of food (54 percent) and soft goods (39 percent). The Soviet lag is massive—levels of less than one-fifth—in consumer durables and services. As for education, which is almost wholly provided by the government without direct charge, Soviet expenditures per capita are somewhat over three-quarters of those in the United States. Almost all health services are similarly provided, but their level is only one-third of that in the United States. The Soviet position is higher in the dollar valuations for all categories, but the differences between the relative levels shown by the ruble and dollar valuations vary greatly—from 15 percent in the case of food to 281 percent in the case of health services. The particularities of each major category will be considered in turn.

Food, Beverages, and Tobacco. Within the group "Food, Beverages, and Tobacco" there are wide differences in relative levels of consumption (see table 2). The USSR nearly equals or exceeds the United States in consumption of starchy foods—potatoes, bread, cereals, and sugar and confectioneries. In contrast, Soviet consumption of fats and oils, meat, fruits, and vegetables is far below the US level. The general relationships given by the geometric mean comparisons of expenditures are supported by data on consumption in physical units. Expressed in kilograms per capita, relative consumption in 1976 is:

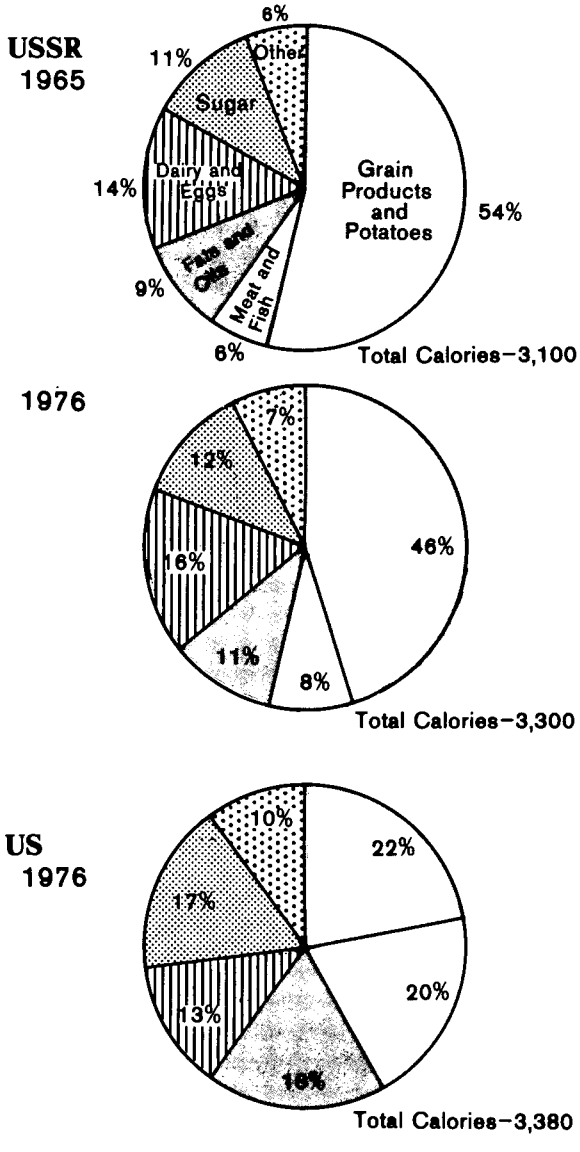
	USSR	US
Grain products *	141	62
Potatoes	119	52
Sugar	42	43
Meat	46	118
Fish	18	6

* Wheat flour, pasta, rice, and dried beans.

Sources: *Narkhoz 1977*, p. 430. USDA, *National Food Review*, 1978, p. 72. The meat comparison is a CIA calculation that adjusts the published Soviet figure to the US definition.

[8] JEC, *1979*, pp. 375-376.

Composition of Diets, Calories Per Day Per Person Figure 2



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This set of relationships is reflected also in the comparative composition of the diets in the two countries (see figure 2). Although total caloric intake per person was about the same in both countries (3,300 to 3,400 calories per day), Soviet consumers obtained 46 percent of their daily calories from bread and potatoes in 1976, compared with 22 percent in the United States; in contrast, they obtained only 8 percent from meat and fish, compared with 20 percent in the United States.

As would be expected in a more advanced country, food processing is much more extensive in the United States, where canning, freezing, drying, specialized processing, and packaging of foods predominate. The universal use of refrigeration, and a flexible distribution system make fresh foods widely available throughout the year. The Soviet food industry is heavily oriented toward processing grain into flour and bread products, canning a few vegetables, and making sausage, cheese, and similar products. Freezing is at an embryonic stage, as is packaging; in 1976, for example, only 26 percent of food products marketed were packaged.[9] Fresh fruits and vegetables (other than potatoes, cabbages, and other storable root vegetables, such as carrots, beets, and onions) are scarce outside the short harvest season of July-October.

As indicated in table 2, the Soviet consumer's most notable superiority is in the consumption of alcoholic beverages (by 35 percent in the ruble comparison, by 5 percent in the dollar comparison, with a geometric mean of 19 percent). Moreover, hard liquor (mainly vodka) makes up 69 percent of total consumption of alcoholic beverages in the USSR compared with 23 percent in the United States. These figures do not include *samogon* (homemade hard liquor), which adds greatly to total alcoholic beverage consumption in the USSR. Treml, for example, has estimated that illegally produced alcohol made up over one-fifth of total alcoholic beverages and over one-third of distilled spirits consumed in 1972, measured in liters of pure alcohol.[10]

In that year, the USSR ranked first among 28 countries by a wide margin in total consumption of hard liquor per person age 15 and over; consumption was nearly double that in the United States. In total alcoholic beverages consumed, the USSR exceeded the United States and 15 of the other countries compared.[11] Consumption has been rising in the USSR, creating serious social and economic problems.

[9] *EKO*, No. 3, 1978, p. 98.
[10] Vladimir G. Treml, "Production and Consumption of Alcoholic Beverages in the USSR," *Journal of Studies on Alcohol*, Vol. 36, No. 3, March 1975, p. 297.
[11] *Ibid.*

Soft Goods. Soviet per capita consumption of soft goods (largely clothing and footwear) was nearly two-fifths of the US level in 1976 (geometric mean comparison). Consumption of textiles and clothing was about one-third the US level, however, whereas consumption of footwear was nearly nine-tenths. In 1976, Soviet consumers purchased 3.2 pairs of shoes of all kinds per capita compared with 1.9 pairs in the United States. Footwear prices are high and quality poor in the USSR. As a result, the quantity of shoe repair services used in the USSR is nearly five times the US level. Two other direct comparisons that can be made show Soviet per capita consumption of toiletries and household cleansers to be a mere one-eighth of the US level, while consumption of books, magazines, and newspapers is more than nine-tenths of that in the United States.

Durables. The gap between US and Soviet purchases of durable goods is enormous.[12] Overall, Soviet per capita consumption in 1976 was less than 14 percent of the US level (geometric mean comparison). Among major groups of consumer durables for which direct comparisons can be made, the USSR shows best in consumption (purchases) of furniture and rugs, and poorest in annual purchases of automobiles. The geometric mean comparisons are 27 and 5 percent, respectively. Relative levels of expenditures on durables are generally corroborated by data on retail sales of major durables in physical units (thousands):

	USSR	US
Automobiles	1,020 [1]	10,109 [2]
Television sets	5,991	14,131
Radios	6,332	44,101
Refrigerators	4,700	4,817 [3]
Washing machines	3,309	4,492 [3]
Vacuum cleaners	2,112	8,767 [3]

[1] New and used cars; about 80 percent were new.
[2] New cars only.
[3] Manufacturers' sales.

Sources: *Narkhoz 1977*, p. 429. US *Statistical Abstract*, 1977, pp. 595, 651, 835.

[12] The measure of consumption is annual purchases in current prices. A more appropriate indicator would measure the flow of services from the stock of durables held by households in both countries. Stocks for a few durables are shown in table 11.

By 1976, two-thirds of all Soviet families had refrigerators and washing machines, and three-fourths owned TV sets; in the United States, family ownership of refrigerators and TV sets is nearly universal; about three-fourths of all families own washing machines. Ownership of washing machines among both US and Soviet families is relatively low because of the sizable share of one-person households in the populations of both the United States and the USSR. In the United States, self-service laundry facilities also are widely available. As noted earlier, however, the quality and design of both stocks and flows of durables in the two countries were vastly different. Most Soviet washing machines are small hand-wringer models, refrigerators are small in capacity and devoid of freezers, and nearly all TV sets are black and white models. In the United States, virtually all washing machines are fully automatic, refrigerators are large and have freezers, and two-thirds of TV sets sold are color models.

Household Services. The modern services-oriented economy is far distant in the USSR (table 3). Soviet per capita consumption in 1976 (geometric mean comparison) was less than one-fifth that of the United States for the group as a whole. The USSR, however, provides more than two and one-half times as much public transportation as the United States, where privately owned automobiles furnish the vast bulk of personal transportation. The low level of communication services in the USSR is explained in part by the embryonic stage of development of the telephone system for households. In 1976, perhaps one out of every seven urban dwelling units had a telephone; home telephones are exceedingly rare in rural areas. Including all users, the USSR had fewer than 10 percent of the telephones available in the United States.

Relative to the United States, the Soviet people fare least well in the area of housing—only about one-seventh the US level, according to the geometric mean comparison. The government owns nearly three-fourths of all urban housing, which is rationed and rented at heavily subsidized rates. Consequently, relative to effective demand, urban housing is in short supply, crowded, of poor quality, and badly maintained. A recent study estimates that 30 percent of the

Table 3

USSR and US: Consumption Per Capita of Household Services by Type, 1976

	Ruble Comparison			Dollar Comparison			Geometric Mean Comparison
	USSR	US	USSR as Percent of US	USSR	US	USSR as Percent of US	USSR as Percent of US
Total	**116.0**	**822.3**	**14.1**	**437.8**	**1,955.8**	**22.4**	**17.8**
Of which:							
Housing	16.6	119.2	13.9	104.1	744.9	14.0	14.0
Utilities	19.0	106.1	17.9	55.4	235.1	23.6	20.6
Transportation (public)	31.4	11.7	269.8	108.8	43.8	248.5	258.9
Communications	7.1	35.7	19.8	20.5	103.1	19.9	19.9
Repair and personal care *	28.2	69.2	40.7	78.2	137.0	57.1	48.2
Recreation	10.8	38.2	28.3	67.3	100.3	67.1	43.6
Automotive services	2.8	289.8	1.0	3.8	307.0	1.3	1.1

* Excludes automotive services.

urban population lives in communal apartments and dormitories.[13] Thus, Khrushchev's boast of solving the housing problem by 1970, when each family was to have a separate flat and each person his own room, proved to be a vain hope. The lack of housing in the USSR can be very roughly measured by the ratio of the number of households to the number of dwelling units. In 1970, this ratio was 1.23 (compared with 0.97 in the United States).[14] The situation evidently was even worse by 1976.

Housing availability in the two countries can also be assessed in physical units. In 1976, the USSR with a population 19 percent larger than the United States had only 87 percent as many dwelling units. The USSR had 12 square meters of total floor space per capita, compared with an estimated 44 square meters in the United States.

Most urban housing units in the USSR now have electricity, gas, running water, and central heating. But per capita consumption of electricity for home use in the USSR is less than one-tenth that in the United States, largely a reflection of the far smaller stocks of electrical appliances and lamps available to Soviet consumers. Official Soviet data indicate that 69 percent of all dwelling units in urban areas and 59 percent of those in rural areas were supplied with gas in 1976;[15] in rural areas this means propane tank units for individual houses. Although urban public housing is reasonably modern by Western standards, rural housing (36 percent of total units) is quite primitive, mostly consisting of small two- to three-room frame houses with rudimentary access to electricity, but without running water or inside toilets.

The category repair and personal care encompasses a variety of services, including tailoring and repair of clothing and shoes; repair of appliances, furniture, jewelry and the like; laundries and dry cleaners; beauty and barber services; and numerous others. The supply of such services, labeled "everyday" services by the Soviets, falls far short of meeting demand, and quality is poor, according to perennial laments in the press. Prices are set by the state and are relatively low. To some extent the private sector meets the deficiencies of state-provided services at higher prices. These kinds of services are provided profusely in the United States, which has more than twice as many service establishments as does the USSR. Reflecting its consumer orientation and highly developed financial markets,

[13] JEC, *1979*, p. 790.
[14] *Ibid.*, pp. 798-799.
[15] *Narkhoz za 60 let*, p. 502.

the United States also provides a large number of services that are generally unknown or unneeded in the USSR (for example, brokerage services). Not surprising in view of the small stock of private cars, automotive services in the USSR are a mere 1 percent of those in the United States (by the geometric mean comparison).

Although not directly measured in any of the comparisons, one should note that retail trade facilities and services in the USSR are sparse relative to the United States and also backward by modern standards. In 1976, the United States had twice as many retail trade outlets as the USSR, with modern supermarkets and large self-service department stores predominant. In the USSR, retail trade facilities tend to be specialized, lack modern equipment, and employ cumbersome methods of service (such as the prevalent system of requiring customers to make three stops to complete a purchase). With a population nearly a fifth larger than the United States, the USSR has less than two-thirds the number of eating and drinking establishments, and less than one-fourth of them are available to the general public.

The category recreation, on which Soviet expenditures (geometric mean) are 44 percent of the US level, includes paid entertainment common to both countries—movies, concerts, theater, sports, and the like. The category also includes expenditures on hotels, motels, and rooming houses, which are important in the United States and almost negligible in the USSR. To illustrate the dearth of such facilities, Moscow, a city of nearly 8 million people, had only 26 hotels that could accommodate 33,400 persons [16] in 1976. New York, in contrast, had hundreds of hotels and motels that could accommodate over 200,000 persons .[17] In the USSR, vacations commonly are taken at state-run resorts at subsidized prices and almost wholly rationed. The United States also has many commercial entertainment facilities practically unknown in the USSR, such as bowling alleys, golf courses, and so forth.

Education and Health. According to the geometric mean comparison, the Soviet Union provides about half the education and health services available in the United States. Both services are furnished largely without direct change in the USSR, and the government has accorded them considerable investment priority. The USSR shows up much better in education than in health—77 percent and 33 percent of the US level, respectively.

The USSR claims to have virtually eliminated illiteracy among the population age 9 to 49. A secondary education is now compulsory, and universal achievement of that level among young people is near. Nonetheless, a sizable lag exists. In 1976, average educational attainment of the population was 8.5 years in the USSR and 12 years in the United States. In the two countries, 57 percent and 74 percent, respectively, of the population aged three to 24 were enrolled in schools. The most notable contrast is in college enrollments, which are strictly limited by the Soviet Government in accordance with the anticipated needs of the economy for skills requiring a higher education. In 1976, 15 percent of young people aged 18 to 24 were enrolled in colleges in the USSR full time and part time, compared with 34 percent in the United States. Only 21 percent of Soviet high school graduates entered full-time colleges, compared with over 40 percent in the United States. Part-time and correspondence course training are important in Soviet higher education; in 1976, 45 percent of all college students were enrolled in such training.

Comparisons of the quality of education between countries is tenuous, at best. While the secondary school curriculum in the USSR is more heavily oriented toward science and mathematics than in the United States, qualitatively inferior, part-time programs and vocational training courses figure more prominently in Soviet schools. About 40 percent of Soviet students enrolled in secondary specialized and higher education facilities were in part-time or correspondence programs in 1976. In contrast to the United States, Soviet higher education emphasizes training in narrowly specialized fields, such as textile engineering, thus limiting the flexibility of college graduates.

Health care services in the USSR are extensive and available to everyone free of charge. The USSR boasts of having more doctors per 10,000 people than any

[16] *Moska v tsisrakh*, 1978, p. 106.
[17] Fodor's *New York, 1976*, New York, David McCoy Inc., 1976, p. 460.

country in the world. Average death and infant mortality rates have declined with the spread of industrialization in the USSR, as is typical. Since the 1960s, however, in contrast to most Western countries, age-specific death rates have been rising, most notably infant mortality rates. Although the reasons are not fully understood, the trend reflects poorly on the quality of health care in the USSR.[18] Nonetheless, this study, like its predecessor, finds that the Soviets are far behind the US in improvision of health services—only about one-third by the geometric mean comparison. As already explained, the comparison is based on inputs (essentially numbers employed and their wages plus materials—food, office supplies, medicines, utilities, and the like). The mixes are quite different in the two countries. The USSR uses relatively more labor, which is relatively cheap (the average wage ranks third from the bottom among the 14 major branches of the state sector), and much less materials, which are relatively costly there. These differing practices are reflected in the wide spread between the ruble and dollar comparisons. Soviet health services are shown to be 17 percent of the United States in the ruble comparison and 65 percent in the dollar comparison. By all accounts, health care available to the ordinary Soviet citizen leaves much to be desired in terms of quality and ready access. Clinics and hospitals are crowded, often dirty, and poorly equipped; queues for the "best" doctors and hospitals are long. Payments "on the side" to obtain desired services evidently are common. In contrast, a network of special closed clinics and hospitals exists for the elite.[19]

Structure of Consumption

As one would expect from their relative levels of development and the more extensive array of free and subsidized goods and services in the USSR, the composition of consumption differs greatly in the two countries. Table 4 presents the percentage distribution of consumption in the USSR and the United States in 1976 and in 1955, measured in 1955 and 1976 prices. In 1976, goods made up nearly four-fifths of Soviet consumption, and services made up only one-fifth. This pattern contrasts sharply with that in the United States, where over half of total consumption consisted of services. In the USSR, nearly half of total consumption consisted of food, beverages, and tobacco, compared with only one-fifth in the United States. Household services and education and health services each make up about one-tenth of Soviet consumption, compared with over one-third and about one-fifth, respectively, of US consumption.

There are interesting contrasts in consumption patterns within each of the major categories. In food, beverages, and tobacco, one-fourth of the Soviet total consisted of alcoholic beverages, 69 percent of which is hard liquor (spirits); the US corresponding shares are 12 and 23 percent. On the other hand, tobacco made up 7 percent of US consumption and 3 percent of Soviet consumption. Considering food alone, the carbohydrates—grain products, potatoes, sugar and confectioneries—made up nearly a third of Soviet expenditures and one-fifth of US expenditures. Meat, fish, and dairy products make up somewhat over half of total food expenditures in both countries: fruits and vegetables figure more conspicuously in the US product mix. The Soviet mix of nonfood goods is heavily oriented toward clothing and footwear and a few simple durables. The US mix features a variety of soft goods, gadgetry galore, numerous types of consumer durables and—above all—the automobile and its many accessories.

The outstanding contrast in the service categories is in the provision of housing and utilities; their share is more than five times as large in the United States as in the USSR, where, as already noted, rents are heavily subsidized and the quantity is relatively small. The Soviet consumer's dependence on public transportation and the American public's dependence on the private car are reflected in the respective shares for transport and automotive services. To a considerable extent, the contrasting patterns in the provision of education and health reflect differences in relative employment and wages in these sectors in the two countries. The USSR employs 50 percent more people in education than in health and pays them wages that average 23 percent higher. In the United States, total employment and wages are roughly similar in both sectors, but the United States spends much more on costly materials in health than in education.

[18] For a fuller discussion, see Christopher Davis and Murray Feshbach, *Rising Infant Mortality in the USSR in the 1970s*, US Bureau of the Census, International Population Reports, Series P-95, No. 74, June 1980.

[19] For a description of these contrasts and other elite benefits, see Mervyn Matthews, *Privilege in the Soviet Union*, London, George Allen and Unwin Ltd., 1978, pp. 36-55.

Table 4 Percent

USSR and US: Structure of Consumption in 1955 and 1976 *

	USSR (Rubles)			US (Dollars)		
	1955		1976	1955		1976
	Current Prices	Constant Prices		Current Prices	Constant Prices	
Total consumption	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Goods	78.8	79.2	79.6	56.7	52.8	45.2
Food, beverages, and tobacco	53.0	57.3	48.9	27.6	28.7	20.2
Soft goods	21.0	18.6	21.5	14.3	12.1	11.6
Durables	4.8	3.5	9.2	14.9	12.0	13.4
Services, total	21.2	20.8	20.4	43.3	47.2	54.8
Household services	11.2	8.2	10.4	33.2	34.8	34.9
Rent and utilities	4.0	2.9	3.2	16.7	15.7	17.5
Transportation (public)	1.7	1.2	2.8	1.2	1.4	0.8
Communications	0.5	0.4	0.6	1.4	1.0	1.8
Repair and personal care	3.2	2.2	2.5	4.1	5.1	2.4
Recreation	1.9	1.4	1.0	1.7	2.1	1.8
Automotive services	NEGL	NEGL	0.3	3.6	4.8	5.5
Miscellaneous services	0	0	0	4.7	4.8	5.1
Education and health services	9.9	12.6	10.0	10.1	12.4	19.9
Education	6.4	7.8	6.3	4.6	5.3	8.8
Health	3.5	4.8	3.7	5.5	7.1	11.1

* Numbers may not total because of rounding.

The structure of Soviet consumption has undergone remarkably little change in recent decades. As table 4 shows, progress toward a service-oriented economy was virtually nil between 1955 and 1976. This conclusion holds true, whether values are measured in current prices or in constant prices. Within services, there has been a small shift in real terms toward household services as against education and health, the latter almost all publicly provided. In the consumption of goods, there has been a shift from food to soft goods and especially to durables. The shift is much more pronounced in real terms than in current prices, because of sizable increases in food prices, especially for alcoholic beverages. One should note, however, that the measures of quantity change for soft goods and especially durables probably do not allow fully for actual price increases.[20]

The ruble values underlying the structure of Soviet consumption given in table 4 for 1976 are expenditures valued at official or officially sanctioned prices, "prevailing rubles" in Abram Bergson's terminology. As Bergson has demonstrated, these prices fail to reflect either consumer utility or real resource costs, because of market disequilibriums and the widespread use of turnover taxes and subsidies in the determination of official prices. To provide an idea of the structure of Soviet consumption in real resource terms, pertinent taxes and subsidies were estimated and allocated to major categories. The turnover tax falls mainly on goods (nearly half on alcoholic beverages), and subsidies apply principally to food and housing. Expenditures in current and adjusted rubles in 1976 are presented in table 5. Adjusting expenditures for turnover taxes and subsidies changes the structure of consumption relatively little. Compared with valuation

[20] On this point, see JEC, *1976*, pp. 641-644.

Table 5

USSR: Structure of Consumption in 1976 in Adjusted Rubles

	Billion Rubles				Percent
	Current Expenditures (1)	Turnover Tax (2)	Subsidies (3)	Adjusted Expenditures (4)	(5)
Total	**286.2**	**58.2**	**31.4**	**259.4**	**100.0**
Goods	226.4	53.4	22.3	195.3	75.3
Food	138.1	28.4	15.9	125.6	48.4
Soft goods	62.0	15.9	6.4	52.5	20.2
Durables	26.3	9.2	0	17.1	6.6
Services	59.8	4.8	9.1	64.1	24.7
Housing	4.3	0	6.9	11.2	4.3
Utilities	4.9	1.0	0	3.9	1.5
Transportation	8.1	0	0	8.1	3.1
Communications	1.8	0	0	1.8	0.7
Repair and personal care *	7.6	1.4	0	6.2	2.4
Recreation	2.8	0	2.3	5.1	2.0
Health and education	30.4	2.4	0	28.0	10.8

* Includes automotive services.

Sources:
Column (1): Appendix E, table E-1.
Column (2): Turnover taxes were estimated from relationships shown in the 1972 I/O table and information about the distribution of the tax in 1975 by branch of industry given by G. M. Sorokin, N. M. Oznobin, and A. I. Zalkind, in *Gruppy A i B promyshlennosti*, Moscow, 1977, p. 119.
Column (3): Subsidies were taken from the GNP accounts for 1976 (see *JEC Gross National Product of the USSR, 1950-1980*, 1981 (forthcoming) supplemented by information provided by Vladimir G. Treml in *Agricultural Subsidies in the Soviet Union*, US Department of Commerce, Bureau of Census, Foreign Economic Report No. 15, December 1978.
Column (4): Column (1) minus column (2) plus column (3).

in prevailing rubles, the share of goods is reduced from 79 percent to 75 percent, and the share of services is raised correspondingly. The shares of soft goods and durables, burdened with heavy taxes, are reduced, while the shares of housing and recreation, with large subsidies, are raised appreciably.

Overall, the adjustment reduces total consumption in 1976 by 27 billion rubles, or 9.4 percent. The difference is much smaller than estimated for 1955 by Bergson, using a similar approach. In that year, total consumption in adjusted rubles was 19.5 billion rubles or 25.6 percent below consumption calculated in prevailing rubles.[21] This substantial reduction in the difference between the two valuations between 1955 and 1976 is mainly the result of a large reduction of the share of turnover tax in the prices of retail goods and a rapid increase in subsidies. In the 1960s and 1970s, the government has raised producer prices but not retail prices on many foods and soft goods, thus squeezing out the turnover tax. In the basic foods category, this policy has resulted in large subsidies, mainly on meat

[21] Abram Bergson, "The Comparative National Income of the USSR and the United States," in D. J. Daly (ed.), *International Comparisons of Prices and Output*, New York, National Bureau of Economic Research, 1972, p. 148.

and dairy products. They amounted to over two-thirds of the value of retail sales of meat and dairy products in 1976.

Trends in Consumption

Per capita consumption rose more rapidly in the USSR than in the United States during the 1956-79 period—at average annual rates of 3.3 percent and 2.7 percent, respectively. Growth was faster in both countries during 1966-75 than during 1956-65. During 1976-79, growth in the United States was considerably faster than in the USSR, 3.5 percent annually, compared with 2.0 percent annually. In the major components of consumption, Soviet growth rates exceeded those in the United States by wide margins for goods and household services, but US growth was markedly faster in housing, recreation, health care, and education. These disparate trends are explicable in terms of the relative stages of development of consumption patterns in the two countries in the mid-1950s. Then, the United States already had achieved a consumption pattern heavily oriented toward services, basic needs for goods of all kinds having been met. The Soviet pattern of food consumption still resembled that in peasant societies; clothing and footwear were provided in minimum quantities and small variety; and the consumer durables industry had hardly gotten off the ground. Government policy promoted rapid growth in these areas, as well as in some of the long-neglected household services. The United States, in contrast, devoted its attention to upgrading the quantity and quality of housing, recreation, and education and health services, thus promoting a further shift toward a service economy. Soviet policy has always skimped on provision of housing and recreation services but has allocated generous resources to education and health. The strong emphasis on these communal services in the Stalin years meant that relatively less push for them was required in subsequent years.

The comparisons of consumption in 1955 and 1976 also show that the USSR has made only modest progress in its quest to match US living standards. Extrapolation on the basis of (1) the growth rates of per capita consumption in the two countries and (2) the geometric mean of the ratios of Soviet to US per capita consumption in 1976 shows the Soviet level in 1955 to have been 27.7 percent of the United States. This result can be compared with the level for 1955 measured in current prices, as calculated by Bornstein, Bergson, and the earlier CIA study. Their values are 23.9 percent, 24.1 percent, and 26.2 percent, respectively.[22]

The greatest relative gains were made in the categories of food, soft goods, durables, and in several household services. Soviet consumers fell further behind in supplies of housing, recreation, and health services and lost their margin over the United States in the provision of education services. During 1977-79, Soviet per capita consumption dropped to less than one-third of the United States, the lag continuing to increase in housing, recreation, health, and education.

Price inflation has been much greater in the United States than in the USSR during the past two decades. Consumer prices in the United States more than doubled between 1955 and 1976. Prices rose more steeply for services than for goods. In the USSR, consumer prices, measured by implicit consumption deflators, increased by a little over one-third overall; the increase was somewhat over half for food and nearly two-thirds for education and health services.[23] The price inflation in education and health reflects mainly wage increases. The rate of inflation in consumer markets in the USSR may be greater than indicated, however, because the implicit deflator depends to some extent on current values for 1955 that accept official retail price indexes (durable goods) and Soviet assertions that prices of most household services had not changed. Although Soviet official price indexes are widely suspect, there was no other choice, given the absence of detailed data in current prices for 1955. Nonetheless, most observers would probably agree that substantial macroinflation was not a significant characteristic of consumer goods markets during the period. Rather, the major problem was one of widespread imbalances in markets for

[22] M. Bornstein, "A Comparison of Soviet and United States National Product," in JEC, *Comparisons of the United States and Soviet Economies*, Washington, 1959, Part II, p. 385; Bergson, in D. J. Daly, *op. cit.*, p. 149; CIA, *A Comparison . . . 1964*, p. 15.

[23] These implicit deflators are obtained by comparing indexes of consumption and its components in constant 1970 prices with indexes in current prices calculated from the values for 1976 derived in this study (appendix E, table E-1) and values estimated for 1955 using a comparable methodology. The value so obtained for total consumption agrees closely with that calculated by Bergson for 1955 (Bergson in D. J. Daly [ed.], *loc. cit.*, p. 148). The constant price indexes are slightly revised versions of those published in JEC, *1979*, p. 391.

particular goods and services, especially evident in the 1970s.

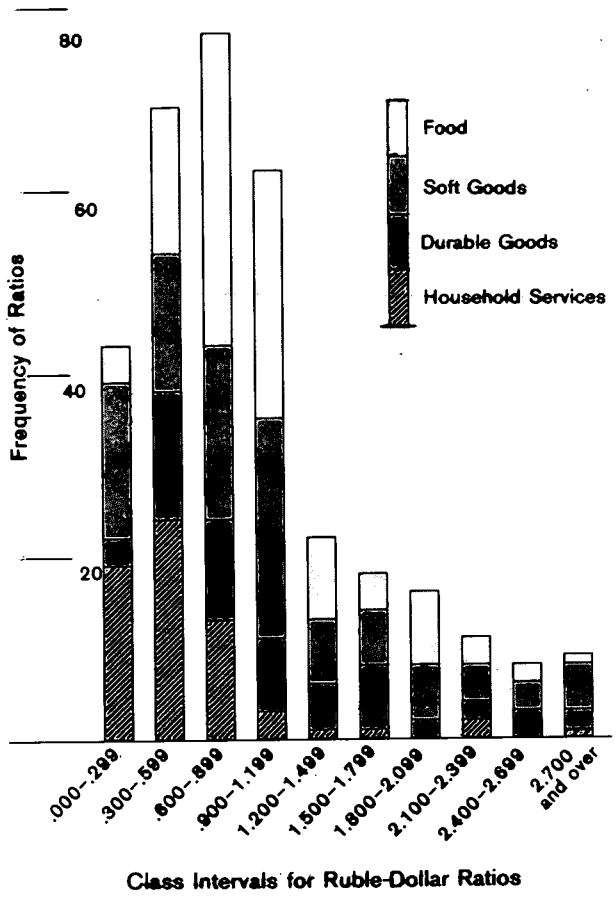
Ruble-Dollar Price Ratios

The average ruble-dollar price ratios that are used in table 1 to convert Soviet and US consumption expenditures to dollars and rubles, respectively, are calculated from a sample of 334 individual consumer goods and services. For each major category and each product group within categories, the average ratios are based on the individual ratios for the representative products or services included in that group or category. The individual price ratios, as well as those for groups and categories, differ widely. Table 6 summarizes the ruble-dollar ratios, presenting both the range and median of the unweighted ratios and the aggregate ratios weighted with Soviet and US expenditures, respectively. The frequency distribution of the unweighted ratios is shown in figure 3.

The dispersion of price ratios is very large. The range for the entire sample of goods and services is 5.177 rubles per dollar, extending from a low of .073 rubles per dollar to a high of 5.250 rubles per dollar. The difference in relative prices in the two countries may be illustrated by looking at the items represented by the high and low ruble-dollar ratios. For example, the relatively lowest priced foods were frozen codfish and rye bread, for each of which the Russians paid about 20 kopeks for a quantity costing $1 in the United States. The highest priced food was chocolate candy, for which the Russians paid 2 rubles 76 kopeks for an amount costing $1 in the United States. The relatively lowest priced soft good was a gauze bandage (.073 rubles per dollar) and the highest priced was boys' dungarees (4.458 rubles per dollar). Among durables, the lowest and highest priced items were, respectively, a footstool (.207 rubles per dollar) and a man's digital watch (5.250 rubles per dollar). Among household services, relatively the cheapest was a boy's haircut (0.73 rubles per dollar), while the most expensive was a driver's license (5.182 rubles per dollar). The latter is an extreme value, however, for the price ratio for the next most expensive service is 2.346 rubles per dollar. In general, the price ratios for household services are quite low; only eight of the 82 price ratios exceeded 1 ruble per dollar.

Figure 3

Frequency Distribution of Unweighted Ruble-Dollar Ratios, 1976



As is typical in international comparisons, the aggregate ratios for major categories of consumption differ substantially, depending on the weights used. This result, a manifestation of the index number problem, reflects the disparate structures of consumption and relative prices in the two countries. The absolute spread between the Soviet-weighted and the US-

Table 6

Rubles Per Dollar

USSR and US: Summary of Price Ratios for Consumption and Its Major Categories

	Unweighted Ratios				Weighted Ratios	
	Number of Ratios	Range	Geometric Mean	Median	Soviet Weights	US Weights
Total consumption					**0.466**	**0.721**
Consumption, excluding communal service	339	0.073-5.250	0.740	0.808	0.654	0.821
Food, beverages, tobacco	108	0.198-2.759	0.874	0.897	0.839	0.966
Soft goods	106	0.075-4.458	0.799	0.880	0.767	1.136
Durables	57	0.207-5.250	0.888	0.929	0.772	1.376
Household services	64	0.073-5.182	0.430	0.426	0.265	0.420
Communal services	4				0.129	0.318
Education	2				0.153	0.225
Wages					0.135	0.144
Materials					0.371	0.506
Health	2				0.103	0.392
Wages					0.073	0.077
Materials					0.464	0.828

weighted ratios of the product groups is rather large—for example, .782 rubles per dollar for furniture and rugs and .769 for sugar and confectionary products. The spread in category ratios is generally smaller; it is largest for durable goods and smallest for food and related products. For consumption as a whole, the absolute spread is .249 rubles per dollar, or 55 percent, slightly larger than the spread of 51 percent found for 1955 in CIA's earlier study.[24] Soviet-weighted ratios are lower than the US-weighted ratios for consumption as a whole and also for the five major categories. The same relationship prevails for all product groups but seven.

In general, the divergences between the Soviet-weighted and US-weighted ratios are in line with what one would expect, given the relative levels of development of the two countries. They also fit in well with the finding of the ICP study that price ratio spreads tend to be smaller, the closer the two countries' levels of per capita consumption. Thus, in 1973 the price ratio spreads (relative to the United States) were 21 percent for West Germany, 22 percent for France, 25 percent for the United Kingdom, and 31 percent for both Italy and Japan. As shown in part III, per capita consumption in all of these countries exceeded that of the Soviet Union in 1976 by margins of 35 to 110 percent and their patterns of consumption also differed considerably. Among the countries in the ICP comparison, Hungary was closest to the USSR with respect to per capita consumption. The price ratio spread was 66 percent.

The data given in table 6 reveal substantial differences in the purchasing power of the ruble. Thus, the ruble is worth about 60 cents (US weights) to $1.12 (Soviet weights) for sugar and confectioneries, 71 cents (US weights) to 87 cents (Soviet weights) for clothing and footwear, and 31 cents (US weights) to 97 cents (Soviet weights) for education and health services. For consumption as a whole, the ruble is worth $1.39 (US weights) to $2.15 (Soviet weights); the geometric mean value is $1.73.

In table 6, the weighted ratios are compared with the medians and the unweighted geometric means for consumption excluding education and health services and for major categories. Only weighted ratios are shown for education and health and for total consumption, because the ratios for materials used in communal

[24] CIA, *A Comparison . . . 1964*, p. 26.

services were selected from appropriate items in the sample of goods. For food, soft goods, and durables, the mean and the median of the unweighted ratios lie between the weighted ratios, as one would expect. Both the mean and the median for household services lie beyond the upper limit of the weighted ratios. This outcome is largely the result of the impact of the housing ratio, which is very low and has a large weight in the United States. As noted, the range for the entire sample extends from .073 rubles per dollar to 5.250 rubles per dollar. Half of the ratios fall between .43 rubles per dollar (the first quartile) and 1.19 rubles per dollar (the third quartile). The relatively low price for services is shown in table 6. The median ratio for services is far below that of food and nonfood goods, and is even below the first quartile value for these goods. The two ratios for wages in education and health services are among the lowest of the entire sample of ratios. The relatively low prices for services accords with the observation that labor in the USSR is more plentiful and cheaper than capital services relative to the United States, but the large disparity is explained also by the fact that a heavy turnover tax is levied on goods as opposed to services in the USSR.

Part III: An Expanded International Comparison

Methodological Considerations

In this section, the comparisons of per capita consumption are extended to countries other than the United States and the USSR. This extension is made possible by the availability of a recent United Nations study of real national products based on purchasing power parities.[25] Phase II of this UN study presents comparisons for 16 countries in 1970 and 1973, with consumption broken down into eight major categories and 25 subcategories. The binary comparisons are presented with purchasing power parities and quantities expressed relative to the United States. The United Nations study also undertakes a multilateral comparison based on a common set of prices for all countries.

In broadening the comparison, the expenditure data and price ratios for the USSR first had to be reclassified into the categories used in the UN study (hereafter called ICP categories). The task was facilitated, and its reliability increased, by the fact that ICP sample and product specifications were used to the maximum extent possible in the original selection and matching of prices and products in the Soviet Union and the United States.

The details of the reclassification of Soviet expenditures into ICP categories are described in appendix F. In the main, the task was to distribute Soviet expenditures on soft goods, durables, and repair and personal care among appropriate ICP categories. In that system of classification, services are included with the corresponding goods, for example, expenditures on TV sets and their repair are combined under recreation. Although Soviet data include sizable residuals or unidentified categories labeled "other," which had to be allocated rather arbitrarily, the reclassification is considered fairly accurate. Expenditure data for the United States in 1976 are those provided by the Department of Commerce to the United Nations for ICP Phase III and to the OECD.[26] The resulting expenditure data are believed to be comparable with those published by the ICP for 1970 and 1973.

Following ICP practice, the data for the USSR and the United States include all private consumption expenditures as well as government noninvestment outlays on education, health, and recreation. For the sake of comparability, rent subsidies and government expenditures on recreation were added to expenditures on both sides, and price ratios adjusted accordingly. The addition is especially important in the case of the USSR, where subsidies amount to two-thirds of total rent costs and nearly one-fifth of expenditures on recreation. As in the UN study, the price ratio for medical care was adjusted to allow for the presumed higher quality of professional services in the United States on account of a larger medical capital stock; the calculation resulted in a 7-percent adjustment in the quantity ratio for labor services.

The ICP classification has been modified in two respects. Expenditures on restaurants and cafes are allocated to food, beverages, and tobacco, so as to reflect such consumption more completely. Also, expenditures on hotels and lodging are allocated to recreation. In the ICP system, both are included in a miscellaneous

[25] *ICP*, Phase I, and *ICP*, Phase II.

[26] *OECD National Accounts, 1960-1977.*

category, which more or less represents a residual of outlays not elsewhere classified when purchases for restaurant meals and for lodging are removed. The transfers reduce somewhat the accuracy of the comparisons, because some assumptions had to be made about prices and expenditures, but this small impairment in quality is outweighed by the fact that the food and recreation categories more fully reflect total expenditures on those items of consumption.

With expenditures similarly defined for the USSR and the United States using the ICP framework, purchasing power parities were then assigned to each category. Both the grouping into ICP categories and the calculation of purchasing power parities were carried out by aggregation of individual items and their price ratios in the original sample. The result is a Soviet and US binary comparison in the ICP framework in 1976 prices.

The Soviet/US comparison adds another country to the binary comparisons in ICP framework. By expressing quantities in a common set of "international" prices, the ICP Project's Phase II also produced transitive comparisons; that is, each country's per capita consumption can be expressed relative to that of all others, and the results do not depend on which country is used as the base for comparison (the United States in all binary comparisons). Although the international prices could not be reestimated to take the USSR into account, for the more advanced countries, the comparisons in "international" prices are close to those shown by the geometric mean of the dollar and domestic currency comparisons. In 1973, for example, per capita consumption in Italy is 47.1 percent of the United States in the geometric mean comparison and 47.4 percent in the multilateral comparison; for Japan, the respective ratios are 49.5 and 53.5.[27]

Comparison of Expenditures Per Capita

Relative Levels of Consumption Per Capita. Table 7 presents a comparison of total consumption per capita in 1976 in the USSR and six other countries relative to the level in the United States. The relative level for the USSR is that shown by the geometric mean in the binary comparison with the United States. For the other countries, the relative levels are those produced, when the levels in 1973 given by the ICP comparisons carried out in "international prices" are extended to 1976, using indexes of the growth of real private consumption per capita. Imperfect though such a comparison may be, it cannot be seriously misleading. The comparison indicates that the USSR has a long way to travel to catch up even with socialist Hungary or with capitalist Italy, the least affluent of the market economies compared. All the others are far more distant; overtaking and surpassing them in living standards may be an impossible dream.

Table 7

A Comparison of Consumption Per Capita in Seven Countries Relative to the United States

	Relative Levels		Indexes of Real Consumption Per Capita, 1973-76	Relative Levels, 1976
	1970	1973		
United States	100.0	100.0	104.4	100.0
France	65.9	67.9	110.8	72.1
West Germany	64.7	63.9	107.9	66.0
United Kingdom	62.5	62.2	96.6	57.6
Japan	49.3	53.5	105.9	54.3
Italy	47.9	47.4	101.9	46.3
Hungary	41.3	42.0	108.9	43.8
USSR				34.4

Sources: Relative levels in 1970 and 1973 are those given in current prices in *ICP, Phase II*, using the multilateral comparisons carried out in "international prices."
Indexes of real consumption per capita for OECD countries were derived from indexes of total private consumption expenditures in 1970 dollars given in OECD, *National Accounts, 1960-1977*, and indexes of population. Because government expenditures on health and education are not taken into account, these indexes probably slightly understate the growth of total consumption in all countries. The index of real consumption per capita for Hungary was calculated from data given in Thad P. Alton and Associates, *Czechoslovakia, Hungary and Poland: Domestic Final Uses of Gross Product, Structure and Growth, Selected Years, 1965-1978.* Research Project on National Income in East Central Europe, Occasional Paper 55, 1979, p. 7.
The relative level for the USSR in 1976 is taken from table 8. The percentage is the geometric mean of the binary comparison carried out in rubles and in dollars. A comparison in "international prices" cannot be made for the USSR with available data.

[27] *ICP*, Phase II, p. 221.

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Table 8

Comparison of Soviet and US Consumption Per Capita in 1976, Modified ICP Classification*

	Per Capita Expenditures		Purchasing Power Parities (Ruble-Dollar)		Quantity Per Capita, US=100		
	USSR (Rubles)	US (Dollars)	US Weights	USSR Weights	Dollar Comparison	Ruble Comparison	Geometric Mean
Total consumption	**1,152.61**	**5,583.30**	**0.748**	**0.483**	**42.8**	**27.6**	**34.4**
Food, beverages, tobacco	546.09	1,130.45	0.985	0.831	58.2	49.0	53.4
Food	382.29	868.46	1.036	0.789	55.8	42.5	48.7
Breads and cereals	59.55	110.33	0.612	0.519	103.9	88.2	95.7
Meat	101.43	281.56	1.040	1.063	33.9	34.6	34.3
Fish	16.57	48.40	0.886	0.293	116.7	38.6	67.2
Milk, eggs, cheese	63.20	116.09	1.012	0.850	64.0	53.8	58.7
Oils and fats	26.22	38.33	1.203	0.938	72.9	56.9	64.4
Vegetables	18.25	110.52	0.858	0.853	19.4	19.2	19.3
Potatoes	16.39	13.50	1.342	1.342	90.4	90.4	90.4
Fruit	20.03	60.73	1.618	1.730	19.1	20.4	19.7
Sugar and confectioneries	47.08	50.38	1.622	0.893	104.7	57.6	77.6
Other foods	13.56	38.62	1.025	0.774	45.4	34.2	39.4
Beverages	148.98	186.66	0.710	0.933	85.6	112.4	98.0
Alcoholic	138.27	133.03	0.767	0.933	104.7	135.5	119.1
Nonalcoholic	10.71	53.63	0.570	0.524	38.1	35.0	36.5
Tobacco	14.83	75.33	1.090	1.087	18.1	18.1	18.1
Clothing and footwear	199.03	358.05	1.426	0.994	55.9	39.0	46.7
Clothing	158.61	304.43	1.530	1.104	47.2	34.0	40.1
Footwear	40.42	53.62	0.834	0.715	105.4	90.4	97.6
Gross rent and fuel	62.33	997.94	0.380	0.355	17.6	16.4	17.0
Gross rent	43.30	787.73	0.361	0.361	15.2	15.2	15.2
Fuel and power	19.03	210.21	0.451	0.344	26.3	20.1	23.0
House furnishings and operations	61.55	372.54	1.202	0.557	29.7	13.8	20.2
Furniture and appliances	39.56	219.35	1.391	0.654	27.6	13.0	18.9
Supplies and operations	21.99	153.19	0.931	0.439	32.7	15.4	22.4
Medical care	45.47	646.63	0.400	0.117	60.1	17.6	32.5
Transport and communications	64.99	813.25	1.065	0.412	19.4	7.5	12.1
Transport	58.78	710.16	1.170	0.421	19.7	7.1	11.8
Private	27.34	665.16	1.231	0.890	4.6	3.3	3.9
Public	31.44	45.00	0.266	0.289	241.9	262.7	252.0
Communications	6.21	103.09	0.346	0.344	17.5	17.4	17.5
Recreation and education	131.78	889.17	0.438	0.211	70.3	33.8	48.8
Recreation	61.94	417.04	0.680	0.368	40.4	21.8	29.7
Education	69.84	472.13	0.225	0.153	96.7	65.7	79.7
Other expenditures	40.13	375.27	0.553	0.547	19.6	19.3	19.4
Personal care	37.63	131.99	1.016	0.567	50.3	28.1	37.6
Miscellaneous services	2.50	243.28	0.302	0.361	2.8	3.4	3.1

* The small differences between the results given by the ICP comparisons and those shown in tables 1, 2, and 3 result from: (1) different definitions of categories, (2) inclusion in the ICP comparison of subsidies for housing and recreation and a quality adjustment in health, (3) different weighting systems for purchasing power parities resulting from rearrangement of the original data, and (4) in some instances, the expenditure data for the US provided to the ICP differ somewhat from those used to match Soviet definitions.

Table 9

Relative Levels of Consumption Per Capita by ICP Category, Dollar Comparisons, 1976 (United States = 100)

	USSR 1976	Hungary 1973	Italy 1973	Japan 1973	West Germany 1973	United Kingdom 1973	France 1973
Total consumption	**42.8**	**49.5**	**54.0**	**56.8**	**68.1**	**68.6**	**73.7**
Food, beverages, and tobacco	58.2	75.2	72.1	65.9	77.4	81.1	113.2
Clothing and footwear	55.9	41.2	50.8	55.2	71.7	66.3	55.3
Gross rent and fuel	17.6	27.7	40.2	36.6	59.3	56.2	65.4
Household furnishings and operations	29.7	33.8	33.7	52.8	94.6	51.3	63.2
Medical care	60.1	79.7	92.3	119.6	104.5	82.4	111.1
Transport and communications	19.4	17.9	32.5	18.4	38.4	50.4	40.8
Recreation	40.4	76.5	44.5	31.2	76.9	97.7	83.3
Education	96.7	66.9	63.0	67.6	64.6	83.7	58.7
Other expenditures	19.6	17.6	3.6	86.9	17.1	57.7	8.7

Source: USSR—table 8. Other countries—*ICP* Phase II. In all cases, the percentages reflect the comparisons carried out in dollars. The ICP classification has been modified to allocate expenditures in restaurants and cafes to food, beverages, and tobacco, and expenditures on hotels and lodging to recreation. The transferred categories were estimated on the assumption that their respective shares of miscellaneous services were the same as in 1970. They were converted to dollars using the applicable purchasing power parities for miscellaneous services.

The full binary comparison for the USSR and the United States in 1976 is shown in table 8. The results, of course, are similar to those presented earlier. In the modified ICP classification, Soviet per capita consumption (geometric mean comparison) is about one-fifth the US level for housing and related expenditures and for communications. The USSR is closest (but still distant) with respect to education and to food, beverages, and tobacco. It has a large lead in per capita consumption of alcoholic beverages and in the use of public mass transportation. In contrast, provision of private transportation is only one twenty-fifth that in the United States.

To indicate how the Soviet Union compares with other ICP countries in the major components of consumption, table 9 presents the ICP comparisons carried out in dollars for 1973 and our dollar comparisons of the USSR and the United States in 1976. In nearly all categories, the dollar comparisons for 1973, of course, show the other countries to be significantly better off in relation to the United States than do the comparisons in domestic currencies and the geometric mean. Relative to US levels, the Soviet Union is behind the other other countries in per capita consumption of food, housing and related goods, and medical care. In contrast, the USSR leads all the others in the provision of education. If the comparison by component could be extended to 1976 with confidence for all countries, the picture probably would differ little from that shown here. All countries except the United Kingdom and Italy gained relative to the United States in terms of total consumption per capita between 1973 and 1976, but the differences were not large—generally 1 or 2 percentage points, except for France, where it was 4 percentage points.

The sizable gap between levels of living in the Soviet Union and in other major countries, both East and West, is also demonstrated by comparisons carried out in physical units. Available data regarding per capita consumption of key foods—meat, grain, and potatoes—along with availabilities of two major consumer durables—television receivers and passenger cars—and telephones have been collected in table 10. Indicators of the supply of medical services are also shown. The food comparisons confirm the underdeveloped nature of the Soviet consumption pattern. On the

Table 10

Per Capita Indicators of Living Standards in Physical Units, 1976

Source	Unit	USSR	US	West Germany	France	Italy	United Kingdom	Japan	Poland	Czecho-slovakia	Hungary
Meat [1]	Kilograms per year	46	118	92	102	67	70	26	70	81	68
Potatoes and grain products [2]	Kilograms per year	166	66	84	92	134	90	126	159	128	134
Television receivers [3]	Units per 1,000 persons	223	571	305	235	213	315	233	198	253	233
Telephones in use [4]	Units per 1,000 persons	66	695	317	262	259	379	405	108		
Passenger cars [5]	Persons per car	46	2	2	3	4	4	6	27	9	14
Health services [6]	Per 100,000 persons										
Doctors		297	159	199	147	206	134	118	222	282	262
Pharmacists		20	68	41	58	69	31	69			
Hospital beds		1,164	670	1,155	1,024	1,053	895	1,287			850

[1] Including all meats and edible offals on a comparable basis. Data for the US and the Communist countries are CIA estimates. Data for other countries are from *ECE Basic Statistics of the Community, 1978*, p. 169.

[2] Data for the Communist countries are from *Statisticheskii ezhegodnik stran - chlenov soveta ekonomicheskoi vzaimopomoshchi 1979*, p. 59. Data for the Western countries are from *ECE Basic Statistics of the Community, 1978*, p. 168. The figure for Japan includes rice. For all countries potatoes have been converted to grain equivalents.

[3] Data for the Communist countries are from country handbooks; those for the non-Communist countries are from *ECE Basic Statistics of the Community, 1978*, p. 172.

[4] *Ibid.* Includes all telephones in use.

[5] Toli Welihozkiy, "Automobiles and the Soviet Consumer," JEC, *1979*, p. 819.

[6] *ECE, loc. cit.*, p. 173, *Narkhoz 1976*, p. 153, *Narkhoz 1977*, p. 86.

politically sensitive issue of meat supply, the USSR is far behind its Socialist partners, as well as Western countries. The Soviet position is better with respect to television sets, although much of the stock is obsolescent by Western standards. But the USSR has scarcely entered the age of widespread household use of cars and telephones. In contrast, the USSR is a leader in the provision of medical care as imperfectly measured by the number of doctors and hospital beds per 100,000 people (see discussion above, pp. 11-12). The fact that the reverse relationship is shown by the expenditure comparisons in table 9 is explained in part by the low wage paid to Soviet medical personnel (which reduces greatly the relative importance of the wage component of the ruble comparison) and in part by the greater quantity of material purchases in the United States.

Structure of Consumption. The structure of consumption in the USSR and the United States in 1976 is compared in table 11 with that for other countries and also with the United States in 1973. Inspection of OECD national accounts for the European countries and Japan suggests that structural change during 1973-76 was small. As is evident, the pattern of Soviet expenditures on consumption differs markedly from that of the other countries, but in ways generally consistent with its relative level of development. Food and clothing alone make up nearly two-thirds of Soviet consumption, compared with less than half in all other countries except Hungary. The small shares of expenditures on housing and on medical care reflect relatively low prices (costs), as well as qualitative and quantitative lags. On the other hand, the share of education is above what might be expected for a country at the Soviet level of development.

Table 11 Percent

Comparison of the Structure of Total Expenditures on Consumption in Selected Countries

	USSR 1976	Hungary 1973	Italy 1973	Japan 1973	United Kingdom 1973	West Germany 1973	France 1973	United States 1973	United States 1976
Total consumption	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Food, beverages, and tobacco	47.4	43.3	40.3	36.9	29.8	25.7	32.3	20.8	20.3
Clothing and footwear	17.3	11.0	8.5	9.5	7.7	9.7	7.8	7.1	6.4
Gross rent and fuel	5.4	7.4	12.7	14.6	17.1	14.0	13.2	17.4	17.9
House furnishings and operations	5.3	8.6	5.6	8.7	6.7	11.6	8.0	7.4	6.7
Medical care	3.9	5.9	7.3	8.0	6.0	10.0	10.5	10.4	11.6
Transport and communications	5.6	7.0	10.3	4.5	12.3	10.8	10.3	14.6	14.6
Recreation	5.4	6.2	7.4	5.6	8.9	8.7	9.2	7.7	7.5
Education	6.1	5.8	6.1	7.8	7.4	6.2	6.1	8.2	8.5
Other expenditures	3.5	4.8	1.7	4.4	4.2	3.3	2.7	6.3	6.7
Share of consumption in GNP (GDP)	53.9	58.2	68.8	54.7	70.8	61.5	63.9	68.0	70.9

Source: USSR and US, 1976–tables 8 and 15, US, 1973, and other countries, 1973. Calculated from data for 1970 and 1973 given in ICP Phase II. The ICP classifications have been modified to allocate expenditures in restaurants and cafes to food, beverage, and tobacco and expenditures on hotels and lodgings to recreation. Their respective shares in the ICP category miscellaneous services given for 1970 were assumed to be the same in 1973.

A comparison of the composition of expenditures on food, beverages, and tobacco among the countries is shown in table 12 for 1976 in the case of the USSR and the United States and 1970 for the others. The detailed data for the latter are taken from the UN study. Table 13 gives a similar comparison of the composition of food consumption alone. Again, the Soviet pattern contrasts greatly with that of the other countries, even those nearest to it in total consumption per capita. Perhaps most striking is the large share of beverages and the predominance therein of hard liquor. Only the United Kingdom approaches the USSR with respect to the share of beverages in the total, but beer and wine account for the bulk of British consumption. In contrast, tobacco is a much smaller share of Soviet consumption than elsewhere. The differences are less marked, but the picture more diverse, when the composition of food expenditures alone is compared. The share of meat in Soviet food consumption is smaller than in all other countries except Japan. The share of vegetables is relatively small, whereas that of potatoes is relatively large. Substantial differences in the consumption of fruits and of sugar and confectioneries also obtain. Overall, the share of carbohydrates—bread and cereals, potatoes, sugar, and confectioneries—in Soviet consumption outlays is higher than that in all other countries, although Germany is a close second. Finally, as noted, the data for the European countries and Japan relate to 1970, six years earlier than the data for the USSR and the United States. But judging from the ICP data for 1973 and partial OECD data for 1976, change in consumption patterns during the six-year period was small.

Rates of Growth. The change in the lot of consumers in the Soviet Union relative to other countries in recent decades can be inferred from comparative rates of growth in real per capita consumption. Such a comparison is given in table 14 for 1950-78 for the USSR and 10 other countries; four of them are socialist countries of Eastern Europe. Where possible, the rates are given in two variants, one referring to per capita personal consumption and the other referring to total per capita consumption, including government noncapital expenditures on education and health. The second measure is preferable, but its absence does not distort the picture in a major way, because the weight of government outlays is small (less than 10 percent) in

Table 12

Percent

Comparison of the Structure of Expenditures on Food, Beverages, and Tobacco (USSR and US in 1976, Other Countries in 1970)

	USSR	Hungary	Italy	Japan	United Kingdom	West Germany	France	United States
Total food, beverages, and tobacco	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Food	70.0	81.7	81.6	79.7	57.6	75.5	79.1	76.8
Bread and cereals	10.9	11.1	11.2	19.5	8.5	14.7	11.4	9.8
Meat	18.6	24.8	27.1	9.4	17.5	21.8	28.4	24.9
Fish	3.0	0.6	3.0	15.1	2.1	1.3	4.1	4.3
Milk, cheese, eggs	11.6	10.4	11.0	6.9	8.9	9.3	11.5	10.3
Oils and fats	4.8	8.4	5.3	1.2	2.6	8.1	5.5	3.4
Vegetables	3.3	5.1	9.9	10.2	4.7	5.3	6.7	9.8
Potatoes	3.0	2.7	1.2	0.9	2.4	2.0	1.5	1.2
Fruits	3.7	7.2	8.7	6.9	3.5	5.4	5.3	5.4
Sugar and confectioneries [1]	8.6	8.9	3.3	5.3	6.8	7.4	4.3	4.5
Other foods	2.5	2.5	0.9	4.3	0.6	0.2	0.4	3.4
Beverages	27.3	13.9	11.2	16.2	25.8	17.6	15.7	16.5
Alcoholic	25.3	10.0	8.5	13.0	21.9	11.2	12.3	11.8
Nonalcoholic[2]	2.0	4.0	2.7	3.2	3.9	6.4	3.4	4.7
Tobacco	2.7	4.4	7.2	4.1	16.6	6.9	5.2	6.7
Structure of expenditures on alcoholic beverages	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Spirits	68.6	27.5	17.4	7.9	27.7	30.8	13.8	26.3
Beer and wine	31.4	72.5	82.6	92.1	72.3	69.2	86.2	73.7

[1] Includes ice cream. [2] Includes coffee, tea, and cocoa.

Sources: Calculated from values given in USSR and US—table 8; Others—*ICP* Phase II.

Table 13

Percent

Comparison of the Structure of Expenditures on Food (USSR and US in 1976, Other Countries in 1970)

	USSR	Hungary	Italy	Japan	United Kingdom	West Germany	France	United States
Total food	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**	**100.0**
Bread and cereals	15.6	13.6	13.8	24.5	14.7	19.5	14.4	12.7
Meat	26.5	30.4	33.2	11.8	30.4	28.6	35.9	32.4
Fish	4.3	0.8	3.6	18.9	3.6	1.7	5.2	5.6
Milk, cheese, eggs	16.5	12.7	13.6	8.6	15.5	12.4	14.6	13.4
Oils and fats	6.9	10.3	6.5	1.5	4.5	10.7	6.9	4.4
Vegetables	4.8	6.2	12.1	12.8	8.2	7.1	8.5	12.7
Potatoes	4.3	3.3	1.4	1.1	4.2	2.6	1.9	1.6
Fruits	5.2	8.8	10.7	8.6	6.1	7.2	6.7	7.0
Sugar and confectioneries[1]	12.3	10.9	4.1	5.3	11.8	9.9	5.4	5.8
Other foods[2]	3.6	3.1	1.1	6.7	1.0	0.3	0.5	4.4

[1] This category is the sum of three ICP subcategories: sugar; jam, syrup, and honey; and chocolate and ice cream.

[2] This category represents the ICP subcategory salt, spices, and sauces.

Source: Calculated from values given in: USSR—table 8; US—table 8; Others—*ICP* Phase II.

Table 14

Average Annual Rates of Growth in Real Consumption Per Capita, Selected Countries, 1951–78

	1951-78	1961-78	1971-78
USSR	3.7 (3.6) [1]	3.3 (3.2)	2.6 (2.5)
United States	2.3	2.9 (2.9)	3.0 (3.0)
Japan	6.5 [2]	7.1	4.3
France	3.9	4.2	3.2
West Germany	4.8	3.6	3.0
Italy	3.8 [3]	3.9	1.8 (1.9)
United Kingdom	2.1 [3]	1.8 (2.0)	1.7 (1.9)
Czechoslovakia	1.6	1.9	2.1 (1.9)
East Germany	4.6	2.6	3.7 (3.4)
Hungary	2.6	2.8	2.7 (2.6)
Poland	2.9	3.2	4.0 (3.7)

[1] Figures outside parentheses refer to private consumption expenditures; figures inside parentheses refer to private consumption expenditures plus government current expenditures on health and education services. Rates for the latter in Western countries in 1971-78 are estimates based on data through 1971-77.
[2] 1953-78.
[3] 1952-78.

Sources: *USSR:* growth rates are based on CIA indexes in 1970 prices representing somewhat revised versions of those presented in JEC 1976, pp. 647, 648. *Western countries:* growth rates are based on values in constant prices given in OECD, *National Accounts, 1960-1977* and *National Accounts, 1950-1978.* Data for the most part are in 1975 prices. *Eastern countries:* growth rates are based on data in studies published by the Research Project on National Income in East Central Europe. Data for East European countries are in 1968 prices. *Czechoslovakia, Hungary and Poland: Domestic Final Uses of Gross Product, Structure and Growth, Selected Years, 1965-1978,* (Occasional Paper 55, 1979). Also *Personal Consumption in Eastern Europe, Selected Years, 1960-1978,* (Occasional Paper 57, 1979). *Bulgaria and East Germany: Domestic Final Uses of Gross Product Structure and Growth, Selected Years, 1965-1978,* (Occasional Paper 58, 1979). Growth rates for the 1950s are calculated from Maurice Ernst, "Postwar Economic Growth in Eastern Europe," in JEC, *New Directions in the Soviet Economy,* Washington, 1966, Part IV, pp. 880, 886.

total consumption in all countries except the United Kingdom. Over the period as a whole, per capita personal consumption in the USSR has increased much more rapidly than in the United States and the United Kingdom among Western countries, about the same as in France and Italy, and much less rapidly than in Germany and Japan. Soviet consumers fared much better than their socialist partners in three East European countries. Since 1960, the European market economies and Japan have outperformed the USSR by sizable margins, and the difference in rates of growth between the United States and the USSR has been reduced considerably. The Soviets also approximately matched East Germany, which had sharply cut the growth rate for consumption after building the Berlin Wall to stop the wholesale exodus of workers to West Germany. In the 1970s, the growth of Soviet consumption has slowed markedly; only three countries—Italy, the United Kingdom, and Czechoslovakia—experienced slower growth than the USSR.

In sum, Soviet progress in per capita personal consumption is not outstanding, at least as judged by our comparison with Western market economies. Other countries could be added to those included in table 14. Thus, for the period 1960-77, the Soviet record was approximately equaled or exceeded by Belgium, the Netherlands, Austria, Finland, Greece, Yugoslavia, Portugal, and Norway, and also was about equal to that for Bulgaria and Romania. Soviet growth in per capita consumption exceeded that in Denmark, Sweden, and Switzerland.

The Soviet position is not improved when the concept of consumption is broadened to include government expenditures on education and health. The addition of these communal services reduces the Soviet growth in per capita consumption, whereas it is either the same or increased in those Western countries for which the calculation can be made for recent periods—the United States, Italy, and the United Kingdom. Indirect evidence suggests that a similar result probably would hold for earlier periods. Thus, public expenditures on health and education in the United States, Italy, and Germany, measured in current prices for 1950/51-1962, rose more rapidly than personal consumption.[28] In France, public expenditures on education increased in current prices much faster than personal consumption during 1950-75. Data for the United Kingdom for 1954-60 also show expenditures on education and the National Health Service rising more rapidly than consumer expenditures, both in 1970 prices.[29] In France and Italy during 1959-69 publicly financed consumption, less cash transfers and

[28] Frederick L. Pryor, *Public Expenditures in Communist and Capitalistic Nations,* London, George Allen and Unwin Ltd., 1968, pp. 363, 383, 387; and OECD, *National Accounts, 1950-1968.*
[29] UNESCO, *Statistical Yearbook* 1968 and 1977, OECD *National Accounts 1960-1968,* and *National Accounts 1960-1977.* United Kingdom, Central Statistical Office, *National Income and Expenditure 1965-1975,* London, 1976, p. 16.

subsidies (mainly health and education services), grew much faster than household purchases for consumption.[30]

Part IV: Consumption in Soviet Economic Growth—A Broader Perspective

Growth of Consumption Relative to GNP

In the Stalinist period of Soviet socialism, the level of living of the population advanced at a snail's pace as the government first focused on industrialization at breakneck speed and allocated a minimum of resources to consumption and then fought a long terrible war. Total product rose more than twice as fast as consumption, and the fall in its share of the total was notably swift by historical comparison with other countries.[31] Moreover, even the small gains in per capita consumption were achieved largely by an extremely rapid growth in labor force participation. Thus, consumption per employed worker was still below the 1928 level in 1950.

Levels of living have risen much more rapidly in the post-Stalin years, as government policies sought to redress the long neglect of agriculture and the consumer sector generally. Much of the gain has represented a catchup from the relatively low levels that were the legacy of the war, grossly unbalanced growth, and mediocre productivity gains. Even with a larger claim for consumption in annual increments to total product, however, the share of consumption in GNP has continued to decline, whether measured in current prices or in constant prices. Moreover, its share is uniquely low by comparison with other countries, particularly with respect to household consumption alone.[32] The shares of consumption in total national product in 1960 and 1976 for the USSR and six Western countries are compared in table 15. The shares of both private household consumption and total consumption in total product declined more rapidly in the USSR than in other countries, where the shares changed very little. The only exception is the United Kingdom, where the share of household consumption declined about as much as in the Soviet Union.

Table 15

Percent of Total in Current Prices

Shares of Consumption in National Product, Selected Countries

	1960	1976
United States	63.7 (67.3)	64.7 (70.9)
France	61.9	62.3
West Germany	56.8	55.5
United Kingdom	66.2 (72.0)	59.7 (69.0)
Italy	64.2	64.3 (69.5)
Japan	58.3	57.9
USSR	53.4 (58.9)	48.6 (53.9)

Source: Share for Western countries are based on data in OECD, *National Accounts 1960-1977*. Shares for the USSR are based on CIA estimates of GNP in established prices. Figures outside parentheses refer to private household consumption; those within parentheses refer to private household consumption plus government final consumption outlays on education and health.

Modern economic growth has been characterized, generally, by steady gains in per capita consumption that have proceeded more or less in line with the growth of total product. As already noted, the Soviet Union provided a major exception during the period before 1950. Since then, the Soviet pattern has come to resemble that of other countries. Table 16 assembles data on growth rates of total real product and consumption in the postwar years, expressed per capita and per worker; the table updates work done by Bergson for the period 1955-70. In the USSR, total consumption including communal services continued to advance less rapidly than total product, the shortfall being greater in 1971-78 than in 1956-70. A similar pattern prevailed for France, Italy, and Japan in 1956-70 and in Germany and Italy in 1971-78. The comparisons for Western countries are marred by the inability to add communal services to the total in all cases.

[30] V. Cao-Pinna and S. S. Shatalin, *Consumption Patterns in Eastern and Western Europe*, New York, Pergamon Press, 1979, p. 129, 150.

[31] Abram Bergson and Simon Kuznets, *Economic Trends in the Soviet Union*, Cambridge, Harvard University Press, 1963, pp. 358-361.

[32] With respect to the share of private consumption expenditures in total product, in 1976, the Soviet Union was well below 17 OECD countries, in addition to the six countries compared in table 15 (OECD, *National Accounts 1960-1977*).

Table 16 Percent

Average Annual Rates of Growth of Real National Product and Consumption Per Capita and Per Worker, Selected Countries

	Real National Product		Consumption	
	Per Capita	Per Employed Worker	Per Capita	Per Employed Worker
1956-70				
United States	2.0	1.9	2.3 (2.5)	2.2 (2.4)
France	4.3	4.9	4.0	4.6
West Germany	4.2	4.5	4.5	4.8
United Kingdom	2.0	2.3	1.9 (2.0)	2.2 (2.3)
Italy	4.8	5.7	4.7	5.6
Japan	9.3	8.8	7.6	7.1
USSR	4.0	3.4	3.9 (3.8)	3.3 (3.2)
1971-78				
United States	2.5	0.9	3.0 (3.0)	1.4 (1.4)
France	3.3	3.4	3.2	3.3
West Germany	2.6	3.6	3.0	4.0
United Kingdom	2.0	1.8	1.7 (1.9)	1.6 (1.8)
Italy	2.0	1.8	1.8 (1.9)	1.5 (1.6)
Japan	4.3	4.5	4.3	5.0
USSR	2.8	2.4	2.6 (2.5)	2.1 (2.0)
1956-78				
United States	2.2	1.5	2.5 (2.7)	1.9 (2.0)
France	3.9	4.4	3.7	4.1
West Germany	4.2	4.2	4.2	4.5
United Kingdom	2.0	2.1	1.8	2.0 (2.1)
Italy	3.8	4.3	3.7	4.2
Japan	7.5	7.3	6.4	6.3
USSR	3.6	3.2	3.5 (3.4)	2.8 (2.8)

Sources: 1955-70. Growth rates for countries other than the USSR are those cited in Bergson, 1978, p. 173. Rates for the USSR are based on CIA estimates of GNP. Data on employed workers are from Stephan Rapawy, *Estimates and Projections of the Labor Force and Civilian Employment in the USSR, 1950-1990,* US Department of Commerce, FER No. 10, September 1976, p. 40. Data for 1978 were supplied by the author.

1970-78: Rates for all countries except the USSR are based on real national product data in OECD, *National Accounts 1950-1978.* Labor force data are from OECD, *Labor Force Statistics 1965-1976,* extended to 1978 with information published by individual countries. Rates for the USSR are based on CIA estimates of GNP in established prices. Employed workers are taken from Rapawy, cited above, extended to 1978 by him.

Note: Figures outside parentheses represent private consumption; those within parentheses represent private consumption plus government final consumption outlays for education and health. Data for the latter for OECD countries in 1971-78 are based on data for 1971-77.

A notable feature of Soviet economic development has been the prodigious growth in the labor force, relative to other countries' experience. The Soviet Government has been able to raise labor force participation rates to near maximum levels. While the process has slowed considerably in the postwar years, the Soviet labor force has grown more rapidly over the period as a whole (1956-78) than in any of the countries shown in table 16. Nonetheless, employment in the United States rose almost as fast, and even exceeded the Soviet rate in 1971-78. In the four European countries, employment growth was quite slow, much slower than population growth except in the United Kingdom. Employment and population growth rates were about the same in both the United Kingdom and Japan.

As a result of the disparate trends in population and employment, trends in total product and consumption per worker and per capita also differ. Consumption per worker rose at a faster rate than consumption per capita in the European countries in 1956-70, whereas the reverse was true for the other countries, most notably for the USSR. In the 1970s, the picture is mixed. Consumption per capita in the USSR continued to rise much faster than consumption per worker. The differential was even greater for the United States, which has experienced explosive employment growth in recent years. For the entire period 1956-78, the growth in consumption per capita and per worker in the USSR was well above that in the United States and the United Kingdom and well below that in France, Germany, Italy, and Japan.

Changes in Structure

Although the long-term historical picture is rather mixed, modern economic growth tends to bring distinct changes in the structure of consumption. The share of expenditures on food measured in current prices usually falls, and the shares of income-elastic goods, such as durables and services, tends to rise. Kuznets has explored these matters for long periods for several countries, including the USSR during 1928-55.[33] Kuznets concluded that the Soviet pattern generally conformed to that of other countries at similar stages of development. Thus, the share of food dropped between 1928 and 1950 and leveled off during 1951-55. Some data are at hand to extend this comparative analysis to later years. Unfortunately, a change in the system of classification of national accounts data in the West precludes showing detailed breakdowns of consumer expenditures in postwar years. Similarly, providing detailed breakdowns for the USSR over time is frustrated by the difficulty of reclassifying Soviet data into a Western classification system. To suggest how comparative consumption structures have been changing, table 17 assembles data on the shares of food, beverages, and tobacco in total household consumption, measured in current prices, in 1960, 1970, and 1976. In all countries considered, the share of food, beverages, and tobacco declines over the period. The USSR stands out in these comparisons in two respects—for the large size of the shares of expenditures on the category and for the slowness in their decline. In 1976, the USSR most closely resembled Ireland and Greece, countries with much smaller per capita GNPs—by about one-third and one-fourth, respectively.

The percentages shown in table 17 for 1960 and 1970 do not include purchases of food, beverages, and tobacco in restaurants. Their inclusion would raise the shares appreciably in all countries and also might affect the trends. The magnitude of the impact can be gauged roughly by comparing the two percentages given in table 17 for 1976. In the "B" comparison, the OECD category expenditures in restaurants, cafes, and hotels (which include outlays for lodging) was added to the category food, beverages, and tobacco. Inclusion of such purchases raises the shares of food, beverages, and tobacco by varying amounts—by 3 percent for Ireland but 39 percent for Austria. In this comparison, the share in the USSR far exceeds that even of Greece and Ireland and probably most closely resembles Portugal, a country with only about two-fifths the Soviet level of per capita GNP.

When expenditures on food alone are considered, the picture evidently changes considerably, because, as already described, Soviet consumption of alcoholic beverages is a notably high share of expenditures by international standards. Unfortunately, the data with

[33] Simon Kuznets, *Modern Economic Growth*, New Haven, Yale University Press, 1966, pp. 265-284; and Bergson and Kuznets, *op. cit.*, pp. 358-364.

Table 17 Percent

Shares of Food, Beverages, and Tobacco in Total Household Consumption, Selected Countries

	1960	1970	1976	
			A	B
Per capita GNP more than $7,000				
Belgium	34.9	31.4	27.0	31.2
Canada	25.5	22.5	21.0	27.5
Denmark	32.6 [1]	30.0	27.1	31.3
France		27.1	23.3	29.8
West Germany	36.8	30.0	27.2	
Norway	32.0 [2]	31.4	27.9	31.5
Sweden	30.7 [3]	28.4	27.0	30.3
Switzerland	34.7	31.4	28.5	
United States	21.9	18.7	16.9	22.5
Per capita GNP $5,001 to 7,000				
Australia	34.0	28.3	25.4	
Austria	38.8 [4]	34.5	28.0	39.0
Finland	44.2	39.5	37.4	40.5
Japan		30.0	28.5	
Per capita GNP $4,001 to 5,000				
Italy		40.7	36.6	42.4
USSR	49.4	48.9	46.4	54.4
United Kingdom	37.5	33.2	31.6	36.1
Per capita GNP $1,570 to 3,189				
Ireland		46.5	44.8	46.2
Greece	48.7	42.6	43.1	47.9
Spain		37.4	35.3 [5]	41.9 [5]
Portugal	57.1	54.2	50.1	

[1] 1966.
[2] 1967.
[3] 1963.
[4] 1964.
[5] 1974.

Source: Calculated from OECD, *National Accounts, 1960-1977* using data in current prices. Percentages for the USSR are based on CIA estimates of GNP in current prices and data on restaurant sales given in *Narkhoz* 1978, p. 433. Countries are grouped by per capita GNP in 1978 as given in Herbert Block, *The Planetary Product*, US Department of State, Bureau of Public Affairs, Special Report No. 58, Washington, 1979, pp. 27-28, 33.

Note: Column A excludes restaurant purchases. Column B includes restaurant purchases.

which to analyze these patterns are not currently available. The share of food alone in Soviet household consumption (excluding purchases in restaurants), however, can be estimated with reasonable precision at 31 percent in 1976, on a comparable basis about the same as in Italy, considerably above Japan, but less than in Greece (36.9) and Portugal (38.4). In 1960, the share was about 37 percent in the USSR. Restaurant sales of food made up about 12 percent of total household consumption of food in the USSR in 1960 and about 16 percent in 1976. The bulk of Soviet restaurants are cafeterias in places of work.

Other Considerations: An Overview

The international comparisons in this study have concerned relative levels of material welfare as conventionally measured by the concept of real per capita consumption. As shown, the material well being of the Soviet people has risen steadily and rapidly in the postwar period, in sharp contrast to the first 30 years of socialism, when progress was uneven and slow. The Soviet record is by no means distinguished, however, since many other countries made even greater gains. Moreover, a substantial part of material progress in the USSR was achieved through large-scale mobilization of the population into the labor force via a variety of economic and social pressures, so that labor force participation rates are now near maximum levels. The overriding of individual preferences for work and leisure should be considered a cost of the advance in levels of living that was achieved. Given the mediocre rate of technological progress, the gains would have been smaller, had fewer hands been drawn into the labor force. Development under market systems has not entailed such rapid mobilization of labor; given a choice, many people prefer alternative endeavors and are willing to pay the cost in consumption foregone.

Besides material progress, consumer welfare is influenced to an important extent by the amount of leisure time available to the populace for individual pursuits. In the Soviet Union, the length of the scheduled workweek is determined by government policy rather than by free choice of workers. In 1955, a basic 48-hour workweek prevailed in most nonagricultural sectors in the USSR, more or less in line with the workweek in Western Europe and somewhat less than in Japan. In 1956, the Soviet Government began an hours reduction

program, which was carried out largely during 1956-60. As a result, the average scheduled workweek dropped to roughly 40 hours, bringing it well below that of other major countries except the United States. Aside from the workweek for coal miners, the USSR has not further reduced working hours, while they have continued to fall gradually in other countries. In 1977, the Soviet scheduled workweek was the same as in Japan, but less than in the United Kingdom, France, and West Germany, where 42- to 44-hour workweeks tended to prevail. The average workweek in all non-agricultural sectors in the United States was approximately 36 hours.

On the other hand, it can be argued that substitution of the government's ideologically motivated notions for individual choice in the matter of workhours has caused the Soviet Union to trade off more leisure for less consumption to a greater extent than elsewhere in the postwar period. The precipitous reduction of the workweek in the USSR in the last 1950s, unprecedented in Western development experience, entailed a substantial cost in terms of foregone production. As the comparative data show, people in other countries at comparable and even higher levels of economic development have chosen to trade off relatively less leisure for more goods and services.

While the Soviet Union now compares favorably with the West in terms of formal working hours, its situation is greatly inferior, insofar as other aspects of leisure are concerned. The government encroaches on workers' leisure time by insisting that they attend meetings of party and other organized groups and participate in rallies, demonstrations, "volunteer" work, and the like. Housework is a disproportionate burden for women, nearly all of whom work. The relatively low availability and poor quality of household appliances already has been noted. A Soviet source estimates that only 15 percent of all housework is mechanized in the USSR, compared with 80 percent in the United States.[34]

Moreover, the perennial vagaries of the distribution system require household members to spend many hours each week standing in line and shopping from store to store. An impeccable Soviet source asserts that the average family spends nearly two hours each day in shopping.[35]

Another aspect of welfare concerns the degree of equality in the distribution of incomes. Although the performance of Soviet socialism has not been outstanding with respect to provision of material goods and services and of leisure, perhaps government policies have produced substantially greater equality in the distribution of personal incomes. International comparisons of personal income distributions are tenuous at best; for the Soviet Union the available data are highly unsatisfactory.[36] The weight of the evidence, such as it is, seems to show that in the late 1960s, the degree of inequality (decile ratios) in the USSR was about the same as in Eastern Europe, somewhat less than in the United Kingdom, and substantially less than in the United States and Italy.[37] These comparisons, however, do not take account of incomes earned and redistributed in the so-called "second" economy from such activities as illegal production of goods and services, cheating, bribery, corruption, and black-market operations. Such phenomena may be more pervasive in the USSR than elsewhere and could significantly alter the distribution of money incomes. The comparisons also do not take into account the large inequalities in the distribution of privileges (perks) in the Soviet Union, that is, access to the best of the material benefits available to the society.[38]

Weighing these diverse aspects of consumer welfare is, in the final analysis, a matter of values. Nonetheless, this comparative study supports the view that the perfomance of Soviet socialism overall has not been especially distinguished. In respect to material welfare, the USSR has not overtaken or surpassed any major capitalist economy in per capita consumption, and the absolute gaps in living standards remain large. Prospects for reducing these differences in the near future are dim, because Soviet economic growth almost cer-

[34] *EKO*, No. 3, 1978, p. 92

[35] *Pravda*, 30 July 1975.

[36] Alastair McAuley, "The Distribution of Earnings and Incomes in the Soviet Union," *Soviet Studies*, Vol. XXIX, No. 2, April 1977, pp. 214-237.

[37] *Ibid.*, p. 234, and Peter Wiles, *Distribution of Income: East and West*, Amsterdam, North Holland, 1974, p. 48.

[38] Mervyn Matthews, *Privilege in the Soviet Union: A Study of Elite Life Styles Under Communism*, London, George Allen and Unwin Ltd., 1978.

tainly will continue to decline markedly over the next decade. Economic growth may slow in the West as well, so that, on balance, the present gaps may simply persist—hardly a bright prospect for a government that has long claimed to possess an economic system that would best its capitalist counterpart in raising living standards and end the alleged exploitation of man by man, as well. Moreover, the Soviet Government soon may have to face some difficult choices in areas related to the population's welfare. Because of severe resource constraints, leisure may have to be curtailed and wider income differentials sanctioned in an effort to strengthen work incentives and to spur production.

Appendix A

Derivation of Ruble-Dollar Ratios for Food, Beverages, and Tobacco

General Introduction

Description of the Sample. The sample for food, beverages, and tobacco consists of 108 items that represent the principal commodities bought by households in the USSR and the US as well as foods grown and consumed at home. The sample is patterned after that of the United Nations ICP study, and the ICP specifications for commodities were used in choosing the items to be priced. In the USSR, households purchase these products in state and cooperative retail outlets at prices set by the government and through collective farm markets (CFM), where prices respond mainly to supply and demand. The food products, alcoholic and nonalcoholic beverages, and tobacco products were priced in each country and aggregated into 12 major food groups. These aggregations, shown in table A-1, underlie the discussion in the text.

Weighting Procedures. Price ratios for the food sample are weighted by household expenditures for food, beverages, and tobacco in the two countries in 1976. The sample is structured to best use the expenditure data available for each country in weighting the food products. The hierarchy within the sample is shown in the following illustration:

Level of Aggregation	Example
Category	Food
Group	Meat and Poultry
Product	Sausage
Item	Frankfurter

In general, the weighting system follows the Soviet classification. US data, which are fairly abundant, were realigned to correspond as closely as possible to the Soviet classification. The procedure then was to derive relative weights for the major groups and break these into successively smaller aggregations as called for by the price ratio sample. Table A-1 shows the group weights for the two countries in the Soviet classification and the corresponding price ratios. These weights are summarized from the more detailed data in table A-3 for the USSR and in table A-4 for the United States.

Representativeness. Although the sample is less representative of food products in either country than is desired, it is nevertheless quite large and contains more than twice as many items as that underlying the earlier comparison for 1955.[39] All of the major groups of food included in Soviet statistics for retail trade in state and cooperative stores are represented, as are all major food groups in the US Consumer Price Index of the Bureau of Labor Statistics.[40] Because of the great dissimilarity between US and Soviet consumption patterns, however, both the representativeness of the sample and the comparability are deficient in some respects. The sample within each food group is less representative for the United States than for the USSR.

The US food industry is highly developed in such processing techniques as freezing and canning, whereas the Soviet food industry is heavily weighted toward the basic processing of grains, and the making of sausages, cheese, and alcoholic beverages. Moreover, the US capability in packaging, distribution, and refrigeration of food products is advanced, whereas that in the USSR is rudimentary. For example, in 1976, only 26 percent of the food products marketed in the USSR were packaged.[41] Perishable foods such as fresh fruits and vegetables often reach the market in poor condition because of improper packaging and handling and lack of refrigeration. Supplies of fresh, frozen, and canned fish products are erratic in many

[39] CIA, *A Comparison...*, 1964.

[40] Food products not represented in the sample are seasonings (except salt), leavenings, spices, condiments, and nuts. The weight of these items in total food expenditure is small in both countries, and their inclusion would not significantly affect the result.

[41] *EKO*, No. 3, 1978, p. 98.

areas, and varieties are limited. The Soviet food industry provides few frozen foods except fish and poultry and only a narrow range of canned fruits and vegetables, commodities that are staples in US households. The so-called convenience foods, such as canned baby foods, frozen dinners, and snack foods are not found in Soviet markets in significant quantities.

With respect to supply, 1976 was not a good year in the USSR for a number of food products, especially during the last quarter. Because of distress slaughtering in 1975 following a disastrous grain harvest, meat supplies, relatively abundant earlier in the year, began to dwindle.[42] Beef was particularly scarce, but availability of pork, mutton, and poultry also was reduced. Meat prices on the collective farm market climbed in late 1976, which caused ceilings to be imposed in many areas. Since then, meat supplies per capita have improved little, so that consumers have had to accustom themselves to long lines at food stores, where urban shoppers are joined by peasants unable to find desirable products in rural stores. In 1976, consumers found potatoes in state stores to be in poor condition because of early frosts that caused a greater-than-usual tendency for rot, although quality was good in collective farm markets, an important source of supply to households.

Prices of Food, Beverages, and Tobacco

Prices for individual items used in the ruble-dollar comparisons are 1976 national average prices for the US and national average prices in state and cooperative stores for the USSR. Table A-2 shows the ruble and dollar prices for each of the 108 items in the sample and the ruble-dollar price ratio for each item. The source of each price also is indicated.

Problems of Matching Specification and Quality. Given the large differences in consumption patterns in the two economies, the matchings of specifications and quality of food, beverages, and tobacco products are as close as can reasonably be made. Several US manufacturing firms assisted with the matching of 20 items of processed food and tobacco purchased in the USSR and provided product evaluations and prices of comparable US products. Perishable food products obviously could not be price matched in this manner. For these, product specifications and detailed descriptions of the items by observers in Soviet markets provided the basis for matching with the US items. All weights and quantities were converted to metric measure, the system used in the USSR but not generally in the US food industry. The food sample was priced in US markets by an observer experienced in the field of commercial food production and marketing.

To achieve comparability of prices of matched items, the procedure was to discount the price of the higher quality item commensurate with the difference in quality. Thus, to account for superior quality of food and/or packaging, most US prices were discounted by 5 to 20 percent. In general, if the Soviet food item was comparable in quality but poorly packaged or not packaged, the price of the matching US item was discounted by 5 percent. Examples are macaroni, rice, sugar, and flour. Foods that showed moderate quality and packaging differences, mainly canned and bottled foods and beverages, were discounted 10 percent on the US side. Prices for most fresh fruits and vegetables were discounted 10 to 15 percent, depending on the extent of difference in quality and freshness. US prices for cuts of fresh meat were the most heavily discounted because of poorer quality and random cutting in Soviet meats. Prices of fresh beef and pork generally were discounted 20 percent, other fresh meats and poultry 15 percent. Processed meats, such as bacon and sausage, were discounted 5 to 10 percent.

The analysis of Soviet food samples by US industry provided valuable information about the Soviet food processing industry and the quality of its products. Under laboratory conditions, the sample foods were measured for taste and appearance, nutritive value, and probable shelf life. As might be expected, on a scale of excellent to poor, the Soviet foods that scored better than average were the simple items such as sugar, tea, spaghetti, and noodles; those scoring below average were canned fruits, vegetables, and fish. For all items tested, US food products were judged superior in all respects to Soviet products, except dried split peas, which scored equally, and sugar cubes, for which the Soviet product scored slightly higher.

[42] For a more detailed account of supplies of meat and other food products in recent years, see M. Elizabeth Denton, JEC 1979, pp. 762, 763, and 769.

Canned good ranked low, in part because of poor-quality containers which shorten shelf life and cause deterioration of flavor, especially in fish products. Some breakdown of the enamel linings of tin containers was evident in a number of the samples. Glass containers, called "relics of the past" by US industry specialists, were thick walled and tinted, with bothersome pry-off lids. Packaging materials for dry products, were judged barely adequate, some not being strong enough to protect foodstuffs in transit and on store shelves to ensure normal shelf life.

The problem of matching quality and specifications of individual items of alcoholic beverages is extremely complex because of the widely different assortment of items available in the two countries. Vodka, which contains 40 percent or more pure alcohol, is the universal Soviet drink, although some beer is consumed, and wines are favored, particularly in the southern republics. In the United States, consumption patterns are somewhat the reverse. More beer and wine are consumed than distilled spirits—whiskey, gin, vodka, and brandy. To include as wide a range of these beverages as possible, the procedure was to compare the main types of beverages for which national average prices were available. These are (a) liquor (vodka, gin, and whiskey), (b) red and white grape wine, (c) brandy, and (d) beer. Quality of the products within these groupings, despite their dissimilarity, is considered comparable for purposes of this study. When taste preferences and national custom are disregarded, quality differences for the distilled spirits are probably minimal. Soviet wine and beer, however, are probably not as high in quality as in the United States, where consumer acceptance is much more important. The USSR produces over 600 brands of wine of varying style and quality that contain from 9 to 20 percent alcohol, as do most US wines. Many brands of beer of unknown quality are produced that contain 1.5 to 6 percent alcohol; the most popular brand contains 2.8 percent.[43] Standard US beer contains 4-percent alcohol. No account was taken in this comparison of the large Soviet consumption of *samogon*, a popular but illegal home brew.

As for nonalcoholic beverages, US consumption is heavily weighted toward coffee and soft drinks, whereas in the USSR the most common beverage is tea grown domestically. Bottled soft drinks and mineral water are available in state stores and restaurants, but quantities consumed are relatively small.

Comparability of tobacco products posed special problems, because tobaccos grown in the United States are far superior to Soviet tobaccos, which characteristically are strong blends of domestically grown and low-quality oriental tobaccos. A US tobacco manufacturing firm analyzed and compared five samples bought in the USSR—three kinds of cigarettes (high-, medium-, and low-priced), one cigar, and a package of smoking tobacco. The highest priced cigarette, Yava, was matched with the lowest priced US cigarette, Winston. The resulting price ratio was used to represent the medium- and low-priced Soviet cigarettes, which have no counterparts in the United States. For smoking tobacco, the matching US price was discounted 20 percent to account for the low quality of tobacco and poor packaging. The cigars were Cuban imports in both countries and were identical in quality.

Sources of Soviet Prices. National average prices for food products in the USSR comprise three kinds of prices—prices in state and cooperative stores, prices in collective farm markets, and farmgate prices (average realized prices paid to farmers). For individual food items, all prices are those paid by consumers in state and cooperative stores. For certain food groups—meat, milk and dairy products, eggs, potatoes, fruits, and vegetables—products also are sold in collective farm markets or are consumed in kind. For these groups, the national average prices are weighted averages of state and collective farm market prices, with consumption in kind valued in farmgate prices. These prices are the weighted averages of prices paid to producers for products marketed through several channels; their derivation is shown in appendix E, tables E-2 through E-5.

The state store prices were collected in Moscow and several other cities in July and August 1976 and converted to national average prices by adjusting for price differences in the USSR's three pricing zones.[44] For about one-fourth of the items in the sample, prices were collected in Minsk (Zone I) and Murmansk (Zone III), as well as in Moscow (Zone II). These

[43] Treml, *loc. cit.*, pp. 290, and 292.

[44] The USSR has established three geographical zones for pricing of all consumer goods except wines, for which there are four zones. For details, see M. V. Kokorev, *Tseny na tovary narodnogo potrebleniya*, Moscow 1978, pp. 170-209.

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observed price differences were used to calculate weighted national average prices. To account for seasonal variations in fresh produce, prices for the most common types (specifically apples, cabbage, beets, carrots, and onions) were derived by averaging monthly prices reported by Western observers. For other fresh fruits and vegetables sold mainly during the growing season, prices were averaged for the months in which they were marketed. Prices for alcoholic beverages are weighted national average prices for distilled liquors, wines, and beer and are based on unpublished data collected by Professor Vladimir G. Treml, Duke University. These prices were judged to be more accurate than prices collected for the sample, because they better take into account the extensive regional variation in prices and types of products, particularly for table wines.

In collective farm markets, individual prices for meat, milk products, eggs, potatoes, vegetables, and fruits may change from day to day and from region to region in response to demand and supply. Because of these fluctuations, observed prices could not reliably be used to derive national average CFM prices. Instead, the dollar-ruble ratios for products sold on collective farm markets in the USSR were derived by dividing the ratios based on Soviet state store prices by the ratio of CFM prices to state store prices. This ratio was calculated by dividing commission prices for 1975 [45] by the ratio of commission to CFM prices.[46] The data are as follows:

	1975 Commission Price Per Ton (Except Eggs)	Commission-CFM Price Ratio	CFM Price Per Ton	CFM Price Per Kilo (Except Eggs)
Meat and poultry	2,508	.85	2,951	2.95
Milk and dairy products	306	.71	431	.43
Eggs (per thousand)	91	.81	112	1.12 (per 10 units)
Potatoes	229	.65	353	.35
Vegetables	452	.61	741	.74
Fruit	853	.71	1,201	1.20

[45] *Narkhoz* 1975, p. 628.
[46] *Sov torg* 1964, p. 166.

Food produced and consumed on farms is valued at the group level at average prices received by farmers for urban marketings. For details, see appendix E, table E-5.

Sources of US Prices. The dollar prices, shown in table A-2, are 1976 national average prices for US products that most closely match the Soviet food items in the sample. Most of the prices were obtained by pricing comparable food items in Washington area markets in July and August 1977 and converting them to 1976 national averages using BLS price indexes.[47] The Washington area in 1976 was shown to be average among US cities for over-the-counter sales to low-income families and only slightly above average for middle-income families.[48] Prices shown in table A-2 include quality discounts of US prices as explained above. US prices for products comparable to the 20 food and tobacco samples bought in the USSR were supplied by the US companies that tested the products. These prices, which also are included in table A-2, are national average prices for 1 July 1976 as published by A. C. Nielson Co., a major source of price information for US industry. Prices for alcoholic beverages are unpublished data from the Bureau of Labor Statistics. Sales taxes on food, beverages, and tobacco are not included in the item price, although they are included at the group level of aggregation. The sales taxes used were unpublished national averages from the Bureau of Labor Statistics. Data on US consumption in kind were derived from various tables in US Department of Agriculture, *Agricultural Statistics*, 1977.

Derivation of Weights. Ideally, the price weights for the USSR and the US at all levels of aggregation should include all components of personal consumption—expenditures in retail outlets and restaurants, the value of food produced and consumed on farms, and the value of food supplied to military and government organizations. In this report, the final weights for foods, beverages, and tobacco products as shown in table A-1 include all of these components distributed among the various food groups. For all other aggregations (tables A-3 and A-4) the price weights in general

[47] *Monthly Labor Review*, September 1977, pp. 78-79.
[48] *BLS News*, US Department of Labor Bulletin, Autumn 1976, appendix tables 4 and 5.

are based on retail sales data, and follow the data classification for each country. The final weights are believed to be quite reliable for the purposes of this report. The reliability of the weights, however, tends to decrease as the disaggregation proceeds, because the statistical data needed for both countries become increasingly scarce as the level of detail increases.

On the Soviet side, the category weight for food, beverages, and tobacco products as a whole is given in the 1976 GNP accounts for consumption in established prices as shown in appendix table E-1, modified as explained in the footnote to that table. The weight is the sum of sales to the population in state and cooperative stores and collective farm markets, the imputed value of household consumption-in-kind, and an estimate of food provided to the military services. To achieve comparability with US practice, food purchased by school cafeterias (which in the GNP accounts is included in education) is here included in food.

The group weights are derived by summing the distribution of foods through the various channels as shown in table A-5. At the product level, weights are based on unadjusted retail trade statistics except for milk, ice cream, and alcoholic beverages, which are based on supplies available. The weights for a few food items—fish, fruits, and vegetables—are based on retail trade data from various sources, and the rest are derived from production valued in observed prices or are estimated from diverse information. The structure and sources of the Soviet price weights are shown in table A-6.

On the US side, the prices are weighted by personal consumption expenditures on food products, as compiled by the Department of Commerce and published in *Survey of Current Business*, July 1979, p. 37. The category weights include over-the-counter purchases of food, beverages, and tobacco; purchased meals and beverages; food produced and consumed on farms; and food supplied to the government and the military services. The group weights are based on over-the-counter purchases of food by type—for example, meat, milk, eggs, and grain products—from unpublished data from the Bureau of Economic Analysis, US Department of Commerce. Further disaggregations are based on unpublished information underlying the Consumer Price Index, US Department of Labor, Bureau of Labor Statistics. Table A-4 gives the US price weights; their structure and sources are shown in table A-7.

Table A-1

USSR and US: Group Weights and Price Ratios for Food, Beverages, and Tobacco in 1976 (Soviet Classification)

	USSR Weights		US Weights	
	Percent	Dollar-Ruble Ratios	Percent	Ruble-Dollar Ratios
Food				
Bread and cereals	10.9	1.925	9.8	0.612
Meat	18.6	0.941	24.8	1.040
Fish	3.0	3.409	4.3	0.886
Milk, eggs, and cheese	15.1	1.185	12.7	0.987
Oils and fats	1.9	0.776	2.3	1.365
Vegetables and potatoes	6.3	0.967	11.0	0.911
Fruit	3.7	0.578	5.4	1.618
Sugar and confectioneries	8.0	1.120	3.1	1.622
Other foods	2.5	0.849	3.4	0.742
Beverages				
Nonalcoholic	2.0	1.907	4.7	0.570
Alcoholic	25.3	1.007	11.8	0.767
Tobacco	2.7	0.920	6.7	1.090
Total	**100.0**	**1.192**	**100.0**	**0.966**

Table A-2

Price Per Kilogram
Except as Noted

USSR and US: 1976 Price Comparisons for Food, Beverages, and Tobacco

	Rubles (State Stores, National Average)	Dollars	Price Ratio (Rubles Per Dollar)	Source *	
				USSR	US
Meat and poultry					
Beef, round roast	1.98	2.63	.753	A	C
Beef, shoulder roast	1.62	1.96	.827	A	C
Pork, leg roast	1.88	2.67	.704	A	C
Pork, shoulder roast	1.49	2.29	.651	A	C
Lamb (mutton), leg	1.88	2.79	.674	A	C
Chicken, whole fresh	3.40	1.27	2.677	A	C
Turkey, whole fresh	3.56	1.64	2.171	A	C
Beef liver	1.39	1.81	.768	A	C
Ground beef	1.88	1.52	1.237	A	C
Bacon, unsliced, dry	2.70	1.95	1.385	A	C
Sausage, half smoked	3.57	3.74	.955	A	C
Pork sausage, fresh	2.20	1.96	1.122	A	C
Frankfurters	2.48	1.87	1.326	A	C
Bologna sausage	2.28	2.70	.844	A	C
Italian sausage	2.18	3.12	.699	A	C
Boiled ham, whole	3.66	1.84	1.989	A	C
Fish					
Cat fish, fresh	1.03	1.48	.696	A	C
Cod fish, frozen	.49	2.48	.198	A	C
Tuna, frozen	1.80	3.02	.596	A	C
Canned goods					
Corned beef	2.60	3.21	.810	A	C
Lunch meat	2.91	3.12	.933	A	C
Tuna	3.49	3.87	.902	A	C
Herring	2.60	4.02	.647	A	C
Sardines in tomato sauce	2.60	1.83	1.421	B	E
Sardines in oil	3.26	2.11	1.545	B	E
Salmon	4.08	4.10	.995	A	C
Green peas, tin	.55	.62	.887	A	C
Green peas, glass jar	.45	.66	.682	B	C
Tomato puree	.90	.58	1.552	B	E
Pears	1.00	1.07	.935	A	C
Apples	.87	1.05	.829	A	C
Orange juice	1.85	.79	2.342	A	C
Tomato juice	.63	.60	1.050	B	C

Table A-2

Price Per Kilogram
Except as Noted

USSR and US: 1976 Price Comparisons for Food, Beverages, and Tobacco (continued)

	Rubles (State Stores, National Average)	Dollars	Price Ratio (Rubles Per Dollar)	Source *	
				USSR	US
Fats and oils					
Butter	2.41	2.85	.846	A	C
Margarine	1.80	.96	1.875	A	C
Vegetable oil	1.79	1.57	1.140	A	C
Lard	1.72	.86	2.000	A	C
Mayonnaise	2.50	1.29	1.938	A	C
Milk and milk products					
Whole milk (liter)	.48	.52	.923	A	C
Canned milk	.94	1.01	.931	B	C
Heavy cream	1.44	1.69	.852	A	C
Sour cream	1.64	1.69	.970	A	C
Yogurt	.42	.87	.483	A	C
Cottage cheese	1.00	1.44	.694	A	C
Processed cheese	3.00	3.59	.836	A	C
Swiss cheese	3.21	4.45	.721	A	C
Ice cream	1.92	1.93	.995	A	C
Eggs					
Large (dozen)	1.54	.88	1.750	A	C
Medium (dozen)	1.06	.59	1.797	A	C
Sugar					
Granulated	.94	.68	1.382	B	E
Cube	1.02	1.47	.694	B	E
Confectioneries					
Candy, hard	1.77	2.92	.606	A	C
Chocolate candy	11.70	4.24	2.759	A	C
Chocolate sirup	1.93	1.06	1.821	A	C
Apple butter	.96	.97	.990	A	C
Grape jam	1.16	1.97	.589	A	C
Plum jam	.96	1.83	.525	A	C
Citrus marmalade	2.03	1.73	1.173	A	C
Butter cookies	3.00	2.44	1.230	A	C
Oatmeal cookies	2.00	1.46	1.370	B	E
Bread and bakery products					
White bread	.30	.68	.441	A	C
Rye bread	.24	1.18	.203	A	C
White rolls	.59	1.59	.371	A	C

Table A-2

Price Per Kilogram
Except as Noted

USSR and US: 1976 Price Comparisons for Food, Beverages, and Tobacco (continued)

	Rubles (State Stores, National Average)	Dollars	Price Ratio (Rubles Per Dollar)	Source *	
				USSR	US
Flour, grains, and macaroni products					
White flour	.44	.33	1.333	A	C
Whole wheat	.33	.48	.688	A	C
Rice, long grain	.56	.73	.767	A	C
Rice, medium grain	.88	.69	1.275	A	C
Rolled oats	.37	.92	.402	A	C
Semolina	.54	.65	.831	A	C
Infant cereal	1.47	1.57	.936	B	E
Pearl barley	.28	1.07	.262	A	C
Dried split peas	.32	.79	.405	B	E
Macaroni	.59	.86	.686	B	E
Spaghetti	.67	.86	.779	B	E
Egg noodles	.95	1.46	.651	B	E
Potatoes					
Potatoes	.12	.17	.706	A	C
Vegetables					
Cabbage	.18	.22	.818	A	C
Beets	.13	.57	.228	A	C
Carrots	.23	.64	.359	A	C
Onions	.52	.51	1.020	A	C
Tomatoes	.74	.83	.892	A	C
Cucumbers	.62	.74	.838	A	C
Green beans	.30	1.00	.300	A	C
Green peppers	.40	1.10	.364	A	C
Fruits					
Peaches	1.50	.65	2.308	A	C
Plums	.80	.83	.964	A	C
Pears	1.00	.53	1.887	A	C
Apples	1.12	.53	2.113	A	C
Grapes	1.09	1.13	.965	A	C
Oranges	1.40	.58	2.414	A	C
Lemons	2.50	1.29	1.938	A	C
Watermelons	.30	.32	.938	A	C
Cantalopes	.36	.64	.562	A	C
Raisins	1.84	1.86	.989	A	C
Salt					
Salt	.10	.31	.32	A	C

Table A-2

Price Per Kilogram
Except as Noted

USSR and US: 1976 Price Comparisons for Food, Beverages, and Tobacco (continued)

	Rubles (State Stores, National Average)	Dollars	Price Ratio (Rubles Per Dollar)	Source *	
				USSR	US
Nonalcoholic beverages					
Tea	7.72	8.20	.941	B	E
Coffee	4.50	6.86	.656	B	E
Cocoa	5.10	6.04	.844	A	C
Carbonated fruit flavored drink (liter)	.16	.52	.308	A	C
Carbonated fruit flavored drink (liter)	.20	.58	.345	A	C
Mineral water (liter)	.40	.79	.506	A	C
Alcoholic beverages					
Vodka (liter)	8.00	6.82	1.173	A	D
Grape wine (liter)	1.90	2.02	.941	A	D
Brandy (liter)	19.40	16.41	1.182	A	D
Beer (liter)	.51	.83	.614	A	D
Tobacco					
Cigarettes (package of 20)					
Yava	.60	.55	1.091	B	E
Stolichnaya	.40			B	E
Feniks	.35			B	E
Cuban cigar (each)	.95	.95	1.000	B	E
Smoking tobacco (100 grams)	.62	.62	1.000	B	E

*A. Observed in Moscow.
B. Purchased in Moscow.
C. Observed in Washington Metropolitan Area, which was average for the United States.
D. Unpublished data from Bureau of Labor Statistics, Consumer Price Index.
E. Supplied by a US manufacturing company.

Table A-3

USSR: Initial and Adjusted Group Weights for Dollar-Ruble Ratios for Food, Beverages, and Tobacco

Commodity Group	Weights for Dollar-Ruble Ratios		Final Group Weights [2]	
	Billion Rubles [1]	Percent	Billion Rubles [1]	Percent
Bread and cereals	14.669	10.6	15.258	10.9
Meat and poultry	24.684	17.9	26.026	18.6
Fish	4.059	2.9	4.263	3.0
Dairy products and eggs	20.268	14.7	21.109	15.1
Oils and fats	2.413	1.7	2.685	1.9
Vegetables	4.492	3.3	4.688	3.3
Potatoes	4.117	3.0	4.189	3.0
Fruits	4.956	3.6	5.144	3.7
Sugar and confectioneries	10.860	7.9	11.266	8.0
Nonalcoholic beverages	2.680	1.9	2.748	2.0
Alcoholic beverages	34.906	25.3	35.508	25.3
Tobacco	3.808	2.8	3.808	2.7
Other				
Markup on restaurant meals	2.760	2.0		
Other food products	3.411	2.5	3.535	2.5
Total	**138.083**	**100.0**	**140.237**	**100.0**

[1] The group weights are based on the Soviet classification for products sold in state and cooperative stores with one exception—to make the Soviet and US data comparable, pastries were moved from sugar and confectioneries to bread and cereals (see table A-5).
[2] The markup on restaurant meals, listed separately in published retail sales statistics, was distributed among all food and beverage products based on a distribution of sales of public dining establishments in Kazakhstan in 1976 (*Narkhoz Kazakhstana*, 1977, p. 170) and information about products subject to the markup (N. N. Ryauzov and N. P. Titelbaum, *Statistika torgovli*, Moscow, 1976, p. 205 and N. V. Medova, *Ekonomika torgovli*, 1975, p. 338).

Table A-4

US: Initial and Adjusted Group Weights for Ruble-Dollar Ratios for Food, Beverages, and Tobacco [1]

Commodity Group	Weights for Ruble-Dollar Ratio		Weights for GNP	
	Billion Dollars	Percent	Billion Dollars [2]	Percent
Bread and cereals	18.658	7.67	23.742	9.8
Meat and poultry	39.896	16.40	60.594	24.8
Fish	7.010	2.88	10.416	4.3
Dairy products and eggs	22.589	9.29	30.822	12.7
Oils and fats	4.205	1.73	5.686	2.3
Vegetables	18.661	7.67	23.784	9.8
Potatoes	2.349	.97	2.905	1.2
Fruits	10.724	4.41	13.070	5.4
Sugar and confectioneries	4.794	1.97	7.564	3.1
Miscellaneous processed food	4.449	1.83	8.311	3.4
Nonalcoholic beverages	4.558	1.87	11.540	4.7
Alcoholic beverages	26.821	11.03	28.627	11.8
Tobacco	16.212	6.66	16.212	6.7
Consumption in kind	1.264	.52		
Other	61.083	25.11		
Restaurant meals	46.004			
Food to government and military	3.353			
Imported food	11.726			
Total	**243.273**	**100.0**	**243.273**	**100.0**

[1] *Survey of Current Business*, July 1979, p. 37 and unpublished data on personal consumption expenditures in million current dollars from the US Department of Commerce, Bureau of Economic Analysis.

[2] The adjusted group weights were derived from the initial weights as follows:

(a) Consumption-in-kind was distributed among meat and poultry, milk and milk products, vegetables, and potatoes according to shares given in US Department of Agriculture, *U.S. Agricultural Statistics*, 1977, various pages.

(b) Restaurant meals and food to the government and military were distributed to all food products and nonalcoholic beverages.

(c) Imported food was distributed to sugar and confectioneries, alcoholic and nonalcoholic beverages, meat, fruits, and vegetables according to import data from *US Statistical Abstract 1978*, p. 880.

Table A-5

Million Rubles

USSR: Derivation of Group Weights for Food, Beverages, and Tobacco, 1976

	State Stores Sales	Adjusted State Stores Sales [1]	CFM Sales [2]	Consumption-in-Kind [3]	Total
Total	**120,910**	**116,652**	**5,035**	**16,396**	**138,083**
Meat and canned meat	17,442	16,509			24,684
Meat and poultry	9,678	9,161	1,953	6,222	
Sausage	6,643	6,287			
Canned meat	1,121	1,061			
Fish and canned fish	4,289	4,059			4,059
Fish	2,850	2,697			
Canned fish	1,439	1,362			
Vegetable oil	1,181	1,118			1,118
Milk and dairy products	7,564	7,160			11,764
Milk and milk products	6,368	6,008	257	4,347	
Cheese	1,196	1,152			
Butter	4,097	3,878			3,878
Margarine	1,369	1,295			1,295
Eggs	3,002	2,842	136	1,648	4,626
Confectioneries	8,020	7,592			7,592
Potatoes	1,004	950	1,314	1,853	4,117
Vegetables and canned vegetables	3,888	3,680			4,492
Vegetables	2,845	2,692	524	288	
Canned vegetables	1,043 [4]	988			
Fruit and canned fruit	4,019	3,804			4,956
Fruit	2,975	2,815	851	301 [5]	
Canned fruit	1,044 [4]	989			
Flour products and groats	11,618	10,996		303	11,299
Flour	2,292	2,170			
Groats	1,485	1,405			
Bread and baked products	7,841	7,421			
Macaroni products	730	691			691
Sugar	6,283	5,947			5,947
Beverages	36,846	36,742			36,742
Alcoholic	34,906	34,906			
Other	1,940 [6]	1,836			

Table A-5

Million Rubles

USSR: Derivation of Group Weights for Food, Beverages, and Tobacco, 1976 (continued)

	State Stores Sales	Adjusted State Stores Sales [1]	CFM Sales [2]	Consumption-in-Kind [3]	Total
Tobacco	3,808	3,808			3,808
Tea	892	844			844
Salt	146	138			138
Unaccounted for	1,939 [6]	1,839		1,434 [7]	3,273
Public dining margin	2,773	2,760			2,760

[1] For purposes of weighting dollar-ruble ratios for food and tobacco consumption, we include military subsistence (2,590) with retail sales from state stores and exclude institutional purchases of food (6,438) and business travel meals (410). Military subsistence is prorated among all categories except alcohol, tobacco, and the public dining margin; institutional purchases are deducted on a pro rata basis from all categories except alcohol, tobacco, and the public dining margin; and business travel meals are deducted from all categories except tobacco and alcohol.

[2] Total CFM sales of food to households are allocated as follows:

(a) Commission prices for meat, milk and dairy products, eggs, potatoes, vegetables, and fruit in 1975 (*Narkhoz* 1975, p. 628) were divided by ratio of commission to CFM prices in 1964 (*Sov torg*, 1964, p. 166) to obtain estimated CFM price in 1976.

(b) These prices were multiplied by the quantities of CFM plus commission sales (appendix E, table E-3), which for each commodity group is essentially the difference between the marketed and total procurements.

(c) The shares of each food in total sales are then applied to CFM sales to households. The difference includes commission sales and institutional purchases on collective farm markets.

[3] Consumption-in-kind is derived by essentially the same methodology as used in CIA, *GNP 1970*, pp. 27-31. The method is based on the distribution of output of commodities through distribution and marketing channels with farm household consumption-in-kind as a residual. Details are given in appendix E, tables E-2 through E-5.

[4] The canned fruit and vegetables category (2,087 million rubles) is divided equally between canned fruit and canned vegetables.

[5] Arbitrarily estimated at 10.7 percent of fresh fruits. This is the ratio of consumption-in-kind of vegetables to total fresh vegetables.

[6] "Other" food sales (38,785 million rubles) are allocated to alcoholic beverages (34,906 million rubles), coffee and soft drinks (1,940 million rubles), and unaccounted for (1,939 million rubles). The difference between total "other sales" and sales of alcoholic beverages is simply divided equally among coffee, soft drinks, and a residual.

[7] Includes such items as nuts, mushrooms, fish and game, tea, sunflower seeds, and tobacco. There are no data with which to distribute this category.

Table A-6

USSR: Structure and Sources of the Value Weights for Food, Beverages, and Tobacco *

Type of Food	Group	Product	Item
Meat products	Total consumption [1]		
Meat and poultry		Retail sales [2]	Value of production [3]
Sausage		Retail sales	Value of production [4]
Fish	Total consumption [1]	Retail sales	Value of retail sales 1963 [5]
Canned goods	Total consumption [1]		
Meat		Retail sales [2]	Value of production [6]
Fish		Retail sales	Value of production
Fruits and vegetables		Retail sales	Value of production
Milk and dairy products	Total consumption [1]		
Whole milk products		Market supply [7]	Value of production [8]
Ice cream		Market supplies [7]	
Cheese		Retail sales [2]	Arithmetic average [9]
Butter		Retail sales	
Eggs	Total consumption [1]	Retail sales	Arithmetic average [9]
Vegetable oil and margarine		Retail sales [2]	
Sugar	Total consumption [1]	Retail sales	
Confectioneries	Total consumption [1]	Retail sales	Value of production [10]
Bread products	Total consumption [1]	Retail sales	Value of production [11]
Flour and cereal products	Total consumption [1]	Retail sales	Value of production
Potatoes	Total consumption [1]	Retail sales	Arithmetic average
Vegetables	Total consumption [1]	Retail sales	Retail sales [12]
Fruits	Total consumption [1]	Retail sales	Retail sales
Alcoholic beverages	Total consumption [1]	Stocks available [13]	
Nonalcoholic beverages	Total consumption [1]	Retail sales [14]	

* Soviet classification.
[1] Table A-5.
[2] *Narkhoz* 1977, p. 458.
[3] *Narkhoz* 1977, p. 259.
[4] *Vest stat*, No. 12, 1970, p. 84.
[5] *Sov torg*, 1964, p. 88
[6] *Narkhoz 1977*, p. 196. Shares were derived from production times observed prices.
[7] R. A. Lokshin, *Spros proizvodstvo torgovlya*, Moscow 1975, p. 107.
[8] *Vest stat*, No. 6, 1969, p. 86. Shares derived from production times observed prices.
[9] For cheese the average includes domestic processed cheddar and domestic Swiss-type. For eggs, the average includes fresh "table" eggs and fresh "dietetic" eggs.
[10] *Vest stat*, No. 12, 1970, p. 85. Shares derived from production times observed prices.
[11] *Vest stat*, No. 6, 1969, p. 85. Shares derived from production times observed prices.
[12] *Sov torg*, 1964, p. 89.
[13] Unpublished statistics from Prof. Vladimir G. Treml, Duke University.
[14] *Narkhoz 1977*, p. 485. Derived from the residual, except for tea which is given.

Table A-7

US: Structure and Sources of Value Weights for Food, Beverages, and Tobacco *

Type of Food	Group	Product	Item
Meat and poultry	Personal consumption expenditure [1]		
Beef and veal		Personal consumption expenditure [1]	CPI data [2]
Pork		Personal consumption expenditure [1]	CPI data [2]
Other meat		Personal consumption expenditure [1]	CPI data [2]
Poultry		Personal consumption expenditure [1]	CPI data [2]
Fish and canned fish	Personal consumption expenditure [1]	CPI data [2]	CPI data [2]
Fruits, fresh and processed	Personal consumption expenditure [1]	Per capita consumption [3]	
Vegetables, fresh and processed	Personal consumption expenditure [1]	Per capita consumption [3]	
Milk, dairy products	Personal consumption expenditure [1]		
Fluid milk		Personal consumption expenditure [1]	CPI data [2]
Other dairy products		Personal consumption expenditure [1]	CPI data [2]
Eggs	Personal consumption expenditure [1]	Personal consumption expenditure [1]	
Fats and oils	Personal consumption expenditure [1]	Personal consumption expenditure [1]	CPI data [2]
Grain mill products	Personal consumption expenditure [1]	CPI data [2]	
Flour		CPI data [2]	CPI data [2]
Cereals		CPI data [2]	CPI data [2]
Macaroni		CPI data [2]	CPI data [2]
Bakery products	Personal consumption expenditure [1]		
Bread		CPI data [2]	CPI data [2]
Other baked goods		CPI data [2]	CPI data [2]
Sugar and confectioneries		CPI data [2]	CPI data [2]
Nonalcoholic beverages		CPI data [2]	CPI data [2]
Alcoholic beverages		CPI data [2]	

* US classification modified to match the Soviet classification.
[1] *Survey of Current Business,* July 1979, p. 37 and unpublished data from the US Department of Commerce, Bureau of Economic Analysis.
[2] Unpublished data on the relative importance of expenditures on the products included in the Consumer Price Index, supplied by the Bureau of Labor Statistics, US Department of Labor.
[3] US Department of Agriculture, *National Food Situation,* March 1977, p. 14.

Appendix B

Derivation of Ruble-Dollar Ratios for Soft Goods and Durables

General Introduction

Description of the Sample. The sample of soft goods and consumer durables includes 163 items, most of which were purchased in the USSR and brought to the United States for analysis and price matching. Nine other items were priced in the USSR using detailed specifications for those particular items. The ICP study was used as the basis for selecting the array of sample items, and the ICP specifications served as a guide in the final choice of items to be purchased or priced.

The sample for soft goods and consumer durables represents all goods (other than food, beverages, and tobacco products) that are commonly bought by households in the USSR and the United States almost wholly through the retail trade network. The soft goods category includes textiles, clothing, footwear, personal and household supplies, and publications. The consumer durables category includes household furnishings and appliances, personal and recreational items, new cars, and car spare parts. The samples of soft goods and consumer durables were priced and aggregated into groups according to the classification used in each country. For the USSR, there are 14 groups of soft goods and 15 groups of consumer durables as listed in table B-3. On the US side, there are 11 groups each of soft goods and durables as listed in table B-4. Unlike the food category, for which groups are matched, groups of soft goods and durables for the two countries are not matched, although they are similar in content. Matching the classifications would have required much estimation from inadequate data and probably would not have improved the accuracy of the comparison at the category level.

The Soviet and US price comparisons of soft goods and durables highlight the differences in expenditure patterns by consumers in the two countries. US households spend somewhat more in retail markets for durables than for soft goods, while in the USSR about 70 percent of the total are soft goods and about 30 percent durables. These shares (based on the Soviet classification) and their corresponding ruble-dollar ratios in 1976 are as follows:

	USSR		US	
	Percentage Share	Dollar-Ruble Ratio	Percentage Share	Ruble-Dollar Ratio
Soft goods	70.0	0.767	46.5	1.136
Durables	30.0	0.772	53.5	1.376
Total	**100.0**		**100.0**	

Weighting Procedures. Price ratios for the sample of soft goods and durables are weighted by retail sales of these commodities in 1976 according to the classification used in each country. The procedure differs from that used in the 1964 comparison,[49] in which expenditures in the two countries were disaggregated and matched at each level, a procedure that required a great deal of estimation because the Soviet classification has more groups than the US classification, but lacks detail below the group level. For example, (1) Soviet data list separately textile fabrics, haberdashery and notions, and sewing machines while in US data these are not given separately and (2) expenditures in the USSR for clothing are classified as "sewn" or "knitted," whereas in the United States they are reported as "men's and boys'" or "women's and children's." Despite these differences, the category as a whole is quite comparable. Classification on the Soviet side follows that presented in *Narkhoz 1977*, pp. 458 and 459, and on the US side in *Survey of Current Business*, July 1979, p. 37. The hierarchy within the sample is shown in the following illustration:

[49] CIA, *A Comparison . . . 1964.*

Category	Soft Goods and Durables
Group	Clothing
Product	Children's coats
Item	Girl's raincoat

Representativeness. Representation within the major groups of soft goods and durables is generally good and is far superior to that in the 1964 study. For example, the individual items of soft goods and durables total 163, compared with 51 items in the earlier study. The size of the sample was constrained by the decision to purchase and ship Soviet goods to the United States for detailed analysis. Any limitation of size, however, is far outweighed by the precision of the price comparisons made possible by having most items in hand. To maintain the integrity and quality of the sample comparisons, other items were added only when the item was an important or common household expenditure, for example, cars, motorcycles, and spare parts.

Great care was taken in the selection of sample items of clothing, household items, and other nonfood goods. Each item was selected as typical of those most commonly bought, using as guides the ICP sample listings and specifications and expenditure patterns. All commodity groups in the Soviet classification of retail sales are adequately represented, as are all those in the US personal consumption expenditure accounts. Because the variety of soft goods and durables is much greater in the United States than in the Soviet Union, the sample is more representative of the narrow range of goods on the Soviet side.

Some groups are represented more fully than others. For example there are 11 toiletry and cosmetics items and seven medical items, a fairly large sample for products that represent only 3 percent and 2 percent of the Soviet consumption in these categories. Less well represented are glassware and china (two items) and toys and children's equipment (two items). Furniture and household appliance items make up more than a third of the total sample and are well represented. Furnishings for a typical family of apartment dwellers are included: a set of upholstered living room furniture and a dining room suite, a refrigerator, washing machine, television set, and other common nonfood household items.

Prices of Soft Goods and Consumer Durables

Prices of the individual items used in the ruble-dollar price comparisons are 1976 national average prices for the United States and national average prices in state and cooperative stores in the Soviet Union. The sample comprises a wide assortment of items representative of goods available in Soviet retail markets in mid-1976. Tables B-1 and B-2 list the ruble and dollar prices and price ratios for the 163 items in the sample. All items listed were bought in Moscow in mid-1976 and brought to the United States for analysis and pricing except for the nine items that are noted as priced, not purchased.

No account was taken of prices of goods traded on the illegal black market, where products such as Western jeans sell for up to 200 rubles, recordings of popular Western music for almost as much, as do other scarce items. Such luxuries are not usually affordable by the average worker.

Problems of Matching Specifications and Quality. Soviet consumer goods are generally poor in quality, and matching these goods with products marketed in the United States proved difficult. An extensive cooperative effort with US industry experts was launched to analyze the products brought to this country and to match them with US products. The items were judged principally on the basis of performance, that is, how well each one functioned as intended. Other characteristics—quality, design, material content, and appearance—were of secondary importance as criteria in the comparisons. Style and taste, which cannot be assessed fairly, were disregarded. Dozens of experts in US manufacturing, using these guidelines, performed laboratory analysis and made detailed assessments of each product. Their reports were then used by merchandising specialists, who selected US products that were their closest counterparts. The price for each US product was adjusted to take account of specific differences in design and quality. The results of this enormous effort, which lasted more than a year, provide the most reliable set of US-Soviet price comparisons yet made for such a large sample of goods.

Differences in typical Soviet and US products often mystified US manufacturers. Sheets and pillow cases in the USSR usually are made of coarse linen fabric, a commonplace material for household use; in the

United States, they are most often made of fabrics of blended cotton and synthetic fibers. Soviet-made top sheets are fitted over heavy blankets, envelope style, whereas in the United States only bottom sheets are fitted. Many aspects of clothing construction are strikingly different from US practice. For example, the man's suit, although judged equally as durable as its US counterpart, had features that make it unmarketable in the United States—inferior tailoring, poorly matched plaid, trousers without zippers, and hems with rugged facings for extra durability.

Among durables, one of the most difficult to match was the washing machine, because the design of the Soviet model is rarely seen in the United States. The machine, which is typical of purchases by Soviet households in 1976, is a portable apartment model with separate tubs for washing and spinning. Called semiautomatic, the washer had minimal automatic features—a pump for emptying and a hand-set timer; manual operations were required to fill for washing and rinsing and to transfer clothes to the spinner.

Not reflected in the comparison is the degree to which Soviet goods fail to satisfy consumers, a factor that gives a downward bias to the ruble-dollar ratios. The Soviet press provides a mass of evidence of poor quality and also a lack of availability of desired goods. Consumers complain about television sets with plastic that cracks from heat, refrigerator interior fittings that break, sewing machines that stitch unevenly and break threads, poor style and durability in shoes and clothing, and so on. Customers also complain about advertisements for goods that are rarely seen in stores, such as, clothes dryers, garbage disposals, air conditioners, food mixers, and mechanized garden tools. Housewives, most with full-time jobs away from the home, want more of such conveniences.

Sources of Soviet Prices. As explained above, Soviet prices of individual items are over-the-counter prices that were charged in Moscow in 1976. Officially, prices of almost all nonfood consumer goods are uniform throughout the country, except for furniture.[50] To verify that actual prices were the same in all price zones, price checks were made on particular models of refrigerators, washing machines, television sets, and small electrical appliances. Prices were the same in Minsk (Zone I), Moscow (Zone II), and Murmansk (Zone III). Because specifications for soft goods could not readily be determined, price comparisons for these items were less definitive. There were, however, no discernible price differences for clothing, footwear, and other soft goods in the three price zones. Prices for furniture in the comparisons are Moscow prices, which are representative of Zone II; for the other smaller zones, price information was not sufficient to construct national average prices.

Sources of US Prices. Dollar prices for items in the sample were supplied by US industry. They are 1976 national average prices for US products that closely match the purchased Soviet items, adjusted to account for design and quality differences. Where the US and Soviet products were not identical, as usually was the case, the companies were instructed to value the differences and adjust the dollar price accordingly.

To illustrate the detailed procedures used in deriving a single price match for one of the more complex items, the black and white television set, a summary of the steps in price matching is shown below. A US set priced at $149.95 was chosen as the closest match for the Soviet set priced at 280 rubles. The US set was found to be worth $19 more than the Soviet set, and the dollar price was reduced by this amount giving a final price of $130.95. The price adjustment was determined in the following manner:

Quality Differences: Soviet vs US TV Set	Adjustment to Price (US Dollar)
Inferior cabinet finish	−2.00
Manual vs automatic AC-DC switches and switch to battery	−3.00
External vs built-in battery source	−10.00
Fuses below UL safety standards	−2.00
Lacks UHF and VHF tuners	−10.00
Lacks light diffusion screen	−6.00
Picture lacks brightness and perimeter focus	−10.00
Inferior craftsmanship	−4.00
Slightly larger size	5.00
Battery charge light and internal and external antenna switch	3.00
Picture transmission has wider bandwidth	5.00
Warranty period 18 months vs one year	15.00
Total	**−19.00**

[50] M. V. Kokorev, *Tseny na tovary narodnogo potrebleniya*, Moscow, 1978, p. 170.

A comparison of passenger car prices in the US and Soviet economies is complicated by the fact that the USSR in 1976 mass produced only four basic models of cars—mainly small, 4-door sedans, all with 4-cylinder engines. By comparison, the United States in that year produced cars in many sizes, with 4-, 6-, and 8-cylinder engines and a large number of options and variations. The sample used for the comparison includes all four of the Soviet models. Three—Zhiguli, Moskvich, and Volga—were matched with their closest US counterparts, and the fourth—Zaporozhets—was assigned the price ratio for the Moskvich. The Zaporozhets is important in the Soviet total but has no close counterpart in the United States. US analogs of the first three models are those used in a recently completed study comparing machinery and equipment prices in the USSR and the United States.[51] The US 1972 retail prices were moved to 1976, using BLS retail price indexes and adjusted to include the cost of transportation from the factory. The Soviet prices are official 1976 retail prices. The specifications for comparison were principally: (1) the type of car, that is, the number of passengers, doors, and interior space; (2) wheel base, an indicator of size; (3) load capacity; (4) type of engine; and (5) type of transmission and number of speeds. These specifications generally indicate the capacity, performance, and productivity of the car.

Derivation of Weights

The weights for the commodity groups and the corresponding price ratios for the USSR are shown in table B-3 and for the United States in table B-4.

For the USSR. The category weights—for soft goods and for durables as a whole—are derived from consumption expenditure data as shown in appendix E, table E-1. Group weights within each category are based on retail sales of soft goods and durables in state and cooperative stores, adjusted to exclude services (such as clothing repair and drycleaning), institutional purchases, and commission sales and to include military subsistence and other consumption. The details of these adjustments are shown for soft goods in table B-5 and for durables in table B-6. Product and item weights for the dollar-ruble ratios are derived mainly from retail sales in state and cooperative stores disaggregated using product shares given in *Sov torg 1964* and other information. The nature of the sources of the price weights for the several levels of aggregation is set forth in table B-7.

For the United States. The category weights are consumer expenditures for soft goods and durables as given in the *Survey of Current Business,* July 1979, p. 37. The group weights are also taken from this source, supplemented by disaggregations supplied by the Department of Commerce. Product and item weights generally are from the unpublished "relative importance" tables of the Consumer Price Index, US Department of Labor, Bureau of Labor Statistics. Table B-8 describes the sources of the price weights for the three levels of aggregation.

[51] CIA, *Soviet Union and United States: Price Ratios for Machinery, 1967 Rubles–1972 Dollars,* ER 80-10410, September 1980. The analog for the Soviet cars and their US prices were based on work done by Battelle Laboratories, Columbus, Ohio.

The matching Soviet and US models of passenger cars are:

Zhiguli (VAZ 2101)	Ford Maverick
Moskvich 412	AMC Gremlin
Volga (GAZ 24)	Chevrolet Nova

Table B-1

Per Unit
(Except as Noted)

USSR and US: 1976 Price Comparisons for Soft Goods

	Unit	Rubles	US Dollars	Price Ratio (Rubles Per Dollar)
Textiles				
Cotton yard goods				
Broadcloth	Meter	1.32	2.17	.608
Drill	Meter	.85	1.50	.567
Bath towel	Each	1.90	1.58	1.203
Woolen goods				
Worsted suit fabric	Meter	18.00	11.00	1.636
Blanket	Each	39.90	37.06	1.077
Silk-like yard goods				
Nylon	Meter	5.60	1.94	2.887
Rayon	Meter	4.50	2.04	2.206
Linen				
Sheet	Each	6.65	2.49	2.671
Pillowcase	Each	1.71	1.24	1.379
Tablecloth	Each	7.90	11.99	.659
Apparel				
Men's and women's coats				
Man's overcoat	Each	155.00	96.60	1.605
Woman's fur trimmed coat	Each	188.50	247.50	.762
Woman's tailored coat	Each	92.00	42.70	2.155
Man's raincoat	Each	115.00	57.91	1.986
Men's and women's other apparel				
Man's wool suit	Each	97.00	102.00	.951
Woman's wool suit	Each	65.83	38.22	1.722
Man's wool slacks	Each	40.20	31.23	1.287
Man's work trousers	Each	27.20	22.24	1.223
Man's dress shirt	Each	9.60	7.00	1.371
Man's work shirt	Each	15.85	15.00	1.057
Man's pajamas	Each	21.90	19.99	1.096
Woman's cotton dress	Each	7.80	10.60	.736
Woman's cotton blouse	Each	19.00	9.19	2.068
Children's coat				
Boy's winter coat	Each	30.40	27.89	1.090
Girl's winter coat	Each	28.78	21.60	1.332
Girl's raincoat	Each	22.80	21.07	1.082
Children's other clothing				
Boy's dungarees	Each	14.80	3.32	4.458
Boy's shirt	Each	5.23	5.67	.922
Girl's blouse	Each	2.14	2.78	.770
Girl's pajamas	Each	5.60	6.33	.885

Table B-1

Per Unit
(Except as Noted)

USSR and US: 1976 Price Comparisons for Soft Goods (continued)

	Unit	Rubles	US Dollars	Price Ratio (Rubles Per Dollar)
Knitwear				
Knit outerwear				
Man's sweater	Each	20.50	22.60	.907
Man's scarf	Each	5.00	4.75	1.053
Woman's knit dress	Each	50.00	11.99	4.170
Boy's sweater	Each	14.60	15.99	.913
Child's knit hat	Each	2.63	2.99	.880
Knit underwear				
Man's undershorts	Each	2.55	1.13	2.257
Man's T-shirt	Each	3.00	1.43	2.098
Woman's slip	Each	10.00	6.50	1.538
Woman's briefs	Each	3.01	1.13	2.664
Woman's nightgown	Each	11.20	6.48	1.728
Hosiery				
Man's socks	Pair	1.70	.99	1.172
Girl's knee socks	Pair	.47	.45	1.044
Woman's nylon stockings	Pair	1.70	.70	2.429
Footwear				
Leather				
Man's street shoes	Pair	12.30	21.75	.566
Man's sandals	Pair	9.40	12.21	.770
Man's workshoes	Pair	10.90	16.93	.644
Woman's dress shoes	Pair	33.50	17.45	1.920
Woman's sandals	Pair	15.00	14.88	1.008
Child's leather oxfords	Pair	2.85	7.99	.357
Textile and combination				
Man's tennis shoes	Pair	4.15	10.34	.401
Woman's tennis shoes	Pair	2.80	4.40	.636
Woman's sandals	Pair	15.00	14.88	1.008
Felt footwear				
Child's felt boots	Pair	1.77	6.64	.267
Rubber footwear				
Man's rubber boots	Pair	8.00	9.61	.832
Child's overshoes	Pair	2.70	4.99	.541
Toiletries				
Toilet soap	3.2 oz. bar	.24	.11	2.182
Cosmetics and perfume	2.5 oz. tube	.40	.40	1.000
Shaving cream	2.5 oz. tube	.40	.40	1.000
Shampoo	8 oz. bottle	.50	.47	1.064
Man's hair dressing	2.5 oz. tube	.35	1.31	.267
Toothpaste	3.75 oz. tube	.38	.49	.776
Deodorant	4.8 oz. bottle	1.50	1.08	1.389

Table B-1

Per Unit
(Except as Noted)

USSR and US: 1976 Price Comparisons for Soft Goods (continued)

	Unit	Rubles	US Dollars	Price Ratio (Rubles Per Dollar)
Hand cream	1.5 oz. tube	.43	1.59	.270
Cologne	4.75 oz. bottle	1.00	2.98	.336
Perfume	.57 oz. bottle	2.50	4.70	.532
Lipstick	.1 oz. tube	1.10	.38	2.895
Talcum powder	1.7 oz. package	.04	.14	.286
Household soaps, detergents				
Bar soap	10 oz. bar	.19	.54	.352
Soap powder	10.6 oz. box	.32	.40	.800
Laundry detergent	8.8 oz. box	.27	.35	.771
Liquid cold wash detergent	16.9 fl. oz. bottle	.45	.72	.625
Scouring powder	8.8 oz. box	.23	.12	1.917
Glass cleaner	12 oz. bottle	.26	.59	.441
Metal cleaner	14.1 oz. bottle	.45	.23	1.957
Shoe polish	1.06 oz. can	.15	.55	.273
Haberdashery and notions				
Haberdashery				
Razor blades	Package of 10	.25	.35	.714
Toothbrush	Each	.22	.52	.423
Electric razor	Each	23.00	19.31	1.191
Woman's brassiere	Each	3.18	2.72	1.169
Woman's handbag	Each	9.25	11.80	.784
Briefcase	Each	8.00	39.20	.204
Man's leather belt	Each	1.05	5.00	.210
Notions				
Sewing thread	Spool	.10	.45	.222
School supplies				
School supplies				
Notebook	Each	.02	.09	.222
Lead pencil	Each	.02	.02	1.000
Drawing pencil	Each	.03	.02	1.500
Ball point pen	Each	.45	.50	.900
Envelopes, writing paper	25-piece set	.60	.78	.769
Typewriter	Each	135.00	44.99	3.001
Publications				
Newspaper, daily	Each	.03	.15	.200
Movie magazine	Each	.25	.77	.325
College textbook	Each	1.45	13.45	.108
Fiction, hardback	Each	.96	7.12	.135
Fiction, paperback	Each	.41	2.25	.182
Dictionary, hardback	Each	4.00	15.34	.261
Biography, slick paperback	Each	.50	3.95	.127
Gift book, poetry	Each	1.24	3.98	.312

Table B-1

Per Unit
(Except as Noted)

USSR and US: 1976 Price Comparisons for Soft Goods (continued)

	Unit	Rubles	US Dollars	Price Ratio (Rubles Per Dollar)
Paper supplies				
Shelf paper	83 sq. ft.	1.08	2.47	.437
Toilet tissue	Roll	.28	.28	1.000
Paper napkins	Package of 100	.34	.37	.919
Medical items				
Hot water bottle	Each	1.28	9.48	.135
Fever thermometer	Each	.39	1.13	.345
Iodine disinfectant	1 ounce	.09	.20	.450
Gauze bandages	1 roll	.14	1.86	.075
Multiple vitamins	Bottle of 50	1.59	1.45	1.097
Aspirin	Bottle of 100	.66	.75	.880

* With the exception of aspirin and publications, all consumer soft goods items were purchased in the USSR and their prices compared with those of counterpart items in the United States by US retailing or manufacturing firms. Soviet and US prices for aspirin are from Keith Bush, "Retail Prices in Moscow and Four Western Cities in May 1976," *Radio Liberty Research Supplement*, June 16, 1976, p. 11. The eight types of publications were purchased in Moscow and matched with American items by specialists in the Washington metropolitan area.

Table B-2

Per Unit
(Except as Noted)

USSR and US: 1976 Price Comparisons for Consumer Durables [1]

	Unit	Rubles	US Dollars	Price Ratio (Rubles Per Dollar)
Furniture and floor coverings				
Furniture				
Reclining chair	Each	79.00	151.12	.523
Living room arm chair	Each	51.00	136.42	.374
Sleep sofa	Each	142.00	199.85	.711
Dining room table	Each	53.00	114.05	.465
Dining chair	Each	14.20	26.15	.543
Bookcase or buffet	Each	78.50	196.19	.400
TV table	Each	47.89	60.07	.797
Coffee table	Each	19.00	80.66	.236
Footstool (ottoman)	Each	16.50	79.75	.207
Floor coverings				
Axminster rug *	4'5" by 6'6"	96.00	36.83	2.607
Kitchen and tableware				
Kitchenware				
Stainless steel flatware	3-piece set	1.70	1.17	1.453
Sauce pan	Each	3.30	9.41	.351
Vacuum bottle	Each	7.50	4.55	1.648
Can opener	Each	.55	.59	.932
Meat grinder	Each	4.76	16.46	.289
Kitchen brush	Each			
Glassware and china				
Soup plate	Each	.60	1.25	.480
Water glass	Each	.07	.15	.467
Cultural and recreational goods				
Sports equipment				
Fishing rod	Each	10.00	8.50	1.176
Badminton racket	Each	5.70	3.19	1.787
Toys and childrens' equipment				
Boys bicycle	Each	39.30	52.49	.749
Baby buggy	Each	40.50	58.20	.696
Radio equipment				
Radio receiver	Each	35.67	35.40	1.008
Television, black and white	Each	280.00	130.95	2.138
Television, color	Each	650.00	414.95	1.566
Television antenna	Each	25.00	26.43	.946
Tape recorder	Each	220.00	78.16	2.815

Table B-2

Per Unit
(Except as Noted)

USSR and US: 1976 Price Comparisons for Consumer Durables [1] (continued)

	Unit	Rubles	US Dollars	Price Ratio (Rubles Per Dollar)
Musical goods				
Guitar	Each	15.50	24.15	.642
Stereo record	Each	1.45	1.99	729
Camera				
35mm	Each	66.04	123.35	.535
Movie projector	Each	140.00	144.50	.969
Other durable goods				
Bicycle and motorcycle	Each			
Boys bicycle	Each	39.30	52.49	.749
Motorcycle *	Each	300.00	900.00	.333
Watches and clocks				
Man's digital watch	Each	105.00	20.00	5.250
Woman's watch	Each	33.05	18.95	1.744
Electrical goods				
Refrigerator	Each	347.74	232.50	1.496
Washing machine	Each	135.30	104.00	1.301
Vacuum cleaner	Each	52.00	30.55	1.702
Room heater	Each	16.50	11.99	1.376
Tea kettle	Each	7.00	20.45	.342
Hot plate	Each	20.00	21.60	.926
Iron	Each	5.70	8.81	.647
Sewing machine	Each	67.00	60.00	1.117
Automotive equipment				
New cars				
Zhiguli *	Each	5,500	3,564	1.543
Moskvich *	Each	6,100	3,250	1,877
Volga *	Each	9,200	3,743	2.458
Zaporozhets*	Each	3,500	NA	1.877
Spare parts				
Storage battery*	Each	45.00	20.30	2.217
Tire *	Each	61.00	24.00	2.542
Generator*	Each	50.00	42.00	1.190

Table B-2

Per Unit
(Except as Noted)

USSR and US: 1976 Price Comparisons for Consumer Durables [1] (continued)

	Unit	Rubles	US Dollars	Price Ratio (Rubles Per Dollar)
Household tools and other household items				
Pruning shears	Each	3.03	8.99	.337
Hammer	Each	1.00	1.31	.763
Screwdriver	Each	.55	1.26	.437
Broom	Each	2.10	2.69	.781
Candle	Each	.40	.28	1.429
Clothes hanger	Each	.51	.62	.823
Matches	Each	.01	.03	.333

* All consumer durables items except those noted with an asterisk were purchased in the USSR and matched with counterpart items in the United States by US retailing or manufacturing firms. The items not purchased were priced in the USSR and the United States on the basis of technical specifications as follows:

Items	Source of Soviet Price	Source of US Price
Axminster rug	Observed	Priced locally
Motorcycle	*ZaRulem No. 4, 1975*	Priced locally
New cars		
Zhiguli	*Sovetskaya Rossiya* various issues, 1976	Based on prices provided by Battelle Laboratories
Moskvich	*Sovetskaya Rossiya* various issues, 1976	Based on prices provided by Battelle Laboratories
Volga	*Sovetskaya Rossiya* various issues, 1976	Based on prices provided by Battelle Laboratories
Zaporozhets	*Sovetskaya Rossiya* various issues, 1976	Has no US counterpart
Spare parts		
Storage battery	Observed	National catalogs
Tire	Observed	National catalogs
Generator	Observed	National catalogs

Table B-3

USSR: Group Weights and Dollar-Ruble Ratios for Soft Goods and Consumer Durables, 1976

	Percentage Weights [1]	Dollar-Ruble Ratios [2]
Soft goods	**100.0**	**1.303**
Fabrics	11.4	.802
Sewn clothing	28.4	.744
Knitwear	14.7	.743
Hosiery	3.5	.670
Footwear	16.0	1.326
Toilet soap, cosmetics	3.2	1.129
Household cleaners	1.5	2.200
Haberdashery and notions	9.1	1.955
Matches	0.3	3.120
School supplies	2.2	2.040
Publications	3.9	5.859
Medical supplies	1.6	4.644
Paper supplies	0.3	1.518
Other	3.9	1.303
Consumer durables	**100.0**	**1.295**
Furniture and rugs	19.4	1.852
Kitchen utensils and tableware	9.4	2.084
Sports equipment	2.7	.739
Toys	3.6	1.457
Radios and TV sets	12.2	.395
Musical instruments	1.1	1.534
Photographic supplies	1.5	3.033
Bikes and motor bikes	4.8	2.756
Watches and jewelry	9.5	1.118
Household appliances	9.3	.913
Sewing machines	0.4	.938
New cars	17.3	.607
Car spare parts	1.8	.604
Household tools	3.5	1.906
Other	3.5	1.295

[1] Derived from household consumption data in tables B-5 and B-6.
[2] Includes US sales tax.

Table B-4

US: Group Weights and Ruble-Dollar Ratios for Soft Goods and Durables, 1976

Commodity Group	Expenditures (Billion $) [1]	Percentage Weights	Ruble-Dollar Ratios [2]
Soft goods	**140.212**	**100.0**	**1.136**
Women's and children's clothing	41.926	29.9	1.554
Men's and boys' clothing	22.470	16.0	1.531
Shoes and other footwear	11.514	8.2	.845
Toilet articles	10.540	7.5	.974
Cleaning preparations	13.821	9.9	.956
Drugs and medical supplies	10.415	7.4	.499
Semidurable furnishings	9.130	6.5	1.164
Stationery and supplies	3.239	2.3	.730
Books	3.700	2.6	.156
Magazines and newspapers	8.095	5.8	.206
Other [3]	5.362	3.9	1.136
Durables	**161.207**	**100.0**	**1.376**
Furniture and rugs	19.963	12.4	1.164
Household appliances	11.207	7.0	1.347
China and utensils	6.387	4.0	1.336
Other durable furnishings	9.938	6.1	1.343
Jewelry and watches	7.166	4.4	1.855
Sports, recreation, and wheel goods	20.011	12.4	.841
Radio, TV, musical instruments, and records	16.528	10.3	1.294
New cars	39.447	24.5	1.679
Other motor vehicles	8.456	5.2	.352
Automotive spare parts	.8.341	5.2	1.937
Used cars	13.763	8.5	1.801 [4]

[1] *Survey of Current Business*, July 1979, p. 37. Yard goods in the US accounts is included in women's and children's clothing and semidurable furnishings.
[2] Includes US sales tax.
[3] Sample omits "other": flowers, seeds, potted plants, pets, and net expenditures abroad.
[4] Ratio for the Moskvich, the most common used car in 1976.

Table B-5

Billion Rubles

USSR: Derivation of Group Weights for Soft Goods, 1976

	Retail Sales	Less Services [1]	Less Institutional Purchases [1]	Less Commission Sales [1]	Plus Other Consumption	Plus Military Subsistence	Equals Household Consumption
Soft goods, total	**65.982**	**4.018**	**1.495**	**.200**	**.303**	**1.382** [2]	**61.954**
Fabrics	7.155		.157			.019	7.017
Sewn clothing	20.462	2.851 [3]	.450	.200		.516	17.477
Knitwear	9.430	.471	.208		.043 [4]	.268	9.062
Hosiery	2.168		.048			.065	2.185
Footwear	10.265	.503	.225			.290	9.827
Toilet soap, cosmetics	1.983		.043			.059	1.999
Household soaps	.940		.021				.919
Haberdashery and notions	5.537		.121			.165	5.581
Matches	.164		.003				.161
School supplies	1.365		.030				1.335
Publications	2.425		.054				2.371
Subtotal	**61.894**						**57.934**
Residual, allocated to:	4.088						4.020
Medical supplies	1.000		.022				.978
Paper supplies (household)	.200		.004				.196
Gasoline and oil [5]	.388						.388
Other	2.500	.193	.109		.260 [6]		2.458

[1] Services were allocated to specific categories on the basis of information in *Narkhoz za 60 let*, p. 569. Institutional purchases were allocated on the basis of the shares given for 1968 in *Vest stat*, No. 5, 1971, pp. 36-37. Commission sales were assumed to consist of used clothing.

[2] Allocated to appropriate groups on the basis of their shares in sales to households for consumption.

[3] Includes repair and tailoring (2.624), dry cleaning (0.135), and laundry services (0.092).

[4] Household consumption in kind of wool.

[5] Gasoline and oil have been assigned to automotive services, appendix C.

[6] Household purchases in collective farm markets.

Table B-6 Billion US $

USSR: Derivation of Group Weights for Durables, 1976

	Retail Sales	Less Services [1]	Less Institutional Purchases [1]	Less Commission Sales	Equals Household Consumption
Total Durables	**30.280**	**1.369**	**1.780**	**.800** [2]	**26.331**
Furniture and rugs	5.649	.100	.408	.020	5.121
Kitchen utensils and tableware	2.690		.198	.020	2.472
Sports equipment	.769		.057		.712
Toys	1.027		.075		.952
Radios and TV sets	3.686	.210	.271		3.205
Musical instruments	.332 [3]		.025	.020	.287
Photographic supplies	.709 [3]	.270	.052		.387
Bikes and motor bikes	1.384		.101	.020	1.263
Watches and jewelry	2.905	.164	.212	.020	2.509
Household appliances	2.817	.160	.206		2.451
Sewing machines	.136 [3]	.007	.011		.118
Subtotal	**22.104**				**19.477**
Residual allocated to:	8.176				6.854
New cars	4.809	.265			4.544
Car spare parts	.486				.486
Household tools	1.000		.073		.927
Other	1.881	.193	.091	.700	.897

[1] Services were allocated to specific categories on the basis of information in *Narkhoz za 60 let*, p. 569. Institutional purchases were allocated on the basis of the share given for 1968 in *Vest stat*, No. 5, 1971, pp. 36-37.
[2] Arbitrary allocation. Most are assumed to be used cars.
[3] Retail sales are reported for "Other cultural goods." Most are assumed to be cameras and supplies and are so allocated in the final weights.

Table B-7

USSR: Structure and Sources of Value Weights for Soft Goods and Consumer Durables, 1976

Type of Commodity	Group	Product	Item
Fabrics	Total consumption [1]	Retail sales [2]	Retail sales [3]
Sewn clothing	Total consumption [1]	Retail sales [2]	Retail sales [4]
Knitwear	Total consumption [1]	Retail sales [2]	Retails sales and population data [5]
Hosiery	Total consumption [1]	Retail sales [2]	Retail sales and population data [5]
Footwear	Total consumption [1]	Retail sales [2]	Retail sales and population data [6]
Toilet soap, cosmetics	Total consumption [1]	Retail sales [2]	Estimates [7]
Household soaps	Total consumption [1]	Retail sales [2]	Estimates [8]
Haberdashery and notions	Total consumption [1]	Retail sales [2]	Estimates [9]
Matches	Total consumption [1]	Retail sales [2]	
School supplies	Total consumption [1]	Retail sales [2]	Retail sales [10]
Pubications	Total consumption [1]	Retail sales [2]	Arithmetic average [11]
Medical supplies	Total consumption [1]	Derived from residual	Arithmetic average [12]
Paper supplies (household)	Total consumption [1]	Derived from residual	Arithmetic average [13]
Furniture and rugs	Total consumption [1]	Retail sales [2]	Production [14]
Kitchen utensils and tableware	Total consumption [1]	Retail sales [2]	Production and estimates [15]
Sports equipment	Total consumption [1]	Retail sales [2]	Production and estimates [16]
Toys	Total consumption [1]	Retail sales [2]	Production and estimates [17]
Radios and TV sets	Total consumption [1]	Retail sales [2]	Production and estimates [18]
Musical instruments	Total consumption [1]	Retail sales [2]	Arithmetic average [19]
Photographic equipment	Total consumption [1]	Derived from residual	Estimated [20]
Bikes and motor bikes	Total consumption [1]	Retail sales [2]	Production [21]
Watches and jewelry	Total consumption [1]	Retail sales [2]	Estimated [22]
Household appliances	Total consumption [1]	Retail sales [2]	Retail sales [23]
Sewing machines	Total consumption [1]	Retail sales [2]	
Other cultural goods	Total consumption [1]	Retail sales [2]	
New cars	Total consumption [1]	Derived from residual	Estimated sales [24]
Car spare parts	Total consumption [1]	Derived from residual	Retail sales [25]
Household tools	Total consumption [1]	Derived from residual	Arithmetic average

[1] Tables B-4 and B-5.
[2] *Narkhoz 1977*, p. 458, 459.
[3] *Sov torg 1964*, pp. 90-92. This category includes fabric (cotton, wool, linen, silk, and synthetic fiber) and household textiles (sheets, blankets, towels, and table linens). The weighting of fabrics and household textiles for each type of fiber required some estimating. Fabrics of silk and synthetic are weighted by total production valued in observed prices. Where item weights were not available, arithmetic averages and estimated shares were used.
[4] *Sov torg 1964*, p. 91. *Narkhoz 1977*, p. 458. Retail sales were disaggregated using the 1963 breakdown for men's, women's, and children's clothing.
[5] Distribution of retail sales of knitwear and hosiery items was made on the basis of 1976 population data for men, women, and children provided by the Foreign Demographic Analysis Division (FDAD), Bureau of the Census, US Department of Commerce.
[6] Distribution based on data in *Sov torg 1964*, p. 91, and 1976 population data from FDAD.
[7] Estimated weights for 11 toiletry and cosmetic items are based on observed patterns of use.
[8] Estimates are based on production of solid, liquid and powdered soaps and detergents, *Maslo-zhirovaya promyshlennost'*, No. 9, 1977, and No. 5, 1978.
[9] Estimated weights for 10 items of haberdashery and notions (leather goods, razors, sewing threads, etc.) are based on observed patterns of general use.
[10] *Sov torg 1964*, p. 92.
[11] The weight is the arithmetic average of prices of newspapers, magazines, and six types of hardback and paperback books.
[12] The weight is the arithmetic average of prices of seven medical items sold over the counter at drug stores.
[13] The weight is the arithmetic average of prices of wrapping paper, paper napkins, and toilet tissue.
[14] The weights are based on production data given in Lokshin, *op. cit.*, p. 197, valued in observed prices.

[15] Except for the weight for meat grinders, Lokshin, *op. cit.*, p. 189, items were assigned weights based on observed use patterns.
[16] Arithmetic average of two sports items, boy's bicycle and baby buggy.
[17] Weights for five items (a radio, two television sets, a TV antenna, and a tape recorder) are based on production data in Lokshin, *op. cit.*, p. 197, valued in observed prices.
[18] Arithmetic average of prices of two items, a guitar and a stereo record.
[19] Weights for two items, a 35-mm camera and a movie projector were estimated on the basis of observed use patterns.
[20] Weights for two items, a bicycle and a motorcycle, are based on 1976 production, disaggregated using production shares from *Sov torg 1964*, p. 92, and valued in observed prices.
[21] Weights for items (a woman's watch and a man's digital watch) were estimated on the basis of observed use patterns.
[22] Weights for seven household appliances (a refrigerator, washing machine, vacuum cleaner, room heater, tea kettle, hot plate, and an electric iron) are from *Sov torg 1964*, p. 92.
[23] Weights are based on 1976 production valued in observed prices for the Zhiguli, Moskvich, Volga, and Zaporozhets. Because the tiny Zaporozhets has no counterpart in the United States, it was assigned the price ratio of the Moskvich.
[24] Based on 1976 average expenditure for replacement parts for the Zhiguli, Moskvich, Volga, and Zaporozhets, *Za rulem* No. 5, 1979, p. 12.
[25] Arithmetic average of prices for seven items; a hammer, pruning shears, screwdriver, broom, candles, and two types of clothes hangers.

Table B-8

US: Structure and Source of Value Weights for Soft Goods and Consumer Durables, 1976

Type of Commodity	Group	Product	Item
Fabrics	Personal consumption expenditures [1]	Production [2]	Production [2]
Women's and girls' clothing	Personal consumption expenditures	CPI data [3]	CPI data [3]
Men's and boys' clothing	Personal consumption expenditures	CPI data	CPI data [3]
Shoes and other footwear	Personal consumption expenditures	CPI data	CPI data [3]
Toilet articles	Personal consumption expenditures	CPI data	CPI data [4]
Cleaning preparations	Personal consumption expenditures	CPI data	CPI data [4]
Drugs and medical supplies	Personal consumption expenditures	CPI data	CPI data [4]
Semidurable furnishings	Personal consumption expenditures	CPI data	CPI data [4]
Stationery and writing supplies	Personal consumption expenditures	CPI data	CPI data [5]
Books	Personal consumption expenditures	CPI data	CPI data [6]
Magazines and newspapers	Personal consumption expenditures	CPI data	CPI data [6]
Furniture and bedding	Personal consumption expenditures	CPI data	CPI data [6]
Household appliances	Personal consumption expenditures	CPI data	CPI data [6]
China, glassware, and utensils	Personal consumption expenditures	CPI data	CPI data [6]
Other durable furnishings	Personal consumption expenditures [7]	CPI data [3]	CPI data [6]
Jewelry and watches	Personal consumption expenditures	CPI data	CPI data [8]
Sports, recreation, and wheel goods	Personal consumption expenditures	CPI data	CPI data [8]
Radio, TV, musical instruments, and records	Personal consumption expenditures	CPI data	CPI data [8]
New cars	Personal consumption expenditures	CPI data	
Automotive spare parts	Personal consumption expenditures	CPI data	

[1] *Survey of Current Business*, July 1979, p. 37, and unpublished data from the US Department of Commerce, Bureau of Economic Analysis.
[2] *Statistical Abstract of the United States, 1977*, p. 812, US Department of Commerce, Bureau of the Census.
[3] Unpublished "relative importance" tables of the Consumer Price Index, US Department of Labor, Bureau of Labor Statistics.
[4] *Ibid.* Relative importance data were available for about half of the items. Weights for the remainder of the items are estimates.
[5] Arithmetic average of prices of envelopes and writing paper and school notebooks.
[6] "Relative importance data," *loc. cit.* Weights for a few items are estimates.
[7] Includes floor coverings, clocks, household tools, and supplies.
[8] Includes some estimating.

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Appendix C

Derivation of Ruble-Dollar Ratios for Household Services

General Introduction

Description of the Sample. The sample of household services consists of 64 individual items, aggregated into seven groups as follows: housing, utilities, transportation (public), communications, repair and personal care, recreation, and automotive services. The array of the sample items and their specifications is based on that of the ICP study. The arrangement of the types of services for the purpose of USSR-US price comparison follows the classification used in the GNP accounts for the USSR.

In the USSR, household services are supplied primarily by state enterprises at prices that are set by national or regional authorities. National prices, which are uniform for the entire country, are available from Soviet official publications; regional prices, which vary widely in different parts of the country, are more difficult to obtain. Because of governmental subsidies and relatively cheap labor, Soviet prices for all household services are low compared with prices in the United States. The Soviet-weighted price ratios range from .118 rubles per dollar for housing rent to .988 for automotive services. Table C-1 presents a summary of the weights and price ratios for household services in the two countries in 1976. The individual item ratios are shown in table C-2.

A comparison of household services in the two countries highlights important differences in expenditure patterns. Soviet households spend much smaller shares for rent than do US households, partly because of subsidies, and they spend larger shares relatively for public transportation, recreation, and repair and personal care services.

Weighting Procedures. Price ratios of household services are weighted by expenditures for these services in Soviet and US households in 1976. The Soviet group weights are derived from consumer expenditures in the GNP accounts (see appendix E for derivation). Weights for individual types of services within major groups were obtained or estimated from a variety of Soviet sources; details are given in table C-3. The US weights for major service groups and individual types of services are based on estimates of US personal consumption expenditures for services by the Department of Commerce and the expenditure data underlying the Consumer Price Index furnished by the Department of Labor. Because the grouping of these data did not always coincide with the ruble-dollar ratio groups used in this study, a good deal of reclassification of data was required.

Representativeness. The sample of 64 individual services includes all items that are to be found in the expenditure patterns of both countries. Each of the major groups includes most, or all, of the major services that are characteristic of that group. The grouping of services follows that used in the GNP accounts for the USSR, which in general conforms to that formally used by the USSR or to that in which published data can be readily aggregated.

In general, US data have been restructured to fit the classification used for Soviet data, thus providing comparable groupings of these services for the two countries. The types of service within each group may differ to some extent, however, because of differences in customs and level of economic development. For example, Soviet statistics for repair and personal care include public baths, a service rarely found in the United States. In contrast, the United States provides many services that are totally or almost wholly absent in the USSR; these are mainly financial, legal, religious, and private welfare services. Labor union dues, included in miscellaneous services in US expenditures, are treated

in the GNP accounts for the USSR as transfer payments (rather than consumer services), because union and other dues are used to finance outlays considered to be public sector expenditures.

Probably least representative of household services is the comparison for housing, particularly on the US side. The ruble-dollar comparison is based on rent for a typical Soviet urban apartment, matched with the most nearly comparable unit in the United States, and does not reflect expenditures for individual houses, the most common urban dwelling in the United States and the least common in the USSR. For the United States, the comparison is not truly representative even of housing available to most renters, much less the typical US home that is family owned and occupied.

The ruble-dollar comparison for rents, which is explained in detail in table C-2, is fairly representative of rents for contemporary urban apartments in the USSR. About 70 percent of urban families now live in "self-contained" flats; the rest live mainly in communal housing, where kitchens and baths are shared.[52]

The supply of housing has been much improved since the Stalin era through large investments in construction of new apartments, but the quality is deplorable by Western standards.[53] Even though basic rental rates set in the USSR in 1928 remain unchanged, rental costs to householders have inched upward as the Soviets continue to upgrade the housing stock. Many adjustments to the basic rent are made: for location, age and state of repair of buildings, income of occupants, special amenities, and numerous others.[54] In 1976, the standard rental rate was 13.2 kopeks per square meter of living space; the maximum rate was 16.5 kopeks.

Prices of Household Services

Prices for the individual items used in the ruble-dollar comparisons are 1976 national average prices, except where these were not available or not appropriate. For the latter, prices in Moscow and in the Washington area were compared. In the USSR, the central government sets prices for housing and other services considered to be basic necessities of life, and these are uniform for the entire country. For other services, notably repair and personal care, prices are set by regional or local authorities. The private sector provides a sizable share of total repair and personal care services. The Soviet press reports, for example, that in 1976 one in every four orders for "everyday" services was placed with a private individual.[55] Table C-2 shows the Soviet and US price ratios for specific items.

Problems of Matching Specifications and Quality. Nowhere in the consumption comparisons are the differences more apparent between a society that is consumer oriented and one that is not than in the kinds of consumer services provided. An economy that is not geared to the satisfaction of consumer demand can be expected to produce qualitatively inferior services, as it does inferior goods. Indeed, differences in living levels are most clearly reflected in the services sphere. The USSR furnishes housing in large apartment complexes, mass transportation, and a poorly developed array of personal care and repair services. In contrast, the pattern of services in the United States is typified by the privately owned family home, one or more cars per household, and a host of services designed to satisfy consumer needs and pleasures. In the USSR, services such as drycleaning and repair of appliances are recently developed and are not widely available outside the larger cities.

For these reasons, consumer services in the USSR usually compare poorly with those in the United States; an exception is laundry service, which is both inexpensive and well done in the USSR. For services in general, a single example, transportation, is sufficient to illustrate the differences commonly found. Soviet train, bus, and air fares are cheap, but few comforts and conveniences are provided to customers. As Western visitors well know, airports and stations are unbelievably crowded, dismal, and unkept; schedules may be changed without notice or explanation, seat space is minimal, and food service is poor, if offered at all.

[52] A. Andreyev, *Housing*, Moscow, 1978, pp. 14 and 15.

[53] For further discussion of this subject, see Henry W. Morton, "The Soviet Quest for Better Housing—An Impossible Dream?", JEC, *1979*, pp. 790-810.

[54] A. J. Dimaio, Jr., *Soviet Urban Housing Problems and Policies*, Praeger Publishers, New York, 1974, pp. 144-149.

[55] *Literaturnaya gazeta*, 9 January 1976, p. 13.

Despite these problems in matching specifications and quality, the services used in the comparison do fulfill comparable consumer needs and, therefore, are assumed to be the same for the purposes of this study. In a few cases (for example, hotel rates), prices were discounted to allow for known differences in the quality of service. Because the extent of comparability of household services varies from one item to another, the ruble-dollar ratios are subject to errors in both directions. On balance, however, they are almost certain to be somewhat low.

Sources of Soviet Prices

Soviet prices were derived from information collected from many sources, the most important of which are (1) price data collected in Moscow in 1976, (2) information reported by observers in various parts of the country, and (3) Soviet official publications and price lists. Prices for housing, transportation, and communications are all set by the central government and are by definition national average prices. Prices for other services—repair and personal care and recreation—are set regionally and vary widely from one area to another. Many of these services also are performed by private individuals, usually at prices higher than those at state enterprises. To account for regional variations and the state versus private differentials, adjustments were made to the Moscow prices. Details of these adjustments are shown in table C-2. The giving of tips or gratuities and under-the-counter payments for services rendered are ignored in the price comparisons.

Prices reported by observers in various parts of the country show, as expected, that prices of services set regionally are higher in the south, north, and far east than they are in the central region. Soviet writers often discuss such price variations in studies of the cost of living in different regions. In an effort to estimate regional variations and state versus private differentials, prices of 17 selected service items were collected in a number of cities. Based on the results of these data, an upward adjustment of 10 percent was made to the Moscow prices for recreation, repair and personal care, and housing repair for areas away from the central region (using population data). To allow for work done by the private sector, prices for repair and personal care services were increased by 20 percent over the adjusted state price for the estimated share of each service that was performed privately. These adjustments are shown in table C-2. The state and private sector prices were weighted by percentage shares based on a study made in Belorussia for the period 1971-73. The data are as follows:

Service	Percent			
	State	Private	Self Help	Private as Percent of State
Shoe repair	90	8	2	9
Clothing repair	88	7	5	8
Tailoring	81	18	1	22
Furniture repair	92	6	2	7
Auto repair	79	16	5	20
Dry cleaning	91	1	9	1
Laundry	87	9	4	10
Barber, hairdressing	93	2	5	2
Household equipment repair	96	2	2	2
Radio TV repair	93	4	3	4
Housing repair (and private construction)	44	45	11	102

Source: A. I. Goranin, *Voprosy kachestva bytovykh uslug*, 1975, p. 25.

Sources of US Prices. US prices for household services, except for housing, are 1976 national average prices taken principally from data underlying the Bureau of Labor Statistics' Consumer Price Index or from unpublished BLS data. Items for which prices were not available from BLS were priced locally or were obtained from various US journals and catalogs. Where local prices were used—for example, automotive services, taxi fares, and tickets to sports events—prices in the Washington area were matched with prices in Moscow. Sources for the prices of individual items in the sample are given in table C-2 under methodology and sources.

Derivation of Weights

The process of weighting the price ratios involves the averaging of prices for individual services in terms of their relative importance in each country's expenditures.

For the USSR, the dollar-ruble ratios for individual services and service groups are weighted by total expenditures for these services by households in the USSR in 1976. The methodology for deriving the weights differs for each of the seven groups; details of the methodology and sources are given in table C-3. Weights for individual services within groups are explained in table C-4.

For the United States, the price ratios for individual services and service groups are weighted by expenditures of households in 1976. The expenditure data for the services groups are US Department of Commerce data on consumer expenditures as published in the *Survey of Current Business,* and within groups the weights are from unpublished data used in construction of the BLS Consumer Price Index. The weights and ruble-dollar ratios for consumer services are given in table C-5.

Table C-1

USSR and US: Summary Weights and Price Ratios for Household Services, 1976

Type of Service	USSR Weights		US Weights	
	Percent	Dollar-Ruble Ratios	Percent	Ruble-Dollar Ratios
Housing rent and repair	14.4	6.265	38.1	.160
Utilities	16.4	2.909	12.0	.451
Transportation (public)	27.1	3.462	2.2	.266
Communications	6.1	2.910	5.3	.346
Repair and personal care	24.3	2.773	7.0	.505
Recreation	9.3	6.229	5.1	.381
Automotive services [1]	2.4	1.358	15.7	.944
Miscellaneous	0.0		14.6	.536
Total household services	100.0	3.781	100.0	.420

[1] The ruble-dollar ratio includes prices for labor services and replacement parts.

Table C-2

USSR and US: 1976 Price Comparisons for Household Services

Item	Unit	US Price (Dollar)	USSR (Rubles)			Price Ratio
			State Price	Regionally Adjusted [1]	State-Private Adjustment [2]	(Rubles per Dollar)
Housing						
Rent	Square meters per year	13.44	1.58			.118
Repair						
Material						
Plywood	Thousand square feet	2.65	1.42			.536
Cement	80-pound bag	2.78	1.28			.461
Brick	Per thousand	86.10	33.00			.383
Paint	Per gallon	7.69	6.00			.780
Nails	Per kilogram	.56	.45			.804
Services						.367
Utilities						
Electricity	Per 100 kilowatthour	7.03	4.00			.569
Residential gas	Per cubic meter	.107	.02			.187
Water-sewer	Per cubic meter	.28	.065			.232
Coal	Per ton	68.68	16.80			.245
Kerosene	Per liter	.12	.10			.833
Transportation						
City bus		.34	.05			.147
Subway		.50	.05			.100
Railroad coach	Per kilometer	.044	.027			.614
Intercity bus	Per kilometer	.037	.018			.486
Airplane	Per kilometer	.075	.022			.293
Taxi	Per kilometer	.444	.10			.225
Communications						
Telephone						
Household	Per month	6.22	2.50			.402
Local call	Each	.15	.02			.133
Long distance (350 kilometers)	3 minutes	1.30	.45			.346
Telegraph	15 words	4.75	1.03			.217
Airmail letter	Ounce	.13	.08			.615

Table C-2

USSR and US: 1976 Price Comparisons for Household Services (continued)

Item	Unit	US Price (Dollar)	USSR (Rubles)			Price Ratio
			State Price	Regionally Adjusted [1]	State-Private Adjustment [2]	(Rubles per Dollar)
Repair and Personal Care						
Man's haircut	Each	3.58	.60	.62	.62	.173
Boy's haircut	Each	2.75	.20	.20	.20	.073
Woman's haircut	Each	4.33	2.20	2.26	2.27	.524
Woman's permanent	Each	19.75	2.80	2.87	2.88	.146
Woman's shampoo and set	Each	4.85	1.50	1.54	1.55	.320
Dry cleaning						
Man's suit	Each	2.45	1.90	1.95	1.99	.812
Woman's dress	Each	2.41	1.05	1.08	1.10	.456
Self service	5 kilograms	5.50	2.00			.364
Laundry, cash and carry	Each					
Man's shirt	Each	.52	.40	.41	.42	.808
Flatwork	5 kilograms	4.68	.75	.77	.78	.167
Self service	Kilogram	.08	.10	.10	.10	1.250
Shoe repair						
Man's half-sole and heel	Pair	6.60	2.11	2.16	2.20	.333
Woman's heel lifts	Pair	1.90	.75	.77	.78	.411
Tailoring man's suit		150.00	43.00	44.08	50.43	.336
Hemming woman's dress		3.82	2.00	2.05	2.46	.644
Dressmaker charge		15.00	13.50	13.84	15.83	1.055
Reupholster chair		212.63	70.00	71.75	78.78	.370
General housework		2.63	2.00	2.05	2.05	.779
Replace color TV picture tube		206.85	100.00	102.50	103.32	.500
Sewing machine repair		30.77	7.00	7.36	8.83	.287
Funeral and burial		1,242.00	250.00			.201
Recreation						
Hotel, motel	Per day	29.95	5.00	5.07		.167
Movie ticket	Each	1.88	.20	.20		.106
Circus ticket	Each	6.00	2.00	2.05		.342
Soccer, basketball ticket	Each	7.00	1.20	1.23		.176
Musical performance	Each	6.24	3.00	3.08		.494
Piano lesson	Each (1 hour)	4.75	3.75	3.84		.808
Swimming pool fee	Each	1.25	.50			.400

Table C-2

USSR and US: 1976 Price Comparisons for Household Services (continued)

Item	Unit	US Price (Dollar)	USSR (Rubles)			Price Ratio
			State Price	Regionally Adjusted [1]	State-Private Adjustment [2]	(Rubles per Dollar)
Automotive						
Motor tuneup and chassis lubrication		50.00	80.00	82.00	85.28	1.706
Repair flat tires		2.50	2.00	2.05	2.13	.852
Reline rear brakes		18.00	10.00	10.25	10.66	.592
Replace spark plugs		4.78	2.40			.502
Car wash		3.00	3.00	3.08	3.20	1.067
Driver's license		2.20	11.40			5.182
Storage battery	Each	20.30	45.00			2.217
Auto tire	Each	26.00	61.00			2.346
Generator		42.00	50.00			1.190
Gasoline	Liter	.158	.095			.601
Motor oil	Liter	1.09	.72			.661
Brake fluid	Liter	4.70	2.00			.426
Antifreeze	Liter	1.06	.45			.425

[1] Prices for repair and personal care and housing repair were increased by 10 percent over state prices for regions to the south, far north, and far east based on population data. The regional adjustment gives a weighted national average price.

[2] Prices for repair and personal care were increased by 20 percent over the adjusted state price for that share of the particular service that is performed by the private sector. The state-private adjustment gives weighted average prices for these services.

Methodology and Sources for Table C-2

Housing

Rent

The dollar-ruble ratio for housing is based on the ruble price per year of an average size urban apartment in the USSR and the dollar price for a comparable apartment in the United States. The United States equivalent was derived by use of regression coefficients from the UN comparison study.

According to a recent Soviet source, the cost of a typical apartment for an urban family of four occupying a total of 45 square meters of space including bath and kitchen facilities is given as 15.58 rubles a month in 1977.[a] This monthly payment includes the cost of rent and utilities as follows:

	Rubles
Rent	5.94
Heat and hot water	5.00
Electricity	4.00
Gas	.64

The rental rate of 5.94 rubles per month is equal to an annual rate of 1.58 rubles per square meter per year used in the present ruble-dollar comparison.[b] The US analog for this type of apartment was derived using regression coefficients presented in table 9.5 of the ICP study.[c]

The typical Soviet apartment is assumed to differ from the base characteristics used in the ICP analysis as follows:

	Log of Rent
Central heating	0.1449
Multiple unit	0.0449
Deteriorating condition	−0.0879
Built in 1950-54	0.3250
Two rooms	0.0850
Constant term	3.4213
Total	**3.7532**
Antilog	$42.66

This figure is further adjusted to make the date of reference 1967 and then to put it in 1976 prices. The adjustment factor for 1967 is 1.011,[d] and for inflation is 1.447 (BLS rent price index 1976/1967). The final estimate of $62.41 per month for 55.8 square meters of total space is equal to $13.44 per square meter per year.

[a] A. Andreyev, *Housing*, Novosti Press, Moscow, 1978, p. 17.
[b] This rate is somewhat higher than the annual rate of .96 rubles per square meter of total space (1.46 rubles per square meter of living space) used for comparing housing costs in Edwards, Hughes, and Noren, *JEC* 1979, pp. 369-401. The latter figure (given by I. N. Shutov, *Lichnoye potrebleniye pri sotsializmye*, Moscow, 1972, p. 170), reflects the average rent for urban apartment housing.
[c] *ICP*, Phase I.
[d] *ICP*, Phase I, table 9.7.

Repair

Materials. Plywood. USSR: Observed. US: Price from *Engineering News Record*, 10 June 1976, p. 43, converted to square meters.

Cement, Sand Based. USSR: Observed. 35 rubles per m.t. in 50-pound bags. US: BLS national average per 80-pound bag.

Bricks. USSR: Observed. US: *Engineering News Record*, 10 June 1976. Average of prices in 20 US cities.

Paint, Oil Base Interior. USSR: Collected in Moscow. 5.6 kg can cost 3.96 rubles. US: Washington Metropolitan area. Cheapest exterior-interior enamel, 1 gallon can.

Nails, Common 8 Penny, Not Galvanized. USSR: Collected in Moscow. .45 rubles per kg. US: BLS national average. $.56 per lb.

Services. No prices were available for household repair by individuals. The ratio used is the arithmetic average of ratios for repair of appliances and furniture.

Utilities

Electricity

USSR: Official price is .04 rubles per kwh. US: From unpublished data of BLS for 1970. The price is $0.042 per kwh at rate schedules of 50 and 100 kwh per month, adjusted in 1976.

Gas

USSR: Basic price, 20 rubles per 1,000 cubic meters, *Ekonomika gazovoy promyshlennosti*, No. 2, 1978, pp. 3-7. US: BLS national average for residual heating and other household uses in 1976.

Water-Sewer

USSR: *Spravochnik po voprosam sotsial'no - bytovogo obsluzhivaniya, Kiev*, 1977, p. 32. US: BLS national average for 1970, adjusted to 1976.

Coal

USSR: Average of prices observed in various republics. US: BLS national average price for 1976.

Kerosene

USSR: Average of prices observed in various republics. US: BLS national average price for 1976.

Transportation

City Bus

USSR: Collected in Moscow. US: BLS national averages for 1976.

Subway
USSR: Collected in Moscow. US: Fare on New York subway in 1976.

Railroad coach
USSR: Collected in Moscow; average fares between metropolitan areas. US: BLS national average between metropolitan areas in 1976.

Intercity Bus
USSR: Collected in Moscow; average fares between metropolitan areas. US: BLS national average between metropolitan areas in 1976.

Airplane
USSR: Collected in Moscow; average fares between metropolitan areas. US. BLS national average for 1976.

Taxi
USSR: Collected in Moscow. US: Priced in Washington.

Communications

Telephone
Household. USSR: Monthly rate, official national price, observed. US: From unpublished data of BLS for 1970, extrapolated to 1976.

Local Call. USSR: Collected in Moscow. US: Local price assumed to be national price for 1976.

Long Distance. USSR: Collected in Moscow. US: From unpublished data of BLS for 1970, adjusted to 1976.

Telegram
USSR: Collected in Moscow; .58 rubles plus .03 rubles per word. US: Quoted by local Western Union office.

First Class Mail, Domestic
USSR: Collected in Moscow. National cost for airmail letter .06 rubles for 20 grams; .08 rubles per ounce. US: National cost for airmail letter.

Repair and Personal Care

Man's Haircut
USSR: Moscow average price as observed. US: BLS national average price for 1976.

Boy's Haircut
USSR: Collected in Moscow. US: Price in metropolitan Washington area.

Woman's Haircut
USSR: Moscow average price as observed. US: BLS national average for 1976.

Recreation

Hotel-Motel
USSR: Average of prices observed. US: BLS national average for 1976 discounted 10 percent for quality differences.

Movie Ticket
USSR: Estimate of total revenues divided by number of visits equals implied ticket price of 20 kopeks. This is an average of urban-rural, adult-child purchases. US: National average price from BLS (arithmetic mean of adult and child ticket prices) for 1976.

Circus Ticket
USSR: Collected in Moscow. US: Price in Washington metropolitan area.

Soccer, Basketball
USSR: Collected in Moscow. US: Price in Washington metropolitan area.

Musical Performance
USSR: Collected in Moscow. US: BLS national average price for 1970 adjusted to 1976.

Piano Lesson
USSR: Collected in Moscow. US: BLS national average for 1976.

Swimming Pool Fee
USSR: Collected in Moscow. US: Price in Washington metropolitan area.

Woman's Permanent
USSR: Collected in Moscow. US: BLS national average price for 1976.

Shampoo and Set
USSR: Collected in Moscow. US: BLS national average price for 1976.

Dry Cleaning
USSR: Collected in Moscow. US: BLS national average price for 1976.

Laundry, Cash and Carry
USSR: Collected in Moscow. US: BLS national average price for 1976.

Shoe Repair
USSR: Collected in Moscow. US: BLS national average price for 1976.

Tailoring Man's Suit
USSR: Collected in Moscow. US: BLS national average price for 1976.

Hemming Woman's Dress
USSR: Collected in Moscow. US: BLS national average price for 1976.

Dressmaker Charge
USSR: Collected in Moscow. US: Price in metropolitan Washington area in 1976.

Reupholster a Lounge or Club Chair, Volume Selling Fabric, One Cushion
USSR: Collected in Moscow; labor 55 rubles, fabric 15R. US: BLS national average price for labor and material, $212.63.

General Housework
USSR: 2 rubles per hour. Collected in Moscow.
US: BLS national average; $21.03 per 8-hour day or $2.63 per hour.

Replace Color TV Picture Tube; 23 Inch, Labor Plus Price of Tube
USSR: Observed in various cities; top price for largest sets. US: BLS national average price.

Clean and Recondition a Sewing Machine
USSR: Collected in Moscow. US: BLS national average price in 1976.

Automotive

Motor Tune Up and Chassis Lubrication
USSR: Collected in Moscow.
US: BLS national average price for 8-cylinder 350-cubic inch engine, Chevrolet or Ford, $59.70. Adjusted to $50 as equivalent for 4-cylinder car.

Repair Flat Tire
USSR: Collected in Moscow. US: Washington Metropolitan area.

Reline Rear Brakes
USSR: Collected in Moscow. US: Washington metropolitan area.

Replace Spark Plugs, Cost of Parts (Set of Four), Excludes Labor
USSR: Collected in Moscow. US: Average prices from national firm.

Car Wash
USSR: Collected in Moscow. US: Washington metropolitan area.

Drivers License, Cost Per Year
USSR: Collected in Moscow. US: National average reported by American Automobile Association.

Storage Battery
USSR: Collected in Moscow; storage battery for Moskvich 412. US: National average price, Universal Tire Co. for comparable product.

Auto Tire
USSR: Collected in Moscow; tire for Moskvich station wagon, with tube. US: JC Penny catalog price plus shipping charge.

Wheel Rim
USSR: Moscow price for Moskvich 412. US: National average price, Universal Tire Co,. Vega standard.

Generator (Alternator)
USSR: Collected in Moscow; generators for Moskvich 412. US: Sears Roebuck catalog price for comparable generator plus shipping charge.

Gasoline
USSR: Collected in Moscow. US: Washington metropolitan area; 93-octane self service at $.60 per gallon including all taxes.

Motor Oil
USSR: Collected in Moscow for all season motor oil. US: BLS national average price for single- and multiviscosity motor oil.

Brake Fluid
USSR: Collected in Moscow. US: Washington metropolitan area; K Mart, .355 l, $1.67.

Antifreeze
USSR: Collected in Moscow; ethylene glycol, 10 kilograms, 4.00 rubles US: Washington metropolitan area; Dart Drug at $4.00 per gallon, $1.06 per liter.

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Table C-3

USSR: Derivation of Expenditures for Household Services by Type, 1976

Housing	Billion Rubles
Total [1]	**4.268**
Cash rents [2]	1.556
Imputed net rents [3]	1.178
Repair [4]	1.534

[1] For detailed methodology, see appendix E.
[2] This estimated figure represents the sum of cash rent on urban public housing (1.416 billion rubles) and additional charges paid by members of housing cooperatives for maintenance (0.140 billion rubles).
[3] The estimated inputed net rent is the difference between gross rent (1.768 billion rubles) and purchased repair by occupants (0.590 billion rubles).
[4] This estimated figure reflects the sum of outlays by tenants in urban public housing (0.944 billion rubles) and outlays by occupants of urban private and rural housing (0.590 billion rubles).

Utilities	1970		1976	
	Percent (1)	Billion Rubles (2)	Indexes (1970=100) (3)	Billion Rubles (4)
Total				**4.888**
Electricity	45.85	1.535	147.0	2.255
Gas	9.09	.304	168.9	.513
Water and sewage	8.31	.278	135.7	.377
Heating	17.51	.586	135.7	.795
Hot water	19.24	.644	135.7	.874
Subtotal	100.00	3.347	143.84	4.814
Kerosene				.074

Column (1) The percentage distribution of communal payments (for utilities) by type of service is given for 1970 in *Ekonomicheskie nauki*, No. 11, 1973, p. 44.
Column (2) The percentages in Col. (1) are used to distribute total payments for utilities by types. Total payments were derived as explained in CIA, *GNP 1970*, p. 41.
Column (3) The indexes are components of the CIA end-use index for utilities. (JEC, *Gross National Product of the USSR 1950-1980*, 1981.)
Column (4) Ruble values in Col. (2) are multiplied by the indexes in Column (3) to obtain ruble values for total utilities payments and types in 1976. Since kerosene is used for fuel, retail purchases of kerosene, given in *Narkhoz* 1977, p. 459, are added to the weight.

Transportation	Distribution	
	Percent [1] (1)	Billion Rubles [2] (2)
Total	**100.00**	**8.073**
Rail	15.73	1.270
Sea	1.12	.090
River	1.03	.083
Air	13.11	1.058
Bus	49.09	3.963
Urban	15.91[3]	1.284
Interurban	33.18	2.679
Tram	2.88	.233
Trolley	3.85	.311
Subway	1.86	.150
Taxi	11.33	.915

[1] The percentage distribution (except for the subcategories of bus transportation, is given by the CIA index of passenger transportation for 1976. The percentage shares take into account fares, passengers, and distances travelled, as appropriate for the respective modes of transport. They also allow for the exclusion of business travel expenditures, most of which are for rail and air travel.
[2] Ruble expenditures by type are calculated by using the percentage shares given in Col. (1) and total expenditures, calculated by raising the value estimated for 1970 by the percentage increase given by the CIA index for all personal transportation during 1971-76.
[3] Expenditures on urban bus transportation are the product of the uniform national fare (5 kopeks) and the number of passengers carried (27.6 billion—*Narkhoz 1977*, p 325), less estimated business travel.

Table C-3

USSR: Derivation of Expenditures for Household Services by Type, 1976 (continued)

Communications	Total Expenditures [1] (Billion Rubles)	Percentage Share of Household Outlays in Total Expenditures [2]	Household Expenditures
Total	**4.885**	**37**	**1.813**
Postal	1.615	55	.891
Telegraph	.399	50	.200
Telephone	2.284	29	.663
Radio-TV broadcasting	.587	10	.059

[1] Total expenditures by type of communication are obtained in deriving the CIA index of communications.

[2] The percentage shares of purchases by the population of types of communications services are fairly arbitrary, but probably not grossly wrong. They are based on information provided in O. S. Srapionov, *Ekonomika svyazi*, Moscow, 1974, pp. 23-24, giving the population's share of various means of communications in physical units for 1970: letters—80 percent; monetary payments—72 percent; "a preponderant" share of periodicals; telegrams—63.1 percent; intercity telephone calls—33.1 percent; urban telephones—31.1 percent. No information is available with respect to the population's share of revenues from the various types of communications. The rate structures are highly differentiated, tending to favor the population, as compared with business enterprises and government agencies.

Automotive Services	Billion Rubles
Total	**.728**
Auto repair	.340 [1]
Gasoline and oil	.388 [2]

[1] Transferred from repair and personal care, above.

[2] Transferred from soft goods, table B-5.

Recreation	Billion Rubles
Total [1]	**2.775**
Entertainment [2]	1.364
Movies [3]	.850
Other [4]	.514
Hotels [5]	.083
Vacation resorts, sports [6]	1.328

[1] Appendix E, table E-1.

[2] The reported value for 1970 (1.5 billion rubles—*GNP 1970*, p. 42) was moved forward by a combined index of movie and theater attendance used in the CIA Index of Consumption.

[3] Estimated on the basis of budget revenue from the movie tax, which is levied at 55 percent and 10 percent of the gross receipts of urban theaters and rural theaters, respectively. Budget revenue can be reliably estimated at a maximum of .496 billion rubles by assuming: (1) that "local taxes and levies" in 1976 were 1.021 billion rubles, estimated by increasing the reported value in 1975 (.989 billion rubles—*Gosbyudzhet*, 1976, p. 74) by the average annual rate of growth in 1971-75; and (2) by assuming that all of the category residual of unidentified items consisted of the movie tax (the only other known component—one-time levies—can be disregarded). With the movie tax thus calculated, the next step was to estimate total receipts of the theaters, a value that cannot be larger than .902 billion rubles, if all theater revenues were from urban theaters; however, 40 percent of paid admissions were in rural theaters (*Narkhoz za 60 let*, p. 611). Movie ticket prices are differentiated by location (urban and rural), class of theater (3) and seat location (3) —V. V. Lavrov, *Gosudarstvenniy byudzhet SSSR*, 1975, p. 115. The basic rates seem to be 50 kopeks for adults in Class 1 urban theaters and 20 kopeks in rural areas. Children up to age 16 pay 10 kopeks and 5 kopeks, respectively. There are a number of gradations; see A. A. Krivenko, *Spravochnik po gosudarstvennym dokhodam*, 1967, pp. 146-147. On the basis of this diverse information, an estimate of .850 billion rubles as total outlays on movies seems reasonable.

[4] Outlays on entertainment less outlays on movies. The category comprises expenditures on tickets for theaters, circuses, sports, museums, zoos, and the like.

[5] Expenditures on hotels and motels are the sum of estimated wages, social insurance, and other current outlays. Wages are the product of estimated employment (114,400) and the average wage reported for Housing—Communal Economy (*Narkhoz 1977*, p. 386). Employment was estimated by extrapolating the level in 1969 by the average annual rate of growth during 1961-69 as estimated in Stephen Rapawy, *Comparison of US and USSR Civilain Employment in Government, 1950-69*, Bureau of Economic Analysis, International Population Reports, Series P-95, No. 69, p. 17. The applicable social insurance charge is 4.7 percent. Wages and social insurance are assumed to be two-thirds of total outlays. The total so derived is .243 billion rubles, of which one-third (.081 billion rubles) is assumed to be expenditures by the population, the rest being business travel expenditures.

[6] Total expenditures less expenditures for entertainment and hotels.

Table C-3

USSR: Derivation of Expenditures for Household Services by Type, 1976 (continued)

Repair and Personal Care	State Services (Billion Rubles)				Private Services		
	Reported Sales	Plus Materials	Minus Sales to Enterprises [1]	Sales to Households	Distribution in 1970 (Percent) [2]	Private Services (Billion Rubles)	Total Services
Total services	**5.896**	**2.644**	**1.364**	**7.276**	**100.0**	**2.000**	**9.276**
1. Shoemaking and repair	.522	—	.019	.503	5.4	.050	.553
2. Clothing repair and tailoring	1.365	1.365	.106	2.624	30.6	.284	2.908
3. Knitwear repair and tailoring	.245	.245	.019	.471	1.5	.014	.485
4. Repair of cars, appliances, and metal goods	.564	.564	.322	.806 [2]	14.4 [4]	.134	.940 [5]
5. Furniture making and repair	.190		.090	.100	1.5	.014	.114
6. Drycleaning and storage	.155		.020	.135			.135
7. Laundries	.296		.204	.092	1.2	.011	.103
8. Building and repair of housing	.470	.470	.313	.627		1.071	1.698 [6]
9. Photographic services	.275		.005	.270	0.7	.007	.277
10. Public baths	.168		.006	.162			.162
11. Barber shops and beauty parlors	.526		—	.526			.526
12. Rental agencies	.092		.004	.088			.088
13. Other (residual)	1.028		.256	.772	44.7	.415	1.187
14. Auto repair, total							.340
Other state services				.100			.100

[1] Percentages, derived from V. I. Dmitriev, *op. cit.*, p. 98, were as follows:

1. 3.6
2. and 3. 3.9
4. 36 for appliances; 6 for auto repair
5. 47.3
6. 13.0
7. 69.0
8. 33.3
9. 1.8
10. 3.7
11. 4.7
12. 0
13. 25.0

[2] Allocated as follows: appliance and other repair–.541; auto repair–.265.

[3] Percentages were derived from V. I. Dmitriev, *Metodologicheskiye osnovy prognozirovaniya sprosa na bytovyye uslugi*, p.49, after deducting housing construction and repair, which was estimated independently.

[4] Appliance and other repairs. Automobile repair is calculated at .075, 8.1 per cent of the total.

[5] Includes auto repair–.340.

[6] 1.534 allocated to repair, and 0.364 allocated to construction.

Table C-4

USSR: Weights and Dollar-Ruble Ratios for Household Services, 1976

Service	Expenditures (Million Rubles)	Percentage Weights	Dollar-Ruble Ratios
Housing	**4,268**	**100**	**6.265**
Rent	2,734	64	8.506
Cash	1,556		
Imputed	1,178		
Repair	1,534	36	2.281 [1]
Services			2.727 [2]
Materials			1.835 [3]
Paint			1.282
Cement			2.172
Plywood			1.866
Nails			1.244
Bricks			2.609
Utilities	**4,888**	**100.0**	**2.909**
Electricity	2,255	56.2	1.758
Gas	513	12.8	5.350
Water-sewer	377	9.4	4.308
Heat (coal)	795	19.8	4.088
Kerosene	74	1.8	1.200
Hot water	874	0	
Transportation	**8,073**	**100.0**	**3.462**
Rail	1,270	17.2	1.629
Sea	90	0	
River	83	0	
Bus	3,963		
City	1,284	17.5	6.800
Long distance	2,679	36.5	2.056
Air	1,058	14.4	3.409
Tram	233	0	
Trolley	311	0	
Subway	150	2.0	10.000
Taxi	915	12.4	4.440
Communications	**1,813**	**100.0**	**2.910**
Postal	891	49.1	1.625
Telegraph	200	11.0	4.612
Telephone	663	36.6	4.104
Household		(42)	2.488
Long distance call		(28)	2.889
Local call		(30)	7.500
Radio-TV Broadcasting	59	3.3	3.120 [4]

Service	Expenditures (Million Rubles)	Percentage Weights	Dollar-Ruble Ratios
Repair and Personal Care [5]	**7,238**	**100**	**2.773**
Shoemaking and repair	553	9.9	2.692
Man's shoe half sole and heel			3.000
Woman's heel lifts			2.436
Clothing repair and tailoring including knitwear repair	3,393	60.7	2.031
Man's suit			2.974
Woman's dress			.948
Hemming skirt			1.553
Repair of appliances	600	10.7	2.660 [6]
TV repair		55.5	2.002
Sewing machine repair		44.5	3.480
Furniture making and repair	114	2.0	2.699
Reupholster chair			2.699
Dry cleaning and storage	135	2.4	1.813
Man's suit			1.231
Woman's dress			2.295
Laundry	103	1.8	2.679
Man's shirt			1.238
Flat work			6.000
Self service			.800
Photography	277 [7]	0	
Barber-beauty services including public baths	688	12.3	6.856
Man's haircut			5.869

Table C-4

USSR: Weights and Dollar-Ruble Ratios for Household Services, 1976 (continued)

Service	Expenditures (Million Rubles)	Percentage Weights	Dollar-Ruble Ratios
Boy's haircut			13.750
Woman's haircut			1.908
Woman's permanent			6.858
Woman's shampoo and set			3.129
Rental agencies	88	0	
Other	1,187 [9]	0	
Other state services	100 [9]	0	
Recreation	**2,775**	**100.0**	**6.229**
Entertainment	1,364	48.8	7.183
Movies	.350	(62)	9.400 [5]
Circus	.514	(38)	3.566 [6]
Hotels	.083	51.2	5.320 [7]
Resorts and sports	1.328		6.097
Automotive Services	**728**	**100.0**	**1.358**
Repair	340	46.7	1.012
Motor tuneup and lubrication			.587 [10]
Repair flat tire			1.174
Reline rear brakes			1.689
Car wash			.937
Replace spark plugs			1.992
Storage battery			.451
Tires			.426
Generator			.840
Fuel and lubricants	388	53.3 100.0	1.659
Gasoline		97.2	1.663
Oil		2.8	1.513

[1] Arithmetic average of service and materials.
[2] Dollar-ruble ratio for repair of household items, arithmetic average of chair reupholstering and replacement of TV picture tube.
[3] Arithmetic average.
[4] The ratio is the weighted average for items above.
[5] Estimate of revenues divided by number of visits gives implied ticket price of .20 R. This is an average of urban-rural, adult-child. US prices are $2.63 for adults and $1.13 for children. Arithmetic average is $1.88. Dollar-ruble ratio thus is 9.400.
[6] Total entertainment less movies; covers circuses, theaters, concerts, sports, parks, zoos, museums. Ratio is unweighted average of circus ticket, soccer-basketball ticket, and the price of a musical performance.
[7] Ratio for hotels and resorts is average of ratios for hotel-motel and swimming pool fees, arbitrarily weighted at 75-25 percent.
[8] Weights for TV repair are retail sales of radio and TV goods; for sewing machine repair weights are retail sales for other household appliances.
[9] Photography, rental agencies, and "Other" are allocated to Miscellaneous (1.55 billion rubles). Repair of transport equipment is allocated to auto services. Barber and beauty services are weighted by the US distribution of these services and by population data for men, women, and children.
[10] Arithmetic average.

Table C-5

US: Weights and Ruble-Dollar Ratios for Household Services, 1976

	Expenditures (Million Dollars) [1]	Percent			Ruble-Dollar Ratios
		Group	Item	Subitem	
Housing	**160,292**	**100.0**			**.160**
Rent and imputed rent	143,189	89.3			.118
Maintenance and repair	17,103	10.7	100.0		.510
Materials			25.0	100.0	.628
Woodshelving (plywood)				34.0	.536
Dry cement mix				21.6	.461
Paint				44.4	.780
Services [2]			75.0		.471
Utilities	**50,604**	**100**			**.451**
Electricity	22,086	43.7			.569
Gas	10,950	21.6			.187
Water, sewer	5,520	10.9			.232
Fuel oil and coal [3]	12,048	23.8			.576
Transportation [4]	**9,426**	**100.0**			**.267**
Local	3,281	39.2	100.0		.160
Transit systems	1,945		59.2	100.0	.132
Bus, trolley				69.2	.147
Subway				30.8	.100
Taxi	1,112		40.8		.225
Rail	224				
Intercity	5.304	60.8	100.0		.334
Rail	281		5.5		.614
Bus	608		11.9		.486
Air	4,206		82.6		.293
Other	209				
Road bridge tolls	841				
Communications	**22,184**	**100.0**			**.346**
Telephone and telegraph	19,450	87.7	100.0		.308
Telephone			97.5	100.0	.310
Monthly charge				50.0	.402
Local call				50.0	.133 } .219
Long distance call					.346 }
Telegraph			2.5		.217
Postage	2,734	12.3			.615
Repair and personal care	**29,478**	**100.0**			**.505**
Shoe repair	277	1.2	100.0		.372
Man's half sole and heel			50.0		.333
Woman's heel lifts			50.0		.411

Table C-5

US: Weights and Ruble-Dollar Ratios for Household Services, 1976 (continued)

	Expenditures (Million Dollars) [1]	Percent			Ruble-Dollar Ratios	
		Group	Item	Subitem		
Cleaning, laundry, and repair of clothing	3,808	17.0	100.0		.608	
Dry cleaning			61.1	100.0	.499	
Men's				25.0	.812	
Women's				25.0	.456	
Self service				50.0	.364	
Finished laundry			13.7	100.0	.488	
Shirts				50.0	.808	
Flatwork				50.0	.167	
Self service laundry			11.4	100.0	1.250	
Tailoring			13.8	100.0	.675	
Tailoring man's suit				34.0	.336	
Dressmaker charge				33.0	1.055	
Hemming				33.0	.644	
Barber and beauty	4,582	20.5	100.0		.282	
Man's haircut		23.3			.170	.122
Boy's haircut					.073	
Woman's haircut					.524	.330
Shampoo and set			76.7		.146	
Permanent					.320	
Domestic services	6,414	28.6	100.0		.779	
Repair of furniture	707	3.2	100.0		.370	
Reupholster chair					.370	
Repair of appliances	1,871	8.4	100.0		.495 [8]	
Replace TV picture tube					.500	
Sewing machine repair					.287	
Radio-TV repair	1,496	6.7			.500	
Replace TV picture tube					.500	
Funeral and burial	3,242	14.5	100.0		.201	
Other	7,081					
Recreation	**21,586**	**100.0**			**.381**	
Hotel-motel	3,818	23.0			.188	
Amusements	5,471					
Movies	2,987	18.0			.106	
Musical performance	929	5.6			.494	
Spectator sports	1,555	9.5			.176 [5]	
Commercial participant amusement	3,895	23.5			.400 [6]	
Net foreign travel	3,374	20.4			.752 [7]	
Miscellaneous	5,028					

Table C-5

US: Weights and Ruble-Dollar Ratios for Household Services, 1976 (continued)

	Expenditures (Million Dollars) [1]	Percent			Ruble-Dollar Ratios	
		Group	Item	Subitem		
Automotive Services	**66,066**	**100.0**			**.944**	
Repair and parts	23,146	35.0	100		1.222	
Flat tire					.852	
Brakes relined					.592	
Car wash			71.5		1.067	.944
Replace spark plugs					.502	
Motor tuneup and lubrication					1.705	
Storage battery					2.217	
Tire			28.5		2.346	1.918
Generator					1.190	
Fuel and lubricants	42,920	65.0	100.0		.605	
Gasoline			93.7		.601	
Motor oil			6.3		.661	
Other	2,241					
Miscellaneous	**61,258**					
Total consumer services in GNP	**420,894**					

[1] US Department of Commerce, *Survey of Current Business,* July 1979, p. 37.
[2] Weighted average of ratios for appliances, furniture, and television repair using unpublished data underlying the Consumer Price Index.
[3] Weighted average of coal and fuel oil using CPI weights.
[4] The ratio excludes road and bridge toll.
[5] Ratio is for soccer-basketball game.
[6] Ratio is for swimming pool fees.
[7] Official rate of exchange for 1976: one ruble equals $1.33.
[8] Sewing machine repair was assigned a weight of 2 percent.
[9] Arithmetic average.

Appendix D

Derivation of Ruble-Dollar Ratios for Education and Health

In the USSR, nearly all health and education services are provided without direct charge, and in the United States most education is so provided. The option of comparing relative prices in the two countries on the basis of a sample of prices for particular services is not available, because of lack of data. As was done in the UN study, the comparisons are based on inputs of labor and materials and their relative prices. The ruble-dollar ratio for wages in health is a weighted aggregate of ratios calculated for nine occupations; the ratio for education is based on average wages in two levels of schooling. Thus, the different structures of wage rates and employment in the two countries are taken into account. The price ratios for materials allow for the different structures of these purchases in the two countries. The final results are summarized in tables D-1 for education and D-10 for health.

Education

Wages by Level of Education

USSR. The Soviet Government does not publish average wages by type of school (elementary, secondary, college), nor does it publish data on average earnings by occupation (teachers, administrators, and the like). The only officially published aggregates are total employment in education and the average monthly wage. The estimates of average wages by level of education were calculated for 1975 from data on total wage outlays for all staff personnel by type of school. The data are reported as components of expenditures financed from budgets of the republics.[56] Employment by type of school was estimated for 1975 from a distribution for 1966 (the only one available for a recent year) and published data on enrollments in the various schools in 1966 and 1975.

The details of the derivation of wages and employment in 1975 are shown in tables D-2 and D-3. Essentially, the procedure used to obtain total wages by category of school was to increase the wage bills given in republic budgets by the shares of these budgets in total state budget outlays for each category. Although the primary data are incomplete, the unidentified wages are known to consist almost entirely of wages in trade schools (secondary "professional-technical schools"); the total state budget identifies this category, but published republic data do not. Employment in most types of schools is estimated on the assumption that it changed at the same rate as enrollment. This assumption seems unwarranted for general education schools, where enrollment declined, since the number of teachers increased and the average wage that resulted from using that assumption was much higher than indicated by other evidence. Accordingly, the change in the number of teachers was used to estimate employment in general education schools. In addition, the category was allocated the small residual produced by the procedure. The required budget data are not available for 1976, but it is highly unlikely that relative wages by school changed appreciably. In 1976, average monthly wages rose by less than 1 percent and employment increased by 2 percent.[57]

Finally, the data for the various types of schools were grouped into two levels—primary-secondary education and higher education, and average annual wages were calculated for each level. The former includes all kindergartens, general education schools, trade schools, and half of wages and employment in secondary-specialized schools *(tekhnikums)*. Higher education includes that category per se, plus half of employment and wages in specialized secondary schools. The allocation for the latter type of school was based on the information that about half of the students entering such schools in 1974-75 had completed high school.[58] The period of training in these schools is generally one to three years. The average monthly wages derived for

[56] *Gosbyudzhet*, 1976.

[57] *Narkhoz za 60 let*, pp. 463, 473.

[58] *Narodnoe obrazovanie, nauki i kultura SSSR*, 1977, p. 175.

the various types of schools are in line with relative levels that are suggested by inspection of the respective rate structures as given for the late 1960s [59] and as modified in the early 1970s.[60] They are also in line with average earnings reported in a survey of Jewish emigrees from the USSR conducted in Israel by Gur Ofer and associates.

United States. As for the USSR, average annual earnings have been estimated for two levels of education—primary-secondary and higher. They reflect earnings in both public and private education. Total employment and wages in all education are available to serve as control totals.[61] The final estimates are shown in table D-4. The derivation of total employment by level of education is also shown there. Average earnings by level of education were estimated from data derived separately on average salaries of instructional personnel and all other employees. The details are shown in tables D-5 and D-6.

Materials

USSR. Neither the composition nor the item cost of purchases by educational establishments is known in detail for the USSR. Such outlays by broad category had to be estimated from data available in republic budgets for 1975. Appropriate dollar-ruble ratios as estimated for consumption in general were then assigned to these categories. The derivation of the expenditures is shown in table D-7. In general, the procedure was first to assemble expenditure data for four budget classification categories for six kinds of schools, and then to allocate the budget expenditures among food, soft goods, and utilities. Food is listed separately in the data. Expenditures on utilities, not given separately, are estimated at 27.4 percent of outlays on food; this is the ratio shown for 1966 for institutions of education, health, and culture.[62] All other expenditures were allocated to soft goods. Although other items are known to be included, Schneiderman's data suggest that assigning the total to soft goods probably is not grossly in error; after all, that category includes a wide variety of goods that would be needed in schools, such as office and cleaning supplies, books, paper supplies, uniforms, linens, and the like.

The dollar-ruble ratio used for food is that for all food and nonalcoholic beverages, and the ratio for utilities is that for the category in household consumption. In the absence of data for the USSR, the aggregate ratio for soft goods was constructed by weighting ratios for categories of soft goods by the structure of expenditures in US public schools in 1972.[63] The category ratios were based on appropriate groups of goods and their price ratios.

In the final set of weights, account had to be taken of the fact that food provided by school cafeterias is included with food (purchased meals and beverages) in the US classification. Schools in both countries also evidently purchase small amounts of food for other purposes; such purchases in the USSR (.101 billion rubles) were estimated arbitrarily as the residual of republic budget purchases or food in 1975 by educational and cultural institutions after deducting (1) all identified purchases of food by schools and (2) purchases of food by kindergartens net of fees paid by parents and other sources of support. The final percentage weights for components of material purchases are based on this estimate for food and values for soft goods and utilities derived from table D-7:

	Billion Rubles	Percent
Food	.101	4.7
Soft goods	1.560	72.7
Utilities	.485	22.6
Total	**2.146**	**100.0**

United States. Weights for material expenditures by category (food, soft goods, and utilities, see table D-8) are derived from the structure of expenditures on education by state and local governments as given in the 1972 US input/output tables.[64] The price ratios are the same as described above for the USSR.

[59] V. G. Danilevich, *Spravochnik po zarabotnoy plate*, Minsk, 1969, pp. 45-101.
[60] *Trud*, 1972 September 7.
[61] *Survey of Current Business*, July 1979, p. 4.
[62] I. M. Schneiderman, *Statistika uslug*, Moscow, 1964, p. 72.
[63] *Survey of Current Business*, April 1979, pp. 53, 67; see table D-8.
[64] *Survey of Current Business*, April 1979, pp. 53, 67.

Aggregate Weights

USSR. Total expenditures on education, consistent with the CIA national accounts and indexes are derived as described in appendix E. To achieve comparability with the United States, this value was (1) increased to add current expenditures on libraries (400 million rubles) and on children's nurseries (375 million rubles)—the former is classified as culture and the latter as health in the USSR—and (2) reduced by the value of food provided in school cafeterias. The latter is classified as food expenditures (purchased meals and beverages) in the US accounts.

Purchases of food by school cafeterias in the USSR are estimated at 2.154 billion rubles. In the GNP accounts, such expenditures were deducted—as institutional purchases—from retail sales (including public dining), and counted in education as state outlays. Purchases of food by schools from retail outlets can be accurately estimated for 1968-69 [65] at 1.802 billion rubles. This value was moved forward to 1975 with data on budget outlays for food by schools [66] and then extended to 1976 at the growth rate in 1969-75. While school cafeterias probably purchase other goods at retail, there is no way to separate cafeteria purchases from all nonfood purchases by schools. The assumption is made here that all food purchased by schools represents purchases for their cafeterias. The estimate also implicitly includes food purchased by nurseries (about .095 billion rubles).

The final value for current expenditures on education so obtained is 17.935 billion rubles. Wages are 14.610 billion rubles, the sum of wages and social insurance charges for state employees and the estimated value of privately provided tutoring services. Material expenditures are obtained as a residual.

United States. Total current expenditures are derived as shown in table D-9.

[65] From survey data given in *Vest stat*, No. 5, 1971, pp. 34, 36.
[66] *Gosbyudzhet, 1972*, pp. 85, 88, 91-94, 98, and *Gosbyudzhet, 1976*, pp. 82, 85, 86-91, 97.

Health

The ruble-dollar and dollar-ruble ratios for health services are composites of ratios for wages and for materials. The final ratios and the expenditure weights are given in table D-10. The ratio for wages is the weighted average of ratios of average earnings in nine key occupations in the two countries; the results are summarized in table D-11. Every effort was made to match the occupations as carefully as possible—a difficult task, given the radically different health care delivery systems and levels of education and training required in these occupations in the two countries. Some of the attempts to deal with these disparities in order to match occupations are described below. Despite these adjustments, the amount of education and training required for US health professionals, in general, considerably exceed that required in the USSR. To the extent that quality of health services is correlated with amount of education, the ratios are biased in favor of the Soviet Union.

The ratios for materials were derived by procedures analogous to those used for education.

Wages

USSR. The Soviet Government does not publish data on earnings by occupation; rather it publishes annually a single figure giving average monthly earnings of all employees in "health, physical culture, and social security." The estimates of average annual earnings by occupation, given in table D-11, are essentially consensus values based on a wide variety of anecdotal reporting of earnings, supplemented by descriptions of the formal wage and salary structure and revisions in it made in 1972. The most complete description is given in V. G. Danilevich, *Spravochnik po zarabotnoy plate*, Minsk, 1969, pp. 102-151. Salaries of doctors and some other skilled personnel were raised substantially in 1972,[67] but the changes affected only about one-tenth of all persons employed in health services. These materials were supplemented by bits and pieces of evidence from a variety of Soviet sources dealing with the sector. Finally, earnings data for several occupa-

[67] *Pravda*, 19 and 22 August 1972.

tions were available from a study based on a sample of about 1,000 Jewish families who emigrated to Israel during the mid-1970s.[68]

The employment data are taken from Soviet sources for 1975 and are not available for 1976. The total for the eight occupational categories is 78.3 percent of the reported total average annual employment in "health, physical culture and social security."[69] The bulk of remaining employees are the relatively more highly paid managerial, administrative, engineering-technical, clerical, and service employees. Total employment rose by 1.9 percent in 1976; it is unlikely that appreciable structural change occurred.

United States. The derivation of average annual earnings for nine categories of health personnel is shown in table D-13. The sample covers 78 percent of total employment and 66 percent of total wages in the health sector.

Materials

USSR. The dollar-ruble ratio for materials is the composite of ratios for food, soft goods, and utilities. Soviet expenditures on these items were derived from data on expenditures for health from republic budgets in 1975.[70] In that source, food is listed as a separate item. Outlays on soft goods are the sum of outlays on (1) medicines and bandages (2) bedding and uniforms and (3) office and housekeeping expenses except utilities. Expenditures on utilities are estimated at 19 percent of outlays for food; this is the relationship that can be calculated from data on material expenditures in the health sector shown in the 1972 input-output table.[71]

The dollar-ruble ratio for food purchases is the weighted average for all foods, excluding alcoholic beverages and tobacco. The ratio for utilities is that calculated for household expenditures on them. The ratio for soft goods is the US-weighted average of ratios for six groups of such goods; Soviet weights cannot be reliably estimated from available data.

United States. Expenditures by type of purchase are derived from unpublished data provided by the US Department of Commerce. They represent state and local government purchases for hospitals and other health facilities as reflected in the 1972 input-output table. Similar data are not available for private sector purchases.

Aggregate Weights

USSR. Total expenditures on health (private and public) consistent with the CIA national accounts and indexes are derived as explained in appendix E. To achieve comparability with the United States, that value was reduced by 375 million rubles to remove outlays on children's nurseries, counted in education in the United States. The estimate of total outlays for nurseries is an extrapolation to 1976 of data for 1975 given in *Gosbyudzhet* 1976, p. 96; the wage component (including social insurance) is estimated at 218 million rubles. Total wages in health are estimated as the sum of state-paid wages and social insurance (6.629 billion rubles) plus earnings in privately provided health services (0.325 billion rubles). Material outlays are a residual:

	Billion Rubles	Percent
Total Outlays	**10.698**	**100.0**
Wages	6.954	65.0
Materials	3.744	35.0

United States. The derivation of total expenditures on health is shown in table D-14.

[68] Gur Ofer and Aaron Vinokur, *Private Sources of Income of the Soviet Urban Household,* RAND, R-2359-NA, August 1980.
[69] *Narkhoz 1975,* p. 533.
[70] *Gosbyudzhet, 1976,* p. 92.
[71] V. M. Rutgayzer (ed.), *Kompleksniy plan razvitiya sfery obsluzhivaniya naseleniya,* Moscow, 1977, p. 196.

Table D-1

USSR and US: Summary Price Ratios and Weights for Education

	Rubles Per Year	Dollars Per Year	Ruble-Dollar Ratio	Dollar-Ruble Ratio	Expenditure Weights	
					USSR	US
Wages [1]			.144	7.413	100.0	100.0
Elementary and secondary	1,441	11,090	.130	7,696	86.1	70.0
Higher education	2,345	13,268	.177	5.658	13.9	30.0
Materials [2]			.506	2.688	100.0	100.0
Food			.985	1.269	4.7	4.3
Soft goods			.511	2.711	72.7	53.9
Utilities			.451	2.909	22.6	41.8
Wages and materials [3]			.225	6.539	100.0 [2]	100.0 [3]
Wages			.144	7.413	81.5	77.5
Materials			.506	2.692	18.5	22.5

[1] The derivation of average wages and the expenditure weights is explained in the text and tables D-2 through D-6.
[2] The derivation of the price ratios and the expenditure weights is described in the text and tables D-7 and D-8.
[3] The derivation of the aggregate weights for the USSR is explained in appendix E. Wages represent the total of payments for wages and social insurance charges by state institutions plus estimated private earnings in provision of tutoring services.
The derivation of the aggregate weights for the United States is shown in table D-9.

Table D-2

Billion Rubles
(except as noted)

USSR: Derivation of Total Wages in Education by Type of School, 1975

	Wages in Republic Budgets [1]	Share of Republic Outlays in Total Budget Outlays [3]	Total Wages [3]
	(1)	(2)	(3)
Kindergartens	2.033 [4]	100.0	2.033
General education			6.883
Primary, eight-year, and middle	5.614	98.4	5.705
Boarding schools	.237	94.7	.250
Children's homes	.255	99.7	.256
Schools for working youth		97.2	.351 [5]
Boarding schools connected with regular schools		98.1	.153 [2]
Nonschool children's activities		99.4	.168 [5]
Secondary specialized schools	.506	66.2	.764
Higher schools (*vuzy*)	.991	74.4	1.332
Other (trade schools)	NA	NA	1.292 [6]
Total			**12.304** [7]

[1] *Gosbyudzhet*, 1976, pp. 82, 85, 88-90.
[2] *Ibid.*, pp. 40, 43, 46-49, 54-55.
[3] Col. (1) : Col. (2), except as noted.
[4] *Ibid.*, p. 91, total wage expenditures on kindergartens.
[5] For these schools, wages were estimated as a share of total budget outlays, using their shares of total outlays of republic budgets for analogous types of schools. The respective shares used are: 76.2 percent in schools for working youth, the same as for primary eight-year and secondary schools; and 38.1 percent in the other two types, the share shown for boarding schools.
[6] Residual.
[7] *Narkhoz 1975*, pp. 533, 547.

Table D-3

USSR: Derivation of Average Annual Wages in Education, 1975

	Employment [1] 1966 (Thousand) (1)	Percentage Increase in Enrollment [2] 1967-75 (2)	Employment [3] 1975 (Thousand) (3)	Total Wages [4] 1975 (Billion Rubles) (4)	Average Annnual Wage [5] 1975 (Rubles) (5)
Kindergartens	1,251	154.5	1,933	2.033	1,052
General education	3,916	108.2	4,455	6.883	1,545
Secondary specialized schools	265	117.4	312	.764	2,449
Higher schools	478	120.3	575	1.332	2,317
Other	405	198.8	805	1.292	1,605
Total	6,365		8,080 [5]	12.304 [6]	1,523

[1] *Trud v SSSR*, p. 27.

[2] Percentages derived from enrollments by type of school as given in *Narodnoe obrazovanie, nauki i kultura v SSSR*, 1977, pp. 27, 113, 119, 153, 213. The change in the number of teachers in day general education schools was used for that category. Enrollment in "other schools" (mainly trade schools) is given in *Narkhoz 1977*, p. 487.

[3] Col. (1) x Col. (3). Residual employment (218,000) was allocated to general education schools.

[4] Wage bills for each category were derived from data given in *Gosbyudzhet*, 1976, pp. 36-56, 82-91. Wage expenditures from budgets of the republics are given for several types of schools. From these expenditures, total wage bills were estimated on the assumption that their shares in total budget outlays for the respective types of schools are the same as in republic budgets. Total wages in kindergartens are given directly (*ibid.*, p. 91). General education schools include the regular 10-year elementary and secondary schools, as well as children's homes, boarding schools, evening general education schools, and nonschool children's activities; wages for all of these amount to about 10 percent of the total. Wages in "other schools" are a residual. Details are shown in table D-2.

[5] Col. 4. ÷ (3).

[6] *Narkhoz 1975*, pp. 533, 547.

Table D-4

US: Employment and Earnings in Education, 1976

	Employment [1]	Average Annual Earnings [2] (Dollars)	Total Wage Bill (Million Dollars)
Elementary and secondary	4,301,000	11,090	47,696
Teachers	2,591,000	12,595	32,634
Other	1,710,000	8,808	15,062
Higher education	1,541,338	13,268	20,451
Teachers	583,216	17,738	10,345
Others	958,122	10,548	10,106

[1] Department of Health, Education, and Welfare, National Center for Education Statistics, *The Condition of Education*, 1978 edition, p. 166. This source gives data for public elementary and secondary schools and for all higher education by type of personnel. Another publication of that agency (*Digest of Education Statistics*, 1977 edition, p. 117) gives the number of teachers in private elementary and secondary schools in fall 1976. Noninstructional personnel in private elementary and secondary schools was estimated using the ratio of staff to teachers in public schools. Total employment is the sum of employment in public and private schools. The total employment in all education so obtained (5,856,338) is nearly equal to the total given for full-time equivalents (5,922,000) in *Survey of Current Business*, July 1978, p. 47.

[2] See tables D-5 and D-6.

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Table D-5

US: Derivation of Average Annual Earnings in Elementary and Secondary Education by Type of Personnel, 1976

	Employment [1] (Thousand)	Average Annual Earnings (Dollars)
Classroom teachers	2,460	12,595
Elementary	1,340	12,297
Public	1,180	12,647 [2]
Private	160	8,461 [3]
Secondary	1,120	12,952
Public	1,030	13,306 [2]
Private	90	8,902 [3]
Other		8,808 [4]

[1] Department of Health, Education, and Welfare, National Center for Education Statistics, *Digest of Education Statistics* 1977-1978, p. 11. The data pertain to Fall 1976 and are somewhat lower than the data used in table D-6.

[2] *Ibid.*, p. 54.

[3] No data are available in respect to average salaries in private schools. *Ibid.*, p. 100 reports that the median salary of instructional staff in private two-year colleges was 66.9 percent of that in public two-year colleges. This ratio was used to estimate average earnings in private elementary and secondary schools.

[4] US Bureau of the Census, *Public Employment in 1976*, p. 10. The source reports average October 1976 earnings in public (state and local government) schools of $734 for employees other than instructional staff. No data are available in respect to private schools.

Table D-6

US: Derivation of Average Annual Earnings in Higher Education by Type of Personnel, 1976

Rank	Employment [1]	Females [2] (Percent)	Males [3]	Females [4]	Average Salary (US Dollars/Year)		Wage Bill (Millon Dollars)			Average Salary Per Year (Dollars)
					Males	Females	Males	Females	Totals	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Professor	89,710	9.6	81,098	8,612	24,013	21,503	1,947.4	185.2	2,132.6	23,772
Associate professor	91,436	16.9	75,983	15,453	18,044	17,138	1,371.0	264.8	1,635.8	17,890
Assistant professor	104,886	28.2	75,308	29,578	14,849	14,207	1,118.2	420.2	1,538.4	14,667
Instructor	36,395	(28.2)	26,132	10,263	12,077	11,568	315.6	118.7	434.3	11,933
Lecturer	5,299	(28.2)	3,805	1,494	14,131	12,385	53.8	18.5	72.3	13,644
Total full time	327,726								5,813.4	17,739
Other [10]										10,548

[1] *The Condition of Education*, 1978 edition, p. 188.
[2] *Ibid.*, p. 194. Data for instructors and lecturers not available. The share for assistant professors was used.
[3] Total people less females.
[4] Column 1 x Column 2.
[5] *Ibid.*, p. 190.
[6] Column 3 x Column 5.
[7] Column 4 x Column 6.
[8] Column 7 + Column 8.
[9] Column 109 ÷ by Column 1.
[10] *Public Employment in 1976* shows average October earnings of full-time employees (noninstructional) in higher education of $879. No data were available to separate public and private education.

Table D-7

Million Rubles

USSR: Derivation of Material Expenditures in Education by Type, 1975

Type of School	Budget Classifications			
	Office and Overhead Expenses	Education, On-The-Job Training, Scientific Research, and Library Acquisitions	Food	Clothing, Bedding, and Uniforms
Kindergartens	412	20	1,381	127
Primary, eight year, and secondary	703	56	104	3
Boarding schools	91	8	160	73
Children's homes	56	5	107	44
Secondary-specialized	96	52	15	25
Higher *(vuzy)*	122	119	3	33
Total	**1,480**	**260**	**1,770**	**305**

Source: *Gosbyudzhet 1976*, pp. 40, 43, 49, 54-55, 82, 85, 88-91. For all levels except kindergarten expenditures by category given in republic budgets were raised to total outlays by using ratios of republic budget outlays to total budget outlays. For a description of the content of the budget classifications, see Daniel Gallik, and others, *The Soviet Financial System*, US Bureau of the Census, International Population Statistics Reports, p. 90, No. 23, 1968, pp. 77-82. For kindergartens, the data reflect total outlays and are given directly for food and for clothing, bedding, and uniforms (*ibid.*, p. 91). Office and overhead expenditures were estimated on the assumption that average outlays per school were the same as for primary, eight-year and secondary schools. Data on the number of schools are given in *Narkhoz 1975*, pp. 602, 668. An arbitrary allowance of 20 million rubles was also made to cover expenditures on books and school supplies.

Table D-8

US: Derivation of Weights for Material Purchases in Education

Industry	Million Dollars	Percent
Total	**4,459**	**100.0**
Food	190 [2]	4.3
1		
2		
3		
14		
Utilities—7, 31, 68	1,864	41.8
Soft Goods	2,405	53.9
Fabrics, apparel, textile	25	
16	15	
17	1	
18		
19	9	
Paper and paperboard	312	
24	291	
25	21	
Printing, publishing—26	1,219	
Drugs, cleaners, toiletries—29	170	
Office supplies—64	428	
Chemicals, paint, rubber, plastic	251	
27	145	
28, 30	53	
32	53	

[1] The numbers in this column refer to I/O industries in the 1972 table.

[2] Food purchases were calculated at 7.9 percent of total soft goods purchases, the ratio shown by input/output data for 1967. This procedure was necessitated, because of a change in the treatment of sales in school cafeterias in the 1967 and 1972 tables. The latter treats them, finally, as sales of eating and drinking places.

Source: *Survey of Current Business*, No. 4, 1979, pp. 53, 67. Data represent state and local government purchases.

Table D-9

US: Derivation of Total Expenditures on Education, 1976 [1]

	Million Dollars
Private expenditures	
Line 27 school housing [1]	1,569
98 education and research	17,120
Government current purchases	
Total federal purchases	1,208
Total state and local purchases	95,908
Total	97,116
Current purchases (89.6 percent) [2]	
Current purchases	87,016
Total expenditures (100.0 percent)	105,705
Of which:[2]	
Wages [3] (77.5 percent)	81,948
Materials (22.5 percent)	23,757

[1] All expenditure data are taken from *Survey of Current Business*, July 1979, pp. 37 and 43. Line 27 was obtained from unpublished data from the Department of Commerce.

[2] The share calculated for state and local government purchases was deemed applicable to federal government purchases. The share is based on unpublished data from the Department of Commerce.

[3] Wages represent total compensation of private and public employees. Data are taken from *Survey of Current Business*, July 1979, pp. 40, 54 and *Statistical Abstract of the United States*, 1978, p. 316. The data are as follows:

	Million Dollars
Private sector (education services)	11,012
Public sector (education—federal, state, local)	
State and local	70,542
Federal	
Payroll October 1976	28.0
For 12 months	336.0
Other compensation (17.2 percent) [a]	58.0
Total federal compensation	394.0

[a] Ratio applicable to all federal civilian employees.

Table D-10

USSR and US: Summary Price Ratios and Weights for Health, 1976

	Ruble-Dollar Ratio	Dollar-Ruble Ratio	Expenditure Weights	
			USSR	US
Wages [1]	.077	13.776	100.0	100.0
Materials [2]	.828	2.157	100.0	100.0
Food	.985	1.269	34.0	29.1
Soft goods	.808	2.582	59.5	62.2
Utilities	.451	2.909	6.5	8.7
Wages and materials [3]	.392	9.709	100.0	100.0
Wages	.077	13.776	65.0	58.1
Materials	.828	2.157	35.0	41.9

[1] Derived in tables D-11, D-12, and D-13.
[2] The derivation of the price ratios and expenditure weights is described in the text.
[3] Expenditure weights for the USSR represent total outlays on health and are taken from the GNP accounts derived as explained in appendix E. As explained in the text, expenditures for children's nurseries were deducted to achieve comparability with the United States. The derivation of total expenditures and their components for the United States is shown in table D-14.

Table D-11

USSR and US: Price Ratios for Wages in Health, 1976

Occupation	Rubles Per Year	Dollars Per Year	Ruble-Dollar Ratio	US Weights (Percent)	Dollar-Ruble Ratio	Soviet Weights (Percent)
Physicians (MDs)	2,160	52,919	.041	37.0	24.500	32.3
Dentists	1,320	39,156	.034	9.0	29.664	1.3
Registered nurses	1,080	11,911	.091	24.4	11.029	12.9
Licensed practical nurses	1,020	9,085	.112	7.3	8.907	28.9
Medical technologist	1,020	10,763	.095	2.1	10.552	1.0
Medical technician	1,020	8,700	.117	1.2	8.529	1.0
Pharmacist	1,440	17,021	.085	4.3	11.820	1.7
Radiology technician	1,200	10,170	.118	2.0	8.475	0.7
Attendants, aides, orderlies	720	6,250	.115	12.6	8.681	20.1
Weighted average ratios			.073	99.9	14.501	100.0
Adjusted ratios *			.077		13.776	

* The adjusted ratios reflect an increase of 5 percent in the average wages in the health sector in the USSR to allow for private earnings, mainly doctors, dentists, and nurses.

Sources: Tables D-12 and D-13.

Table D-12

USSR: Derivation of Average Annual Earnings in Health Occupations

	Basic Monthly Salaries [1]	Estimated Average Monthly Earnings [2]	Average Annual Earnings [3]	Average Annual Employment [4]	Total Wages (Billion Rubles) [5]	Percentage Distribution [6]
	(1)	(2)	(3)	(4)	(5)	(6)
Physicians	145	180	2,160	767.1	1.657	32.3
Dentists	80	110	1,320	50.1	.066	1.3
Registered nurses	75	90	1,080	612.7	.662	12.9
Licensed practical nurses	72	85	1,020	1,457.2	1.486	28.9
Pharmacists (with higher education)	100	120	1,440	59.9	.086	1.7
Radiology technician	72	100	1,200	30.3	.036	0.7
Medical technicians, technologists	72	85	1,020	107.4	.110	2.1
Attendants, aides, orderlies	60	60	720	1,431.0	1.030	20.1
Total		**95**	**1,137**	**4,515.7**	**5.133**	**100.0**

[1] Basic salaries are those applicable to persons with 10 to 25 years of service. For doctors the rate is a composite of rates for doctors employed in various kinds of clinics, hospitals, and other facilities, with an allowance for increases made in 1972. Salaries for attendants, aides, and orderlies do not vary with length of service. V. G. Danilevich, *Spravochnik po zarabotnoy plate*, Minsk, 1969, pp. 115, 121, 131-132.

[2] These rates, based on the kind of evidence described in the text, reflect estimated allowances for additional earnings provided because of extra education above the basic required level, pay for arduous assignments, pay for supervision, pay for holding more than one job, and a variety of other allowances.

[3] Column (1) x Column (2).

[4] *Narkhoz 1975*, pp. 713, 716. Figures represent averages of data given for end-of-year 1974 and 1975. The figure for attendants, aides, and orderlies is an estimate based on the information that in 1974 that group comprised 24.8 percent of all positions in medical sanitary institutions of the Ministry of Health (G. A. Popov, *Ekonomika i planirovanie zdravokhranenia*, Moscow, 1976, p. 179).

[5] Column (3) x Column (4).

[6] Percentage distribution of values in Column (5).

Table D-13

US: Derivation of Average Annual Earnings in Health

	Employment (Thousands)	Average Annual Earnings	Wage Bill (Million Dollars)	Percent
Medical doctors	348.0	52,919	18,415.8	37.0
Dentists	115.0	39,156	4,502.9	9.0
Registered nurses	1,020.0	11,911	12,149.2	24.4
Licensed practical nurses	400.0	9,085	3,634.0	7.3
Pharmacists	125.2	17,021	2,131.0	4.3
Radiology technician	100.0	10,170	1,017.0	2.0
Medical technologist	97.0	10,763	1,044.0	2.1
Medical technicians	70.0	8,700	609.0	1.2
Attendants, aides, orderlies	1,002.0	6,250	6,262.5	12.6
Total	**3,277.2**		**49,765.4**	**100.0**

Sources: Employment and total earnings data for all occupations except attendants, aides, and orderlies are unpublished data provided by the US Department of Health, Education, and Welfare, Bureau of Health Manpower.

The number employed as attendants, aides, and orderlies is given in *Statistical Abstract of the United States*, 1977, p. 99. US Department of Labor Bureau of Labor Statistics, *Occupational Outlook Handbook*, 1977-78, p. 493 states in respect to this group that starting salaries at Veterans Administration hospitals were $125 to $140 per week and that the group was paid salaries that were below the average for all nonsupervisory workers in private industry except farming. On the basis of this information, it was decided to assume an average weekly rate of $125 and an average workyear of 50 weeks.

Table D-14

US: Derivation of Total Expenditures on Health, 1976 [1]

	Million Dollars
Private current expenditures [1]	
Institutions (line 27)	99
Opthalmic and orthopedic appliances (line 46)	1,881
Physicians (line 47)	24,876
Dentists (line 48)	9,841
Other (line 49)	3,875
Private hospitals (line 50)	41,485
Health insurance (line 51)	8,787
Total	**90,844**
Government purchases	
Health and hospitals	25,994
Veterans hospitals and medical care	3,892
Total	29,886
Current purchase [2]	27,645
Hospital and supplementary medical insurance (medicare administrative outlays)	842
Medical vendor payments (included under public assistance and relief) [3]	14,167
Total government current purchases	42,654
Total expenditures (100.0 percent)	133,498
Of which:	
Wages (58.1 percent)	77,501 [4]
Material expenditures (41.9 percent)	55,997

[1] Data on expenditures are from *Survey of Current Business*, July 1979, pp. 37 and 43. Line 27 is unpublished data from Department of Commerce.
[2] Percent (92.5) is based on unpublished data from Department of Commerce. The share calculated for state and local government purchases is used for federal government purchases.
[3] *Survey of Current Business*, July 1979, p. 40.
[4] This estimate of total wages represents total employee compensation (private and public) plus an estimated self-employment income provided by the Department of Commerce.

Sources: Data are taken from *Survey of Current Business*, July 1979, table 6.5, p. 54, and *Statistical Abstract of the United States*, 1978, p. 316. They are as follows:

	Million Dollars
Private total employee compensation	46,867
Self-employment earnings	12,958
Government payrolls (10/1976—health and hospitals)	
October payroll	1,259
Total payroll for 12-month period	15,108
Other compensation (17.1 percent)	2,568
Total	17,676
Total	**77,501**

Other compensation for public employees is calculated using the ratio of total compensation of all state and local government employees, except in education, to wages and salaries paid to such employees (*Survey of Current Business*, July 1979, pp. 40, 54).

Appendix E

Derivation of Soviet Consumption Expenditures in Established Prices by Major Category in 1976

Introduction

Total final expenditures of households and the government for major categories of consumption goods and services are derived in the procedures for estimating GNP in current prices. The accounting approach was worked out by Abram Bergson [72] and elaborated by Abraham Becker.[73] The latest detailed set of current price accounts, using this general format, was developed for 1970 by the CIA's Office of Economic Research.[74] A revision of these accounts, together with parallel accounts for 1960 and 1976, will be published in JEC, *Gross National Product of the USSR, 1950-1980,* 1981. Included also are the detailed CIA indexes for categories of consumption and their derivation.

The expenditure values for major categories of consumption in 1976 are those developed to test the affects on growth rates of alternative sets of weights. Briefly, the approach was to construct a set of four basic income and outlay accounts, two for households and two for government. The itemization in these accounts is determined largely by the forms in which Soviet data are published. The outlays of households and the government that represent final consumption were then redistributed among major categories of goods and services. Again, the selection of categories is constrained by the availability of Soviet data, a general principle being to minimize guesswork.

Consumption expenditures by category in 1976 are shown in table E-1. The sources and methodology for deriving them are described below. Additional explanation and the documentation for all 1970 values are provided in the two publications cited above. The presentation follows the numbered classifications given in table E-1. The Soviet Union does not publish data in a format convenient for deriving national accounts. Accordingly, many adjustments of the officially published data are required, and many items must be estimated from information provided in research reports of individual Soviet scholars or obtained by extrapolation from values reported for prior years. Thus, retail sales data include purchases by enterprises and institutions *(melkiy opt)* and also restaurant purchases by persons traveling on business; these values must be estimated and subtracted. Likewise, the published data on expenditures for personal and repair services include enterprise purchases and in some cases exclude the materials involved (for example, tailoring, repair of appliances). Household expenditures on several other services had to be estimated by extrapolation of past trends. With respect to education and health, current purchases by the government had to be derived by a complex procedure to remove investment and similar expenditures from published aggregates. Despite these difficulties, however, the expenditures for the major categories of consumption probably are not seriously in error.

Derivation of Expenditures by Category

Goods

The population's consumption of goods is the sum of estimates derived separately for (1) total retail purchases for consumption (2) household purchases in collective farm markets and (3) consumption-in-kind, consisting of household consumption-in-kind of farm products, and military subsistence. The respective categories were then distributed as appropriate among food, soft goods, and durables.

[72] Bergson, 1961.
[73] Becker, 1969.
[74] CIA, *GNP 1970.*

Retail Purchases for Consumption. Table E-2 presents the derivation and allocation of retail purchases for consumption. Essentially, the task was to remove from the published total for retail sales all items that do not represent household consumption of goods; the items deducted are considered to be intermediate goods, or are counted elsewhere in consumption and investment.

Purchases in Collective Farm Markets. Total sales in collective farm markets are reported as 5.800 billion rubles.[75] Purchases by enterprises and state institutions in these markets are estimated at .505 billion rubles, or 8.7 percent of the total, their share in 1970. Purchases by the population (5.295 billion rubles) are allocated to food and soft goods, the latter being estimated as a residual. Household purchases of food represent the difference between total food purchases in these markets and purchases by enterprises. Total food purchases (5.518 billion rubles) are derived on the basis of the percentage distribution of food purchases between state trade and collective farm markets [76] and purchases in state trade alone.[77] Purchases of food by enterprises are estimated at 95.7 percent of their total purchases in these markets, the share in 1970.

Consumption-in-Kind. Household consumption-in-kind of farm products, valued at average realized prices, is estimated by procedures identical to those for 1970 given in CIA, *GNP 1970,* pp. 27-38. The details are shown in tables E-3, E-4, and E-5 and the source notes to these tables.

Military Subsistence. CIA estimates are based on food and clothing rations, estimated prices for food and clothing, and the number of persons in the armed forces.

Services

Housing. Total household outlay on housing is the sum of (a) cash rents on state and cooperative urban housing, (b) imputed net rent on urban private and rural housing, and (c) expenditures for repair.

(a) *Cash rents* are estimated at 1.556 billion rubles, the sum of cash rent on urban public housing (1.416 billion rubles) and additional charges paid by members of housing cooperatives for maintenance (0.140 billion rubles). Cash rent on urban public housing is calculated as the product of the midyear stock of housing (0.944 billion square meters of living space) and an average rental rate of 1.5 rubles per square meter per year. The midyear stock is obtained as explained in CIA, *GNP 1970,* p. 41, and using data for 1975-76 given in *Narkhoz 1976,* p. 496. The average rental rate assumed for 1976 is a little higher than that for 1970 (1.46 rubles) to allow for some upgrading in quality. Additional charges paid by members of housing cooperatives are calculated as the product of the midyear stock of cooperative housing (0.054 billion square meters of living space) and the charge per square meter (2.59 rubles, as in 1970). The midyear stock was estimated by adding to the 1970 stock the square meters constructed during mid-1970 to end 1975– *Narkhoz 1975,* p. 575, and allowing for construction of 1.3 million square meters in the first half of 1976.

(b) *Imputed net rent* on urban private and rural housing is estimated at 1.178 billion rubles, the difference between gross rent (1.768 billion rubles) and purchased repair by occupants (0.590 billion rubles). Imputed gross rent is calculated as the product of the midyear stock of such housing (1.179 billion square meters of living space) and the average rental rate of state housing. The midyear stock of urban private housing is calculated from end-of-year stock given in *Narkhoz 1976,* p. 498. The stock of rural housing was calculated by the methodology given in Willard Smith, JEC *1973,* p. 420, and data in *Narkhoz 1975,* pp. 570, 578. Conversion of useful space to living space was made as in CIA, *GNP 1970,* p. 41.

(c) *Expenditures for repair* are estimated at 1.534 billion rubles, the sum of outlays by tenants in urban public housing (0.944 billion rubles) and outlays by occupants of urban private and rural housing (0.590

[75] *Narkhoz 1977,* p. 449.
[76] *Ibid.,* p. 452.
[77] *Ibid.,* p. 458.

billion rubles). In each case, the estimate is the product of the respective midyear stocks of housing given above and an estimate of annual outlays of 1 ruble per square meter of living space by the former group and 0.5 rubles by the latter group. These are the rates that were used for 1970; no new information is available, but *Vop ek,* No. 7, 1979, p. 96, repeats the urban rate as applicable to 1977.

Utilities. Household outlays on utilities are estimated at 4.888 billion rubles, consisting of payments for utilities (4.814 billion rubles) and retail purchases of kerosene (0.074 billion rubles). The 1976 value for utility payments represents the 1970 value moved forward by the CIA index for utilities by end use; the index measures quantities of heat, gas, and electricity used by the population. No price changes for this category of services are known to have occurred during 1971-76. Retail purchases of kerosene are given in *Narkhoz 1977,* p. 459.

Transportation

Household outlays on public transportation are estimated at 8.073 billion rubles, the value of such outlays in 1976 in 1970 prices as given for the category by the CIA index of GNP in established prices. No price changes are known to have occurred during 1971-76. The 1976 value represents the 1970 value moved forward by physical measures of quantities (for example, passenger-kilometers) of transport services. The 1970 value allows for deducting business travel costs estimated at one-fourth of total outlays by the population on all forms of public transport.

Communications

Household outlays on these services are estimated at 1.813 billion rubles, the value for 1976 in 1970 prices as given for the category by the CIA index of consumption in established prices. No price changes are known to have occurred during 1971-76. The 1976 value represents the 1970 value moved forward by physical quantities (letters, telegrams, and so forth) of communications services.

Repair and Personal Care. Outlays on repair and personal care are estimated at 7.578 billion rubles, the sum of state-provided "everyday" services—*bytovyye uslugi*—exclusive of housing repair (6.549 billion rubles), privately provided services (0.929 billion rubles) and "other (state) services" (0.100 billion rubles). State-provided "everyday" services are estimated as follows:

	Billion Rubles
Reported total state-provided services	5.896 [1]
Less:	
Housing construction and repair	.470 [1]
Services sold to enterprises	1.051 [2]
Plus:	
Materials used in clothing repair	1.365 [3]
Materials used in knitwear repair	.245 [3]
Materials used in repair of metal goods	.564 [3]
Equals:	
Expenditures of the population	6.549

[1] *Narkhoz 1977,* p. 483.
[2] Estimated at 15.9 percent of total reported services plus estimated materials. See table E-2.
[3] Estimated to equal reported values of these services, which are given net of materials.

Estimates for the other two categories are arbitrary. The value of private services is estimated at the same level as in 1970, on the assumption that rapidly growing state-provided services would tend to crowd out private services. There is no basis for estimating the 1976 value of "other services"; the figure is arbitrarily set a little larger than that estimated in 1970.

Recreation. *Household Expenditures.* Outlays are estimated at 2.686 billion rubles, the value for 1976 in 1970 prices as given for the category by the CIA index of GNP in established prices. No price changes are known to have occurred during the period. No data are available in current prices. Privately provided services are assumed to have grown at the same rate as the total.

Government Expenditures. Current outlays by the state to support sports activities are estimated at 0.089 billion rubles, as shown below in the derivation of expenditures for health.

Education. *Household Expenditures.* Expenditures, estimated at 1.965 billion rubles, consist of outlays for private educational services of 0.636 billion rubles and kindergarten and other fees paid by parents of 1.329 billion rubles. Private services are approximated at 5 percent of the state wage bill, as was done for 1970. Parental fees are calculated by increasing the value estimated for 1970 by 36.9 percent, the increase in the number of children in kindergartens of all kinds during 1971-76 (*Narkhoz 1977*, p. 437).

Government Expenditures. Expenditures are estimated as the sum of wages (12.713 billion rubles) social insurance (0.699 billion rubles) and other current purchases (6.119 billion rubles). Wages are the product of employment and the average annual wage (*Narkhoz 1977*, pp. 378, 386). The applicable social insurance rate is 5.5 percent. Other current purchases are estimated as part of the procedure for deriving the index for education in established prices; the value is 5.266 billion rubles. Since it seeks to estimate total current expenditures on educational programs, this procedure implicitly includes activities financed in part by parental fees. These are counted as household outlays and, therefore, were deducted from total expenditures on education obtained by the methodology described (18.678 billion rubles) to yield a value of 17.349 billion rubles for public sector outlays.

Health. *Household Expenditures.* Outlays are estimated at 0.425 billion rubles, the sum of 0.325 billion rubles spent on privately provided health services and 0.100 billion rubles of fees in fee-paid clinics and fees for care of children in nurseries. Private services are arbitrarily estimated at 5 percent of the state wage bill, as was done for 1970. Fees for nurseries and fee-paid clinics are arbitrarily estimated at 0.100 billion rubles. No information is available for 1976. According to *Narkhoz 1977*, p. 437, the number of children in nurseries fell by 14 percent during 1971-76. Fees in fee-for-service clinics, however, probably increased.

Government Expenditures. Total outlays for health and physical culture are estimated and allocated as follows:

	Billion Rubles
Wages and social insurance in health and physical culture	7.739 [1]
Materials in health	3.923 [2]
Materials in physical culture, vacation resorts, and the like	.275 [3]
Total	**11.937**
Less:	
Subsidy to vacation resorts	1.100 [4]
Fees paid by the populace	.100 [5]
Equals:	
Public sector current outlays on health and physical culture	10.737
Of which:	
Health	10.648
Physical culture	.089 [6]

[1] Derived as the product of total employment (5,878,000) and the average annual wage (1248 rubles), *Narkhoz 1977*, pp. 378, 386. The applicable social insurance charge is 5.5 percent.
[2] Equals the value estimated in the CIA index of material purchases in health in current prices.
[3] Calculated at 25 percent of total current outlays on vacation resorts and the like—the state subsidy to resorts.
[4] Estimated.
[5] Estimated.
[6] Estimated by increasing the value for 1970 (0.061 billion rubles) by the average annual rate of growth of total budget outlays on physical culture during 1971-76, *Narkhoz 1977*, p. 562.

Table E-1

Billion Rubles

USSR: Consumption Expenditures in Established Prices by Major Category, 1976

Total consumption	**286.150**
Goods	226.368
Food	138.083
Retail purchases	114.062
Collective farm market purchases	5.035
Consumption-in-kind	16.396
Military subsistence	2.590
Soft goods	61.954
Retail purchases	60.269
Collective farm market purchases	.260
Consumption in kind (wool)	.043
Military subsistence	1.382
Durables	26.331
Retail purchases	26.331
Services	59.782
Housing	4.268
Cash rent	1.556
Inputed rent	1.178
Repair	1.534
Utilities	4.888
Transportation	8.073
Communications	1.813
Repair and personal care	7.578
State-provided services	6.649
Private services	.929
Recreation	2.775
Household expenditures	2.686
Government expenditures	.089
Education	19.314
Household expenditures	1.965
Government expenditures	17.349
Health	11.073
Household expenditures	.425
Government expenditures	10.648

Note: The values given in table E-1 were derived using definitions and categories that are consistent with the CIA national accounts and indexes for the USSR. In developing the weights used in the ruble/dollar ratios and comparisons with the United States, however, several reclassifications were made to achieve greater comparability. These are: (1) transfer of 2.154 billion rubles of food purchases by school cafeterias from education to food; (2) transfer of 0.375 billion rubles of expenditures for children's nurseries from health to education; (3) transfer of 0.388 billion rubles (gasoline and oil) from soft goods to automotive services; (4) transfer of 0.340 billion rubles (auto repair) from repair and personal care to automotive services; (5) addition of 0.400 billion rubles of state expenditures on libraries to education.

Table E-2

Billion Rubles

USSR: Derivation of Retail Purchases of Goods for Consumption*

	Total	Food	Soft Goods	Durables
Total retail sales [1]	**220.139**	**120.910**	**65.982**	**30.280**
Less:				
Producer goods sold to farm households [2]	0.592			
Building materials and glass [3]	2.063			
Kerosene [4]	0.074			
Film rentals [5]	0.238			
Equals [6]	217.172			
Identified in sales data [7]	166.123	82.125	61.894	22.104
Residuals [8]	51.049	38.785	4.088	8.176
Less:				
Business travel meals [9]	0.410	0.410		
Sales to enterprises [10]	9.713	6.438	1.495	1.780
Commission sales [11]	1.000		0.200	0.800
Services [12]	5.387		4.018	1.369
Identified in services data [13]	5.001		3.825	1.176
Residuals [14]	0.386		0.193	0.193
Subtotal	16,510	6.848	5.713	3.949
Equals: retail purchases for consumption	**200.662**	**114.062**	**60.269**	**26.331**

* The derivation of the values shown in table E-2 follows, by line item:

[1] Total retail sales. *Narkhoz 1977*, p. 458.

[2] Producer goods sold to farm households are estimated at 5.59 percent (the share in 1970) of household net income from sales of farm products. The latter were estimated by increasing their 1970 value by the increase in collective farm market sales plus sales by consumer cooperatives of products purchased from the population on commision (*ibid.*, p. 459).

[3] Building materials and window glass (*ibid.*, p. 459).

[4] Kerosene (included in Utilities) (*ibid.*, p. 459).

[5] Film rentals were estimated by increasing the 1970 value by 22.12 percent, the increase in the output of films during 1971-76 (*ibid.*, p. 520).

[6] Total retail purchases less indicated deductions. The allocations to categories are the sums of specific goods listed in the published retail sales data (*ibid.*, pp. 458-459) and assignments of shares in residuals.

[7] Identified foods include all items given in the list of "foods" except "Other foods." Tobacco is also included as an identified item. Identified soft goods include: fabrics, clothing, knitwear, footwear,

household soaps and detergents, toilet soap and perfume, haberdashery, matches, school and stationery supplies, and publications. Identified durables are: furniture and rugs, metal beds, dishwares (metal and china), sporting goods, radios and TV sets, musical instruments and supplies, toys, other cultural goods, bicycles and motorcycles, watches, jewelry, electrical appliances, and sewing machines.

[8] Residual foods consists of the category "other foods," which is mainly beverages. For the rest, the residual is calculated as the difference between the published total for "nonfood goods" and the sum of all identified items (13.094 billion rubles), less items 2 and 5, deducted above; these items are thought to be included in the residual. The result (12.264 billion rubles) was allocated one-third to soft goods and two-thirds to durables. Athough this allocation is arbitrary, it takes into account estimated values for some of known major components (medicines and cars).

[9] Meals purchased by business travelers are arbitrarily estimated at 2 percent of total expenditures in restaurants and cafes (*ibid.*, p. 453).

[10] Total sales at retail to enterprises and state institutions (*melkiy opt*) are estimated at 10.170 billion rubles, or 4.62 percent of total sales. This was the share reported for 1970; no new information is available. Enterprise sales are distributed among categories of goods in accordance with their estimated shares in 1970. Of the total, 0.457 billion rubles are estimated to consist of purchases of building materials and glass.

[11] Commission sales and sales to rental agencies are arbitrarily estimated at 1.0 billion rubles, allowing for a substantial rise from their 1970 value to accommodate a large assumed increase in sales of second hand cars and appliances.

[12] Soviet retail sales data include sales of so-called "productive services," which are classified as personal care and repair services in the GNP accounts. Productive services are defined to include: repair and making of shoes, clothing knitwear, furniture, and housing; repair of metal articles, appliances, and automobiles; laundries; drycleaning; and photographic services (Gosplan SSSR, *Metodicheskie ukazaniya k sostavleniyu gosudavstvennogo plana razvitia narodnogo khozyaystva SSSR*, 1969, pp. 763-765).

These services are estimated in the same way as in 1970 from data for 1976 given in *Narkhoz 1977*, p. 483 by (1) adding the estimated value of materials for some of the services (excluded from the published data) and (2) deducting sales of services to enteprises; these are included in the published data on services, but are not included in retail trade (*Metodicheskie ukazaniya*, 1969, p. 452): by extrapolating the original Soviet data at average annual growth rates during 1966-72 (V. I. Dmitriev, *Metodologicheskie osnovy prognozirovaniya sprosa na bytovyye uslugi*, Moscow, 1975, p. 98). The resulting calculated share in total services (16.9 percent) agrees well with a statement in a recent Soviet source that such sales in 1975 were about 18 percent of total services. (N. V. Gukov, *Ekonomika, organizatsiya i planirovanie material'no-tekhnicheskogo snabzheniya predpriyatiy bytovogo obsluzhivaniya*, Moscow, 1977, p. 14). The derivation of the final estimates of the services included in retail trade in 1976 is shown below.

	Billion Rubles
Total productive services	4.126 [a]
Plus materials in: [b]	
Clothing repair	1.365
Knitwear	.245
Repair of metal goods	.564
Less:	
Sales to enterprises [c]	.913
Equals:	
Services included in retail trade	5.387

[a] Excluding housing repair.

[b] Calculated equal to reported values.

[c] The share of sales to enterprises in 1976 was obtained as explained above.

[13] Services identified in the published data, after adjustment to add materials and deduct enterprise sales, are allocated as follows: to soft goods—repair and making of clothing, shoes, and knitwear; dry cleaning; laundries: to durables—repair of metal goods and of furniture; and photographic services. Further details are given in appendix C, table C-3.

[14] The residual of unidentified services, after netting out enterprise purchases, was allocated equally to soft goods and durables.

Table E-3

USSR: Disposition of Output of Commodities Included in Farm Household Consumption-in-Kind, 1976 [1]

Thousand Metric Tons (Except Eggs–Million Units)

Commodity	Gross Output	Used in Production (Seed, Feed, and Waste)	Marketed Output										
			Total	State Procurements					Difference Between Physical and Accounting Weight of Procurements	Collective Farm Ex-Village Market and Commission Sales	Decentralized Procurements	Farm Household Consumption-in-Kind A−(B+C) [12]
				Total	State Farms and Other State Agricultural Enterprises	Collective Farms	Private Plots of Collective Farm Members and Wage and Salary Workers D−(E+F) [1]	Repayment of Seed Loans				
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)	(K)	(L)
Grain	223,755	119,255	101,500	92,107	45,054	45,053	0	2,000	6,893	1,500	1,000	3,000
Potatoes	85,102	50,570	20,600	13,636	4,773	5,727	3,136		14	5,960	990	13,932
Vegetables	25,008	5,002	18,400	16,180	9,222	6,149	809			1,138	1,082	1,606
Sunflower seeds	5,277	727	4,050	3,763	865	2,898	0		136	151	0	500
Meat, live weight	21,270	0	17,302	14,706	6,700	6,400	1,606			1,683	913	3,968
Milk and milk products expressed in terms of milk	89,158	11,000	58,400	56,220	23,800	29,600	2,820		856	958	366	19,758
Wool, grease basis, physical weight	433	0	424	422	NA	NA	NA			2	0	9
Wool, accounting weight			483	480	225	175	80			2	0	
Eggs	55,626	2,157	36,300	32,897	27,600	4,100	1,197			1,963	1,440	17,169

[1] Except for grain, the entry for which is derived as D−(E+F+H).
[2] Except for grain and sunflower seeds for which estimates are independently derived.

Notes to Table E-3

(a) The disposition of output of commodities included in farm household consumption-in-kind is derived for 1976 by much the same methodology as that set out for 1970 in CIA, *GNP 1970*, table A-1, p. 27-31.

With the exception of three entries (explained below), data for the following columns are from *Narkhoz za 60 let*, column A, *Gross Output; column C, Total Marketed Output;* and *column D, Total State Procurements*. Data for *Columns E and F* are either taken directly from *Narkhoz 1976* (the case for livestock products) or computed from share data in *Narkhoz za 60 let*, (the case for crops). In turn, *column G* is derived as a residual, total procurements (column D) less procurements from state farms (column E) and collective farms (column F).

Gross output of meat, live weight, is estimated on the basis of (1) gross output of meat, slaughter weight, by type of meat and (2) dressing percentages as follows:

	(1) Slaughter Weight [a] (000 Tons)	(2) Dressing Percentage [b] (Percent)	(3) Live Weight [c] (000 Tons)
Total meat production	**13,400**	**63.0**	**21,270**
Beef	6,600	58.3	11,321
Pork	4,200	71.9	5,841
Mutton and kid	900	51.2	1,758
Poultry	1,400	80.0	1,750
Other	300	50.0	600

[a] *Narkhoz za 60 let*, p. 282.
[b] CIA, *GNP 1970*, p. 38, except for the column's overall dressing percentage, which was derived by dividing the total of column 1 by the total of column 3.
[c] Column 1 divided by column 2, except for the column's total entry, which was derived as the sum of the parts.

Total marketed output of meat, live weight, is estimated on the basis of (1) total marketed output of meat, slaughter weight (*Narkhoz za 60 let*,p. 284), and the overall dressing percentage—63.0 percent—derived above. Total marketed output of wool, accounting weight, is estimated on the basis of (1) data for marketed output of wool, physical weight and (2) the assumption that physical weight was 87.8 percent of accounting weight (the relationship obtaining for wool procurements presented in *Narkhoz za 60 let*, p. 284, 345.

Entries for *column B, Used in Production (Seed, Feed and Waste)* are approximated by the methodology presented in CIA, *GNP 1970*, p. 29.

For an explanation of *column H, Repayment of Seed Loans*, see CIA, *GNP 1970*, p. 30.

Data for *column I, Difference Between Physical and Accounting Weight of Procurements* are derived for all commodities (where applicable) with the exception of grain, by the methodology set out in CIA, *GNP 1970*, p. 30. The grain entry for 1976 is derived as column C − (D + J + K).

Data for *column J, Collective Farm Exvillage Market and Commission Sales* are derived for all commodities, with the exception of grain, by the methodology in CIA, *GNP 1970*, p. 30; that is, column C − (D + I + K). The grain entry is set at an allowance of 1.5 million tons.

Data for *column K, Decentralized Procurements* are derived for each commodity by the methodology set out in CIA, *GNP 1970*, p. 31. The grain entry is again set at an allowance of 1 million tons; the sunflower seeds entry is assumed to be zero.

The estimates for *column L, Farm Household Consumption-in-Kind* are derived for all commodities, with the exceptions of grain and sunflower seeds, as column A − (B + C). Estimates of grain and sunflower seeds consumed in-kind in 1970 are assumed applicable for 1976 as well (see CIA, *GNP 1970*, p. 31, for derivation).

(b) Net of increment of livestock herds.

Table E-4

USSR: Estimation of Average Procurement Prices by the State for Agricultural Products, 1976 [1]

	Unit of Measure	1970	1976
Grain			
a. Procurement bill	Million rubles [2]	7,126	8,843
b. Procurements from all producers	Thousand tons [3]	73,284	92,107
c. Average procurement price (a ÷ b)	Rubles/ton	97.24	96.01
d. Index of row e, 1970=100		100	98.74
e. Average procurement price in 1970 [A(ER) 75-76] moved by index (row d)	R/ton	96.99 [4]	95.77
Potatoes and vegetables			
a. Procurement bill	Million rubles [2]	2,487	4,228
b. Procurements from all producers	Thousand tons [3]	22,151	29,816
c. Average procurement price (a ÷ b)	R/ton	112.27	141.80
d. Index of row c, 1970=100		100	126.30
e. Average procurement price in 1970 [A(ER) 75-76] moved by index (row d)	R/ton	89.80 [4]	113.42
Potatoes			
Average procurement price	R/ton	74.30 [4]	81 [5]
Vegetables			
Average procurement price	R/ton	105.74 [4]	141 [5]
Sunflower seeds			
a. Procurement bill	Million rubles [2]	893	726
b. Procurements from all producers	Thousand tons [3]	4,613	3,763
c. Average procurement price (a ÷ b)	R/ton	193.58	192.93
d. Index of row c, 1970=100		100	99.66
e. Average procurement price in 1970 /A(ER) 75-76/ moved by index (row d)	R/ton	180.29 [4]	179.68
Meat, live weight			
a. Procurement bill	Million rubles [2]	18,452	22,949
b. Procurements from all producers	Thousand tons [3]	12,595	14,706
c. Average procurement price (a ÷ b)	R/ton	1,465.03	1,560.52
d. Index of row c, 1970=100		100	106.52
e. Average procurement price in 1970 (CIA, *GNP 1970*) moved by index (row d)	R/ton	1,471.64 [4]	1,567.59
Milk and milk products expressed in terms of milk			
a. Procurement bill	Million rubles [2]	8,772	12,198
b. Procurements from all producers	Thousand tons [3]	45,681	56,220
c. Average procurement price (a ÷ b)	R/ton	192.03	216.97
d. Index of row c, 1970=100		100	112.99
e. Average procurement price in 1970 (CIA, *GNP 1970*) moved by index (row d)	R/ton	192.25	217.22

Table E-4

USSR: Estimation of Average Procurement Prices by the State for Agricultural Products, 1976 [1] (continued)

	Unit of Measure	1970	1976
Wool, accounting weight			
a. Procurement bill	Million rubles [2]	1,967	2,201
b. Procurements from all producers	Thousand tons [3]	441	480.5
c. Average procurement price (a ÷ b)	R/ton	4,460.32	4,580.65
d. Index of row c, 1970=100		100	102.70
e. Average procurement price in 1970 (CIA, *GNP 1970*) moved by index (row d)	R/ton	4,651.02 [4]	4,776.60
Eggs			
a. Procurement bill	Million rubles [2]	1,634	2,986
b. Procurements from all producers	Million units [3]	18,054	32,897
c. Average procurement price (a ÷ b)	R/1,000 units	90.51	90.77
d. Index of row c, 1970=100		100	100.29
e. Average procurement price in 1970 (CIA, *GNP 1970*) moved by index (row d)	R/1,000 units	94.78 [4]	95.05

[1] The 1976 average procurement price is estimated for each commodity on the basis of (1) the commodity's 1970 average procurement price presented in the 1970 GNP paper (CIA, *GNP 1970*, table A-2, p. 32-35) and (2) an index of the commodity's average procurement price, 1970-76 (1970 = 100). The index is based on prices that are derived from annual official statistical handbook data for (1) the procurement bill for the given commodity and (2) the quantity of the commodity procured.

That the price on which the indexes are based are not used *directly* requires an explanation. It is to be noted that for some commodities the 1970 average procurement price calculated from procurement bill and procurement quantity data differs significantly from the 1970 average procurement price of CIA, *GNP 1970*. From 1970 data of rows c and e, this table, we see the two sets of 1970 prices are nearly identical for grain, meat (live weight), and milk; vary slightly (4 to 7 percent) for sunflower seeds, wool, and eggs; and differ grossly for potatoes and vegetables (in the aggregate). The reason for the difference is not clear. Since the 1970 procurement prices of CIA, *GNP 1970* are well based—cited by Yemel'yanov, Boyev, and Stepanov, probably the most knowledgeable agricultural price specialists contributing to Soviet economic literature today—the CIA, *GNP 1970* prices are retained as the 1970 base to which the 1970-76 indexes are applied.

[2] *Narkhoz za 60 let*, p. 289.

[3] For 1970 data see CIA, *GNP 1970*, table A-1, column D, p. 27. For 1976 data see table A-1, 1976, column D. All data are from annual official statistical handbooks.

[4] The 1970 average procurement price is derived from value and quantity data presented in CIA, *GNP 1970*, table A-2, p. 32-35. The commodity's price is derived by dividing the sum of the value of procurements from (1) state farms and other state agricultural enterprises, (2) collective farms, and (3) private producers by the sum of procurements from these producers. It is to be noted that decentralized procurement are not included in the calculation of the average procurement price, since (1) decentralized procurements fall outside official procurement totals and (2) decentralized procurements are priced (obtained) at, or nearer to, collective market prices rather than at procurement prices.

[5] The procurement bill is available for *potatoes and vegetables* as an aggregate. The 1976 average procurement price for *potatoes* is estimated at 81 rubles per ton, in fact the 1970 procurement price paid state farms and in line with the price paid collective farms in 1972. (See A. M. Yemel'yanov, *Metodicheskoye posobiye po kursu "osnovy ekonomiki i upravleniya sel'skokhozyaystvennym proizvodstyam,"* Moscow, 1974, p. 250.) The 1976 average procurement price for *vegetables* is estimated as follows:

	(1) Procurement (Million Tons)	(2) Price (R/Ton)	(3) Procurement Bill [a] (Million Rubles)
Potatoes and vegetables	29.816	113.42 [b]	3,381.7
Potatoes	13.636	81	1,104.5
Vegetables	16.180	141 [c]	2,277.2

[a] Column 1 times column 2, except for the column's vegetable entry, which was derived by subtraction.

[b] From table E-4.

[c] Derived by dividing the vegetable entry of column 3 by the vegetable entry of column 1.

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Table E-5

USSR: Valuation of Farm Household Consumption-in-Kind, 1976 [1]

	1. Grain			2. Potatoes		
	Quantity (Thousand Metric Tons)	Price (Rubles Per Metric Tons)	Value (Million Rubles)	Quantity (Thousand Metric Tons)	Price (Rubles Per Metric Ton)	Value (Million Rubles)
a. Marketed output						
(1) Deliveries of state farms and other state agricultural enterprises	45,054			4,773		
(2) Procurements from collective farms	45,053	96	8,650.3	5,727	81	1,104.5
(3) Procurements from private plots of collective farm members and wage and salary workers	0			3,136		
(4) Repayment of seed loans	2,000	0	0			
(5) Difference between physical and accounting weight of procurements	6,893	0	0	14	0	0
(6) Collective farm exvillage market and commission sales	1,500	270	405.0	5,960	235	1,400.6
(7) Decentralized procurements	1,000	270	270.0	990	235	232.6
(8) Total marketed output	101,500	101	9,325.3	20,600	133	2,737.7
b. Farm household consumption-in-kind	3,000	101	303.0	13,932	133	1,853.0

	3. Vegetables			4. Sunflower Seeds		
	Quantity (Thousand Metric Tons)	Price (Rubles Per Metric Tons)	Value (Million Rubles)	Quantity (Thousand Metric Tons)	Price (Rubles Per Metric Ton)	Value (Million Rubles)
a. Marketed output						
(1) Deliveries of state farms and other state agricultural enterprises	9,222			865		
(2) Procurements from collective farms	6,149	141	2,281.4	2,898	180	677.3
(3) Procurements from private plots of collective farm members and wage and salary workers	809			0		
(4) Difference between physical and accounting weight of procurements				136	0	0
(5) Collective farm exvillage market and commission sales	1,138	460	523.5	151	270	40.8
(6) Decentralized procurements	1,082	460	497.7	0		
(7) Total marketed output	18,400	179	3,302.6	4,050	183	718.1
b. Farm household consumption-in-kind	1,606	179	287.5	500	183	91.5

Table E-5

USSR: Valuation of Farm Household Consumption-in-Kind, 1976 [1] (continued)

	5. Meat, Live Weight			6. Milk and Milk Products		
	Quantity (Thousand Metric Tons)	Price (Rubles Per Metric Tons)	Value (Million Rubles)	Quantity (Thousand Metric Tons)	Price (Rubles Per Metric Ton)	Value (Million Rubles)
a. Marketed output						
(1) Deliveries of state farms and other state agricultural enterprises	6,700	1,568	23,059.0	23,800	217	12,199.7
(2) Procurements from collective farms	6,400			29,600		
(3) Procurements from private plots of collective farm members and wage and salary workers	1,606			2,820		
(4) Difference between physical and accounting weight of procurements				856	0	0
(5) Collective farm exvillage market and commission sales	1,683	1,570	2,642.3	958	340	325.7
(6) Decentralized procurements	913	1,570	1,433.4	366	340	124.4
(7) Total marketed output	17,302	1,568	27,134.7	58,400	220	12,649.8
b. Farm household consumption-in-kind	3,968	1,568	6,221.8	19,758	220	4,346.8

	7. Wool			8. Eggs		
	Quantity (Thousand Metric Tons)	Price (Rubles Per Metric Tons)	Value (Million Rubles)	Quantity (Thousand Metric Tons)	Price (Rubles Per Metric Ton)	Value (Million Rubles)
a. Marketed output						
(1) Deliveries of state farms and other state agricultural enterprises	225	4,777	2,295.3	27,600	95	3,125.2
(2) Procurements from collective farms	175			4,100		
(3) Procurements from private plots of collective farm members and wage and salary workers	80.5			1,197		
(4) Difference between physical and accounting weight of procurements						
(5) Collective farm exvillage market and commission sales	2.3	4,777	11.0	1,963	105	206.1
(6) Decentralized procurements	0			1,440	105	151.2
(7) Total marketed output	482.8	4,777	2,306.3	36,300	96	3,482.5
b. Farm household consumption-in-kind	9	4,777	43.0	17,169	96	1,648.2

Table E-5

USSR: Valuation of Farm Household Consumption-in-Kind, 1976 [1] (continued)

	9. All Other			10. Summary [2]
	Quantity (Thousand Metric Tons)	Price (Rubles Per Metric Ton)	Value (Million Rubles)	Million Rubles
a. Marketed output				
(1) Deliveries of state farms and other state agricultural enterprises				
(2) Procurements from collective farms				
(3) Procurements from private plots of collective farm members and wage and salary workers				
(4) Difference beween physical and accounting weight of procurements				
(5) Collective farm exvillage market and commission sales				
(6) Decentralized procurements				
(7) Total marketed output				
b. Farm household consumption-in-kind			1,643.9	

	Million Rubles
Grain	303
Potatoes	1,853
Vegetables	287.5
Sunflower seeds	91.5
Meat	6,222
Milk and milk products expressed in terms of milk	4,347
Wool	43
Eggs	1,648
All other	1,644
Total	**16,439**

[1] The methodology for valuing farm household consumption-in-kind is that of CIA, *GNP 1970*, p. 36-37.

Quantities. All quantity data are from table A-1, 1976, columns C through L.

Prices. Average realized prices of marketings, derived in item *a* of this table CIA, *GNP 1970* are used in item *b* to value commodities consumed in-kind by farm households. These prices are derived by valuing each type of marketing at the appropriate price and dividing the sum of the values by the sum of the quantities marketed *(excluding those parts of marketed output that are either non-monetary transactions—the return of seed grain loans—or accounting entries—the difference between procurements expressed in physical weight and procurements expressed in accounting weight).* *Average procurement prices* are from table E-4.

The collective farm exvillage market-commission sales price for each commodity, with the exceptions of meat (live weight), sunflower seeds, and wool, was derived for 1976 on the basis of (1) the commodity's 1970 collective farm ex-village market-commission sales price (from CIA, *GNP 1970*, p. 32-35) and (2) the estimated percentage change in the commodity's average commission sales price from 1970 to 1976. Commission sales prices can be derived through 1975 from value and quantity data in *Narkhoz 1975*, p. 628 and were extended through 1976 at their respective 1971-75 average annual rates of growth. In turn, an index of the commodity's price, 1970-76 (with 1970= 100), was computed and used to move the commodity's 1970 collective farm exvillage market-commission sales prices of (CIA, *GNP 1970*).

Since the commission sales value and quantity data are for slaughter weight meat, the index so computed was applied to the 1970 meat, slaughter weight, price (*ibid.*, p. 37), and a meat, live weight, price was derived as follows:

	1970	1976
Index of commission sales price of meat, slaughter weight	100	104.85
CFM meat, slaughter weight, price *(rubles per ton)*	2,378	2,493.33
CFM sales of meat, live weight *(thousand tons)*		1,683
CFM sales of meat, slaughter weight, (using a dressing percentage of 0.630) *(thousand tons)*		1,063

The value of slaughter weight sales divided by live weight tonnage yields a live weight price. Implicit here is the assumption that the unusables—that is, the difference between live weight and slaughter weight—are of zero value. Thus, $\frac{1{,}060 \times 2{,}493.33}{1{,}683} = 1{,}570$ rubles per ton, live weight.

The collective farm market price for sunflower seeds was set at 50 percent above the average procurement price; the collective farm market price for wool was assumed equal to the average procurement price.

Decentralized procurement prices were assumed equal to collective farm market prices.

Values. For the itemized products, the value for each line item, with the exception of *total marketed output*, is the product of the quantity and the price. The value of total marketed output is derived as the sum of the parts.

The total value of farm household consumption-in-kind is estimated on the assumption that consumption-in-kind of the itemized commodities—grain, potatoes, vegetables, sunflower seeds, meat, milk and milk products, wool, and eggs—represented at least 90 percent of total consumption-in-kind by farm households. The remaining 10 percent, or "all other" consumption-in-kind, is assumed to include products such as fruits, nuts, berries, honey, mushrooms, fresh water fish, game animals and their products, tobacco and makhorka, tea, and herbs.

[2] Value data of item *b* for parts 1 through 9 of this table.

Appendix F

Soviet Consumption Expenditures in Modified ICP Classification, 1976

Introduction

To extend the comparisons of consumption to countries other than the United States and the USSR, the ICP classification scheme was modified (1) to allocate purchases in restaurants and cafes from miscellaneous services to food, beverage, and tobacco and (2) to transfer hotels and lodging from miscellaneous services to recreation.

The reclassification of Soviet consumption categories into the modified ICP framework entailed mainly the redistribution of soft goods, durables, and personal services among appropriate ICP categories. The latter system for the most part, groups goods and services together. The allocations are given in tables F-1 and F-2.

On the whole, the reclassification is deemed satisfactory. Its precision is limited severely by available Soviet data and the paucity of information about the detailed content of published categories of goods and services. The basis for the reclassification of goods is the list of categories in which data on retail sales are published in Soviet statistical handbooks. The published data include sizable residuals of unitemized goods, the nature of which is only partly known. As was done in calculating the ruble-dollar ratios, independent estimates have been made of the values of the more important goods (for example, alcoholic beverages, medicines, and automobiles). Distribution of the remaining residuals necessarily had to be arbitrary, resting on whatever information could be obtained or on reasonable guesses. Similar considerations governed the treatment of personal and repair services. The USSR publishes these data in a breakdown of 12 categories with a large residual (17 percent of the total in 1976), the content of which is little known.

The reclassification is considered wholly reliable for: food, beverages, and tobacco; gross rent and fuel; medical care; and education. The categories clothing and footwear and transportation and communications are considered only a bit less precise. The remaining categories—household furnishings and operations; recreation, and other expenditures (personal care and miscellaneous services) are less reliable, but the values are believed, nevertheless, not to be seriously in error. In each case (except the residual miscellaneous services) the bulk of expenditures could be assigned with confidence.

Comments on Individual Categories

Food, Beverages, and Tobacco. Military subsistence (food) is distributed among categories of food and nonalcoholic beverages in accordance with the distribution of household consumption.

Ice cream, included in milk and dairy products by the USSR and estimated at 0.821 billion rubles in the weights for the ruble-dollar ratios, was reclassified to sugar and confectioneries.

Tea, coffee, and cocoa are included under nonalcoholic beverages for all countries.

Bakery goods (cakes, crackers, and the like) were transferred from confectioneries to bread and cereals.

Clothing and Footwear. On the Soviet side, military subsistence (clothing and the like) was allocated to eight categories of clothing, footwear, personal care goods, and linens on the basis of their respective shares in household retail purchases for consumption.

Haberdashery in the Soviet classification includes metallic and other goods for personal care. The allocation between clothing and personal care was made on the basis of the apparent shares of retail sales in 1963 (*Sov torg 1964*, p. 91).

Gross Rent and Fuel. The Soviet categories housing and utilities were assigned to this group.

House Furnishings and Operations. Household linens were estimated on the basis of their share in retail sales of fabrics in 1963 (*ibid.*, pp. 90-91) and assigned to household furnishings. Fabrics are included with clothing.

Medical Care. The Soviet category health and estimated medical supplies purchased by the population were included in this category. Medical supplies were estimated by extrapolating their reported value in 1963 (*ibid.*, p. 92). Health includes all other current outlays by both the population and the government.

Transportation and Communications. Private transportation is the sum of retail purchases of cars and other means of transport, gasoline and oil, spare parts, and repair services. Public transportation equals the Soviet category transportation.

Communications equals the Soviet category communications, less expenditures (largely fees) for radio and TV broadcasting services. The latter were allocated to recreation.

Recreation and Education. Recreation includes the Soviet category recreation plus appropriate retail sales of soft goods and durables, applicable services, and radio and loudspeaker fees.

The education group coincides with the Soviet education category, which includes both private and public current outlays. As in the binary comparison with the United States, expenditures on school cafeterias were deducted and outlays on children's nurseries and libraries were added.

Personal Care and Miscellaneous Services. Personal care includes allocations from several broad categories of goods and services and also arbitrarily assigned portions of various residuals. The result may be to overstate the value of this group, likely at the expense of clothing or household operations and supplies.

As already noted, expenditures at restaurants and cafes and hotels and lodgings have been reassigned for all countries.

As described in the ICP classification, the residual financial and other services n.e.c. comprise a variety of services that either do not exist at all in the USSR (for example, brokerage fees and fees for investment counseling) or on which no data are available. State fees for copies of marriage licenses, birth certificates, and the like are included among transfer payments in the national accounts for the USSR. The total of all such fees is probably under 0.200 billion rubles. To show some entry for this group, one-half of the residual other services was allocated to it.

Other Adjustments

Subsidies for Housing and Recreation. The ICP study counts in consumption all government subsidies for rent and expenditures for public recreation. In the GNP accounts for the USSR, both items are treated as subsidies, rather than as consumption expenditures, since both items permit the population to pay below-cost prices for these services and since the accounts in established prices are intended to reflect prices people actually pay. Cash rents cover only about one-third of the actual current costs of maintenance of housing. State expenditures on recreation go mainly to subsidize the costs of various forms of entertainment such as the theater, ballet and concerts, and to help defray the costs of vacations at state-run resorts. To conform to ICP practice, these subsidies have been added to household expenditures in the figures given in table F-1.

The rent subsidy is estimated at 6.851 billion rubles, by increasing the subsidy on state housing (estimated as a component of the GNP accounts for 1976) by the ratio of state housing to total housing measured in square meters of useful space. The price ratios were adjusted to reflect the subsidy.

The subsidy to recreation was estimated in the 1976 GNP accounts at 2.276 billion rubles. Because the subsidy could not be allocated accurately by type of recreation, the adjustment for it was made in the price ratios for the category as a whole.

Quality Adjustment in Health Care. The ICP comparisons calculate a "quality adjustment" for health care to allow for the larger stock of capital in the United States, and presumably better quality of services as a result. A similar adjustment has been made

in the US-Soviet price ratios, closely paralleling the ICP procedures and using the data for US capital stock given there (*ICP Phase I*, p. 97). Capital stock for the USSR. has been estimated in V. M. Rutgayzer, *Resursy razvitiya neproizvodstvennoy sfery*, Moscow, 1975, p. 138. Employment in the health sector is given in appendix D, tables D-12 and D-13. Capital and labor weights (1 and 6) are those used in the ICP calculation. Price ratios for capital are those given in the US-Soviet GNP comparisons (*JEC 1979*, p. 393). The quality adjustment in the case of the US-Soviet comparison is 7 percent (it was 8 percent in the ICP comparison for the United States and Hungary). In the final calculation, the adjustment was made to the price ratio for the wage component of total expenditures on health care in the USSR.

Table F-1

USSR: Consumption in 1976 in Modified ICP Classification

	Billion Rubles	Category Shares	Shares in Total Consumption
Total consumption	**295.676**		**100.0**
Food, beverages, tobacco	140.237	100.0	47.4
Food	98.171	70.0	
Bread and cereals	15.293	10.9	
Meat	26.047	18.6	
Fish	4.256	3.0	
Milk, cheese, eggs	16.229	11.6	
Oils and fats	6.733	4.8	
Vegetables	4.686	3.3	
Potatoes	4.209	3.0	
Fruit	5.144	3.7	
Sugar, confectioneries	12.091	8.6	
Other food	3.483	2.5	
Beverages	38.258	27.3	
Alcoholic	35.508	25.3	
Nonalcoholic	2.750	2.0	
Tobacco	3.808	2.7	
Clothing and footwear	51.112	100.0	17.3
Clothing	40.732	79.7	
Footwear	10.380	20.3	
Gross rent and fuel	16.007	100.0	5.4
Gross rents	11.119	69.5	
Fuel	4.888	30.5	
Household furnishings and operations	15.806	100.0	5.3
Furniture and appliances	10.159	64.3	
Supplies and operations	5.647	35.7	
Medical care	11.676	100.0	3.9
Transport and communications	16.690	100.0	5.6
Transport	15.094	90.4	
Private	7.021	42.1	
Public	8.073	48.3	
Communications	1.596	9.6	
Recreation and education	33.842	100.0	11.4
Recreation	15.907	47.0	
Education	17.935	53.0	
Other expenditures	10.306	100.0	3.5
Personal care	9.664	93.8	
Miscellaneous services	.642	6.2	

Table F-2

Billion Rubles

USSR: Allocation of Consumer Goods and Services to ICP Categories

	ICP Categories							
	Clothing	Footwear	Furniture and Appliances	Supplies and Operations	Recreation	Personal Care	Private Transport	Other
Soft goods								
Fabrics	6.389		.628					
Sewn clothing	17.477							
Knitwear	9.062							
Hosiery	2.185							
Footwear		9.827						
Toilet soap, cosmetics						1.999		
Household soap, cleaners				.919				
Haberdashery, notions	2.226					3.355		
Matches				.161				
School supplies, stationery					1.335			
Printed matter					2.371			
Medical supplies								.978 [1]
Paper supplies (household)				.196				
Gasoline and oil							.388	
Other soft goods			.615	.615	.614	.614		
Durables								
Furniture and rugs			5.121					
Kitchen utensils, tableware				2.472				
Sports equipment					.712			
Toys					.952			
Radios, TV sets					3.205			
Musical instruments, supplies					.287			
Photographic supplies					.378			
Bicycles, motor bikes							1.263	
Watches and jewelry						2.509		
Household appliances			2.451					
Sewing machines			.118					
Other cultural goods					.009			
New cars							4.544	
Car spare parts								
Household tools			.927		.299	.299	.486	
Other durables			.299					

Table F-2

Billion Rubles

USSR: Allocation of Consumer Goods and Services to ICP Categories (continued)

	ICP Categories							
	Clothing	Footwear	Furniture and Appliances	Supplies and Operations	Recreation	Personal Care	Private Transport	Other
Services								
Repair and personal care								
Shoe repair		.553						
Clothing repair, tailoring	2.908							
Knitwear repair, tailoring	.485							
Repair of metal goods				.200	.200	.200		
Auto repair							.340	
Furniture making and repair				.114				
Dry cleaning and storage				.135				
Laundries				.103				
Building and repair of housing								1.534 [2]
Photographic services					.277			
Public baths						.162		
Barber and beauty shops						.526		
Rental agencies				.088				
Other				.644				.643 [3]
Personal communication					.217			1.596 [4]
Recreation and sports					2.775			
Housing, rents								2.734 [5]
Utilities								4.888 [6]
Health								10.698 [7]
Education								17.935 [8]
Personal transportation								8.073 [9]
Totals	**40.732**	**10.380**	**10.159**	**5.647**	**13.631**	**9.664**	**7.021**	**49.079**

[1] Medical supplies. Allocated to medical care.
[2] Housing repair. Allocated to gross rent.
[3] Unidentified services. Allocated to miscellaneous services.
[4] Communications. Allocated to communications.
[5] Cash and imputed rents. Allocated to gross rent.
[6] Kerosene. Allocated to fuel.
[7] Health. Allocated to medical care. Outlays on children's nurseries were transferred to education.
[8] Education including nurseries and libraries, but excluding school cafeterias.
[9] Transportation. Allocated to public transport.