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PUBLIC EMPLOYMENT AND WAGE SUBSIDIES

A VOLUME OF STUDIES

PREPARED FOR THE USE OF THE

SUBCOMMITTEE ON FISCAL POLICY

OF THE

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LETTERS OF TRANSMITTAL

DECEMBER 23, 1974.

Transmitted herewith is "Public Employment and Wage Subsidies." This is Paper No. 19 in the series *Studies in Public Welfare*, prepared for the use of the Subcommittee on Fiscal Policy.

The views expressed in this paper are those of the authors only, and do not necessarily reflect the views of the Subcommittee on Fiscal Policy, the Joint Economic Committee, or its staff.

WRIGHT PATMAN,
Chairman, Joint Economic Committee.

DECEMBER 19, 1974.

HON. WRIGHT PATMAN,
*Chairman, Joint Economic Committee,
U.S. Congress, Washington, D.C.*

DEAR MR. CHAIRMAN: Transmitted herewith is "Public Employment and Wage Subsidies," Paper No. 19 in the subcommittee's series *Studies in Public Welfare*. Part I of this volume presents a public employment-wage subsidy proposal to replace many existing welfare programs. Part II examines various public employment and wage subsidy programs from historical and theoretical perspectives.

Robert Lerman, former staff economist on the subcommittee, designed a work-conditioned program at my request so that it would be possible to assess the merits of such plans. He developed a detailed program for relieving poverty through a combination of wage subsidies and public jobs, with income supplements for one-parent families. His plan would replace a number of existing welfare programs. This plan is certainly one of the most sophisticated and well-documented proposals of its type. Lerman would offer wage subsidies and would make the Federal Government the employer of last resort. He estimates that the Government would have to create 2.5 million jobs under his program for individuals who would otherwise be jobless or earn very low wages in private employment. In my judgment, such extensive creation of public jobs would require a large bureaucracy in order to function properly, and could easily become an administrative nightmare. Furthermore, the provision that persons take available private jobs before applying for public jobs would arouse controversy over what private jobs are acceptable. Although I appreciate the thoroughness of Lerman's proposal, I find the problems overwhelming.

Lerman, C. Duncan MacRae, and Anthony M. J. Yezer present an analysis of the labor market impact of the Lerman work plan. They conclude that his plan would not adversely affect individual work efforts or undercut average wages paid by employers.

Alan Fechter, of the Urban Institute, evaluates the potential success of expanding public employment programs to reach a variety of social and economic goals, such as expanding employment generally, employing hard-to-place workers, developing work skills and work experience among disadvantaged workers, and alleviating cyclical unemployment. He predicts that if public employment funds are channeled through State and local governments there will be a substantial substitution of Federal payroll dollars for State and local payroll funds that otherwise would have been spent. Hence, relatively few new jobs will be created on balance. Fechter concludes that there is little to be gained through large-scale, permanent, public employment programs, but that such programs may be of some temporary value in periods of recession.

Richard E. Hegner, of the New York State Division of the Budget, notes that conflicts between the objectives of work and relief, employment and welfare, are inherent in public employment programs. Drawing from the experience with the WPA under the New Deal, he concludes that a choice has to be made between quantity and quality of public employment, and that for public employment programs to serve a useful function they need to be funded on a long-term basis.

Peter Mieszkowski, professor of economics at the University of Houston, analyzes the effect of wage subsidy and public employment programs on the market wages of workers in the private sector. He reports that such programs could under certain conditions reduce private wages, but concludes that this is unlikely to occur in practice.

I would like to thank all of these people for their generous contributions.

Alair Townsend prepared this volume for publication, with the aid of Alexander Kornis and Martha Grundmann, and former staff members Robert Lerman and Jon Goldstein.

MARTHA W. GRIFFITHS,
Chairman, Subcommittee on Fiscal Policy.

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Part I. A PROPOSAL FOR THE 1970's

JOIN: A JOBS AND INCOME PROGRAM FOR AMERICAN FAMILIES

By ROBERT I. LERMAN*

SUMMARY

The weak state of the national economy has deepened the problems of low income and high unemployment. High inflation rates have hurt the poor and near-poor by raising the prices they pay relatively more than the incomes they receive. And the attempt to control inflation has led to high and growing unemployment. Current Government programs reduce these burdens for some, but too often they are inadequate, unfair, unproductive, and inefficient. Benefits to some poor families are well below the poverty level or zero while benefits to other poor families are worth as much as the average job. The many income maintenance programs add to administrative costs and worsen the benefit inequities among equally poor families. Nearly all income maintenance programs deal with unemployment or inadequate earnings by providing direct benefits, neglecting to assure sufficient job and earnings opportunities. One recent proposal to help the unemployed would compensate the long-term unemployed with extended unemployment insurance benefits. However, by paying added amounts to people who do not work, this proposal might actually increase unemployment.

This paper makes the case for a jobs and income program to replace the existing welfare system and to reduce poverty and unemployment. The proposed new program, called JOIN, is based on the philosophy that guaranteeing a job to every family is the best policy for relieving the worst burdens of high unemployment and for raising chronically low earnings. JOIN would achieve the following objectives:

(1) Insure that every family or single individual had access to one public job or one private job at a subsidized wage.

(2) Replace the welfare system with a more equitable, more efficient and more work-encouraging program. The new program would provide national payment standards, narrowing the current wide disparities by State; it also would improve substantially the incentives for family stability.

(3) Reduce the unemployment rate at little or no cost in increased inflation; and

(4) Limit the budget cost of overall welfare reform to \$9 billion or less.

*The author is research associate, Brookdale Institute, Jerusalem, Israel. He formerly served as staff economist, Subcommittee on Fiscal Policy. The author acknowledges the important contributions to the formulation of JOIN made by Jon Goldstein and the work of Arnold Packer. The author also thanks Vee Burke, Gary Hendricks, Alexander Korns, and Alair Townsend for their many helpful suggestions. Hendricks and George Chow of the Urban Institute deserve credit for performing the computer simulations used in this paper.

What Is JOIN?

JOIN is a comprehensive jobs and income program. Its jobs component would offer one public job or one wage subsidy benefit to every family and single individual. If JOIN were introduced in 1975, the wage rate in the public job would be \$2.30 per hour, or \$4,600 per year for full-time, year-round work.¹ The wage subsidy payment would equal one-half of the gap between \$3 and the worker's wage. For example, a worker with a \$2 per hour job with a private firm would be eligible for a subsidy payment of 50 cents per hour, or one-half of \$3 minus \$2. Workers earning less than \$1.80 per hour would be ineligible for a wage subsidy payment and presumably would seek a public job.

JOIN's income component would go only to one-parent families with at least one child under age 14. These one-parent families would be eligible for a cash grant in addition to the opportunity for a public job or a wage-subsidized job. Like the current aid to families with dependent children (AFDC) program and a negative income tax proposal, JOIN's income component would provide a maximum payment to families with no other income and partial benefits to families with private income. Unlike AFDC and the negative income tax, JOIN would offer both an income guarantee and a job guarantee to one-parent families. Total net income guarantee to one-parent families of four would be \$3,344.

All JOIN recipients would be subject to a surtax on their earnings and on their nonemployment income. The surtax, which would partially recoup JOIN benefits from some families and discourage participation by others, would insure that JOIN benefits went to the neediest families and individuals and would allow for differential treatment of different types of families. The surtax payment would equal 25 percent of all family earnings above some amount of disregarded earnings and 50 percent of all family nonemployment income. The earnings disregards would vary from 0 for single individuals and one-parent families with at least one child under 14, to \$3,000 for married couples with no children under 18, to \$5,000 for families with children under 18. Thus, a JOIN worker heading a family with children which had no other earnings and no nonemployment income would face no surtax until his earnings reached \$5,000. But a single individual's first dollar of earnings would be subject to a 25-percent surtax. The immediate 25-percent surtax would reduce the value of the JOIN job guarantee to single individuals from \$2.30 to \$1.73 per hour.

The introduction of JOIN would coincide with (a) the elimination of the AFDC, AFDC-unemployed father (UF), and food stamp program; and, (b) the replacement of the \$750 personal exemption deduction under the Federal income tax with a \$170 tax credit. The tax credit would be refundable in the sense that credits not used to reduce tax liability would be paid in cash to the tax filer. Since the \$750 personal exemption is more valuable than the \$170 tax credit to families of four with income tax rates of 22 percent or more,

¹This is the wage rate for all workers other than the following: single individuals and 1-parent families with at least 1 child under age 14, whose effective wage would be \$1.73, and childless married couples, whose effective wage would be \$2.10. Effective wages differ because of the imposition of a surtax described below.

most families with incomes of \$17,500 or more would pay increased taxes.

The entire package would produce minimum after-tax income opportunities to all families and individuals with a full-time, year-round worker of \$4,510 to two-parent families with two children under 18, \$3,837 to married couples with no children, and \$3,012 to single individuals. In comparison, the national average benefit guarantees available to these groups as of July 1972 were \$2,431, \$1,362, and \$914.²

What Does JOIN Cost? By How Much Does JOIN Raise the Incomes of the Poor and Near-Poor?

The net budget cost of introducing JOIN and the tax credit and eliminating AFDC, AFDC-UF, and food stamps would be about \$9 billion in 1975.³ Federal expenditures would rise by \$6.6 billion, and the loss in projected tax revenues would equal \$2.4 billion. Although State and local governments would save some welfare funds, some of this money would be used to prevent income losses for current recipients. States also would be encouraged to use the rest of their savings to improve emergency assistance and temporary disability programs.

A modified, less comprehensive JOIN program could achieve substantial cost savings while continuing to raise income opportunities for most poor families. The net budget costs of JOIN would fall from \$9 to \$6 billion simply by excluding single individuals between age 18 and 22. Alternatively, at a gross direct cost of \$4.5 billion, one could provide the JOIN job guarantee and wage subsidy components to all two-parent families and childless couples and retain existing income support programs.

The estimated gains in income to the poor and near-poor from the comprehensive JOIN program are substantial. Although the poor would lose food stamps, they would gain an aggregate increase of \$7.8 billion in cash income. Almost two-thirds of JOIN's cash gain would go to families with incomes below \$4,000. The largest families would benefit most. For example, JOIN would raise the average cash incomes of six-person families in the \$0-\$3,999 class from \$2,418 to \$4,328.

Many families currently receiving AFDC also would benefit financially from JOIN's replacement of AFDC. Although the JOIN plus tax credit income guarantees would be smaller than current guarantees in high payment States, and lower than the median State AFDC payment plus food stamp bonus, JOIN families could keep a higher percentage of their earnings and other income without losses in benefits than under AFDC, and JOIN would guarantee a job in addition to

² These were the average annual cash and food benefits available in 100 nationally representative counties, weighted by the distribution of the poverty population, for families with no income. See U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy, *Welfare in the 70's: A National Study of Benefits Available in 100 Local Areas*, by James R. Storey. Paper No. 15 (Washington, D.C.: Government Printing Office, 1974), p. 5. Note, since July 1972, food stamp benefits have been increased by 23 percent on average.

³ This net budget cost does not reflect the higher taxes many would have to pay because the tax credit raised their tax liability above what they would be using the current personal exemptions.

cash income supplements. The estimates show that JOIN would increase the average cash incomes of AFDC families whose total pre-JOIN incomes were less than \$3,000 from \$1,979 to \$3,195.

How Does JOIN Create Productive Public Jobs?

The problems of creating productive jobs; of assigning, supervising, and disciplining workers; and of adjusting job flows for timing and geographic variations raise questions about whether a job guarantee program is practical. JOIN's job creation mechanism is designed to operate as efficiently as possible. Nevertheless, unexpectedly large administrative burdens could add to program costs.

JOIN would establish a public corporation to administer its job guarantee component along the lines of Canada's successful local initiatives program (LIP). Since 1971, LIP has sponsored 15,000 projects and created over 250,000 jobs; evaluators found that community leaders believed 90 percent of the jobs produced worthwhile public goods and services. JOIN would follow much of the LIP design by soliciting proposals and granting contracts to individuals, nonprofit institutions, and government units. Project sponsors would have to sign contracts specifying exact tasks to be performed and their dates of completion. JOIN administrators would monitor the projects and would have the power to cancel or suspend projects not fulfilling contract provisions.

How productive the public jobs are in practice will determine to a large extent the success of the entire JOIN program. The specter of large numbers of people working in wasteful jobs or pursuing poor work habits is a serious concern. But JOIN public jobs also have great potential for good. Although job creation problems will be difficult in the first few years, experience will surely improve the ability to utilize JOIN workers effectively. JOIN could tap the idealism of many young people by encouraging them to devise and to run projects that productively employ the Nation's most disadvantaged workers. Such a result is not pure speculation. Many project sponsors who participated in Canada's LIP program came out of the experience with the belief that their Government listens to citizens' ideas and acts to help achieve them. JOIN could also improve the unemployed worker's self-image by making him a contributing member of society.

How Does JOIN Help Reduce Unemployment?

Attaining low unemployment and low inflation is an increasingly difficult task. The limited uses of general tax, expenditure, and credit policies have stimulated a search for other tools to reduce unemployment and to cushion its effects on the poor. JOIN offers a partial way out of the unemployment-inflation dilemma. Among JOIN's advantages as an employment expansion tool are: (1) JOIN public jobs would reach the most disadvantaged workers, who generally are in slack labor markets; (2) JOIN's wage subsidy to low wage private employment would limit JOIN's cost-push effects; and (3) JOIN's assurance of a job to all families and individuals, even in slow economic periods, would spread the burden of economic restraint more equitably.

JOIN also would help to change attitudes about unemployment. Some citizens believe that unemployment is the worker's fault, that

plenty of jobs are normally available, but that workers simply refuse to accept the available jobs. Other citizens believe that steady jobs are difficult for disadvantaged workers to find, even in periods of low unemployment. JOIN would help settle the argument by assuring a large share of workers a job. Whichever view is more correct, JOIN would serve a useful purpose. If few workers actually accepted JOIN jobs because of their expectation of better jobs, JOIN would demonstrate at low Government cost that unemployment for most workers does not mean the absence of jobs, but the absence of good jobs. If many workers did accept JOIN jobs, then JOIN would show that the unemployed are willing to work even at low wages. More important, JOIN would utilize manpower which otherwise would have been unemployed or underemployed.

Why Is JOIN Superior to Standard Public Service Employment Programs?

JOIN differs significantly from most public service employment (PSE) programs, including the ones enacted under the Emergency Employment Act (EEA) of 1971 and the Comprehensive Employment and Training Act (CETA) of 1973. PSE programs provide financing for a fixed number of moderate-wage jobs; JOIN would guarantee jobs at low wages to all families and individuals. PSE programs add jobs directly only in the public sector; the JOIN wage subsidy could help stimulate added private jobs. PSE programs create new public jobs solely through the State and local government bureaucracies; JOIN would utilize nongovernmental institutions as well as Government agencies to perform useful projects with new public workers.

JOIN would create more jobs than PSE programs for any given Federal expenditure and total increase in aggregate demand. JOIN's lower wages are one reason for the larger job creation effect. The other is the greater tendency for PSE programs to help State and local governments use Federal dollars to refinance old jobs rather than creating new ones. JOIN's higher employment impact per dollar of demand would help make its inflationary effect lower.

JOIN would excel over PSE programs in targeting jobs to the disadvantaged. This is an advantage both on equity and on antiinflation grounds. By hiring only workers whose alternative opportunities are poorest, JOIN would help workers in slack labor markets within the economy and thereby limit any wage pressure that could stimulate inflation. In contrast, PSE programs hire workers whose qualifications are similar to the average worker's and whose alternative jobs may be as good as 35 percent of full-time, year-round workers. Thus, the wage pressure generated from added PSE jobs may be as high as from general increases in demand. JOIN's equity advantage is substantial. PSE programs provide a large benefit to a small percent of eligible workers and little or nothing to the rest. JOIN would guarantee a public job or would subsidize a private job on the same terms to all families with similar needs. JOIN also would improve the equity of the entire income support system by helping most those eligible for the lowest current benefits, such as poor single individuals and childless couples and all poor persons in low-payment States.

I. INTRODUCTION

Poverty has a commonsense solution: provide jobs to people able to work and provide income to people unable to work. This basic idea has broad appeal to the American people, especially in comparison to pure cash plans to fight poverty. Most research and legislative efforts to reform welfare and to help the working poor, however, have emphasized the guaranteed income approach, usually with the negative income tax (NIT).⁴ One unfortunate result is that no comprehensive, well-designed and cost-effective jobs and income proposal has been developed.⁵

The absence of a well-conceived work subsidy plan is one reason income maintenance analysts have considered work-conditioned programs as administratively cumbersome, excessively costly, and often inhumane. According to these critics, jobs programs may sound good to the public in theory, but would prove unpopular and would operate poorly in practice. This conclusion has apparently been accepted by many politicians and social analysts.

One major HEW-sponsored report, *Work in America*, has criticized the underemphasis on jobs programs and has noted some of its causes. In the report's words:

* * * it is unfortunate that so much of the reformist energies of the past decade or so have gone into the issue of guaranteed income and so little into the issue of guaranteed, rewarding work. It is difficult to avoid the impression that guaranteed income has been appealing both because it is simpler—one thing the Federal Government knows how to do easily is write checks—and perhaps because a guaranteed income program is less likely than a guaranteed job program to require or result in deep structural changes in the organization of work in our society.⁶

Although the report encourages the development of a jobs program, it fails to propose a specific alternative to the existing welfare system or to the negative income tax.

In addition to their antipoverty potential, job guarantee programs offer a way of reducing unemployment, particularly the unemployment facing the most disadvantaged workers. But the recent policy emphasis has been on a limited expansion of conventional State and local government jobs and on liberalizing unemployment insurance. Unfortunately, these two alternatives are unlikely to reduce unemploy-

⁴ Considerably more legislative effort went toward developing and lobbying for the family assistance plan (FAP), a negative income tax plan, than toward work subsidy, job guarantee plans. The Federal Government has funded negative income tax experiments in New Jersey, Gary, Seattle, Denver, and in rural counties in Iowa and North Carolina. No comparable, carefully designed job guarantee experiments have been funded. And the social science literature on negative income taxes is far more extensive than the literature on work-subsidy plans.

⁵ The popular proposals to expand State and local government employment are not comprehensive; they would do little to eliminate poverty or to reform welfare.

⁶ Special Task Force to the Secretary of Health, Education, and Welfare, *Work in America* (Cambridge: Massachusetts Institute of Technology Press, 1972), p. 148.

ment. At best, they may spread the burden of high unemployment more equitably; at worst, they may increase unemployment and its burden on disadvantaged workers.⁷

Although such programs have been ignored in the past, a well-conceived job guarantee program should be considered today. The old solutions are inappropriate for today's economic situation. And a negative income tax replacement of the existing welfare system may be too costly in Federal dollars—\$10–\$15 billion—to attract the necessary political support, especially since the public is suspicious of universal income guarantee programs. A moderate level NIT program could increase the problems of unemployment or inflation, although it would also help spread the current economic burdens more equitably. The current unemployment problem also is not amenable to the recommended cures. High rates of inflation force a macroeconomic policy of restraint, rather than the expansion usually necessary to reduce unemployment. The proposals for expanded public service employment would simply redistribute unemployment, but not necessarily toward disadvantaged workers or toward needy families. Following the conventional policy proposals is an almost inevitable prescription for forcing the burden of a sluggish economy on the poor.

This paper presents a jobs and income plan, called JOIN, that offers a practical approach to replace the existing welfare system, to help the working poor, to reduce unemployment at little inflationary cost, and to increase public services at a low cost to the hard-pressed, middle-income taxpayer. The JOIN plan builds on an idea that has broad popular appeal. It is that all families with someone willing to work should be assured of the opportunity to gain employment at a wage that provides at least minimum support for his family. But a popular idea and worthwhile objectives are not enough. Many job guarantee proposals are simplistic and would deal poorly with today's economic problems. Many analysts familiar with the pitfalls of simple job guarantee plans regard the entire approach as unworkable. It is the aim of this paper to suggest that a well-designed jobs and income program is a workable method for replacing the welfare system, eliminating poverty, and reducing unemployment.

Before describing JOIN, the paper briefly discusses some major issues and program alternatives in income maintenance policy. This is done in section II, which also notes general objections to the jobs and income approach. Section III describes the JOIN plan and explains the rationale for many of its provisions. Section IV examines the costs of JOIN, the benefits to JOIN recipients, and the effects of JOIN on work patterns by industry and by area. Section V briefly demonstrates JOIN's advantages over expanding public service employment programs of the kind currently operating.

⁷ U.S. Congress, Joint Economic Committee, *Lowering the Permanent Rate of Unemployment*, by Martin Feldstein (Washington, D.C.: Government Printing Office, 1973). See Feldstein for the argument that high unemployment insurance payments may lengthen unemployment. See sec. V in this paper for the arguments concerning the poor employment and equity features of expanded public service employment.

II. SOME ISSUES RELEVANT TO NEGATIVE INCOME TAX AND JOBS AND INCOME PROGRAMS

Improving job opportunities is an attractive way to eliminate poverty. Full employment, economic growth, and education and training programs raise the incomes of the poor by raising the economy's total production, not by redistributing existing output from one group to another. Low-income families likely prefer escaping poverty by increasing their own earnings rather than relying on Government support. Middle- and upper-income taxpayers also favor more and better jobs for the poor, both because of their belief in the work ethic and their tax savings. Unfortunately, general policies to improve the job opportunities of the poor have proved insufficient as measures to eliminate poverty. The economic expansion of the 1960's brought nearly 12 million people out of poverty, but since 1968 the poverty population has remained at about 24 million.⁸ The manpower training effort, begun on a large scale in 1962, helped many trainees, but failed to make a significant dent in the poverty problem.⁹

The economic-growth, full-employment policy suffers from three limitations. First, low-income families with no earners are left behind since they do not share directly in rising wages and profits. The number of poor families headed by a woman has increased by 36 percent in the past 6 years. Second, many families with a full-time, year-round worker remain poor because the breadwinner's wages are too low relative to the family's needs. Although the economic expansion between 1965 and 1972 reduced the share of male-headed families in poverty from 13 to 6 percent, 11.4 million persons in male-headed families were poor in 1972.¹⁰ Third, low-income families cannot expect continuously rapid economic growth and high employment. High inflation rates often require economic slowdowns that raise total unemployment, with workers from low-income families bearing much more than their share.

Many current Government programs are designed to cope with these problems. Welfare programs operate primarily to raise the income of families with no full-time earners. The supplemental security income program (SSI) provides a national income guarantee nearly sufficient to remove all aged, blind, and disabled persons from poverty. Aid to families with dependent children (AFDC) offers income guarantees to all low-income one-parent families with children, but payments vary greatly from one State to another. Noncash programs, such as food stamps, medicaid, and public housing, also help many families with no earners. These programs all guarantee incomes to particular groups in the sense that they provide a real income floor. The income guarantee or income floor is simply the value of cash plus other benefits for which families with no other counted income are eligible.

⁸ U.S. Department of Commerce, Bureau of the Census, "Characteristics of the Low-Income Population: 1972," Current Population Reports, Series P-60, No. 91 (Washington, D.C.: Government Printing Office, 1973), p. 15.

⁹ See U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy, *The Effectiveness of Manpower Training Programs: A Review of Research on the Impact on the Poor*, by Jon Goldstein, Paper No. 3 (Washington, D.C.: Government Printing Office, 1972).

¹⁰ U.S. Bureau of the Census, "Characteristics of the Low Income Population: 1972."

Needy families with full-time workers are also eligible for some Government aid. Food stamps serve to supplement the income of workers trying to support their families at chronically low wages and workers suffering unemployment. In some areas, AFDC for unemployed fathers (UF) and general assistance pays cash aid to two-parent families with little or no earnings. And unemployment insurance (UI) helps those laid off or displaced because of a given firm's problems or a slack economy.

Although current income supplement programs provide important aid to the poor, they do so in a haphazard and unfair way. The current system excludes or pays too little in cash support to many poor two-parent families, childless couples, and single individuals; it pays highly inadequate benefits in many States; it erects significant financial disincentives to work and savings; it encourages family splitting; it sometimes restricts the purchases of poor families to such specific items as a particular housing unit; and its variety of programs makes error and fraud difficult to control and results in wide payment disparities among equally poor families.¹¹

One remedy is to replace the existing welfare system with a universal system of income supplements. The negative income tax (NIT) is the most popular proposal of this type. The NIT would offer income supplements related to income on a sliding scale, so that Government payments would fall as the family's or individual's own income rises. The maximum Government payment, which goes to units with zero private income, serves as an income guarantee. A universal NIT would broaden coverage of Government income supplement programs to include all poor persons, would simplify program administration, would raise benefits for current recipients in the poorest States, would improve overall financial incentives to work and to save, and would reduce financial incentives for illegitimacy and marital disruptions.

Adoption of a universal NIT may be viewed less as a revolutionary income guarantee program and more as a rationalization of the patchwork of existing income guarantee programs. Moderate income guarantees would be extended to all poor persons, including those in two-parent families, married persons without children, single individuals, and all those in States paying low benefits to covered groups. To help pay for universal moderate income guarantees, benefits now available as food stamp bonuses would be converted into cash benefits.

Work subsidy programs represent an alternative approach to replacing the welfare system and to helping the working poor. Instead of extending the income guarantees currently available, work subsidy proposals tend to restrict them. Wage subsidies, earnings subsidies, and public job guarantees would all raise the incomes of poor persons, but only those poor families with a working member. Since many aged, blind, and disabled persons as well as mothers heading families with young children are poor and are not expected to work, work subsidy programs alone could not replace the existing welfare system. Most work subsidy proposals would channel Government aid into two income supplement programs: An income guarantee plan for special

¹¹ See U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy, *Income Security for Americans: Recommendations of the Public Welfare Study* (Washington, D.C.: Government Printing Office, 1974), chapters II and III for documentation.

categories of families and a work subsidy plan for all others. Income guarantees would continue to be available to the aged, blind, disabled, and female-headed families with young children. Eliminated would be food stamps and other income guarantees, such as AFDC-UF and general assistance. Some proposals call for eliminating income guarantees to fatherless families with only school-age children and restricting the income guarantees to fatherless families whose youngest child is under age 14 or age 6. All groups not covered by the income guarantee would become eligible for a work subsidy, whether in the form of a wage subsidy, earnings subsidy, or guaranteed job.

NIT and work-related subsidy programs differ primarily in the coverage they accord the working poor. Under many NIT programs, all poor families and individuals are eligible for purely income-related benefits. In contrast, work-related subsidy programs offer only benefits tied to work effort to most families and generally restrict income guarantees to special types of families. Such work-related subsidy programs are called jobs and income programs in this paper.

This section presents the issues relevant to the analysis of NIT and jobs and income programs. Since a program's desirability depends on its specific as well as its general features, there is no attempt to judge between the NIT and jobs and income strategies.

Equity, Categorization, and Universality

One important objection to jobs and income programs is their categorical approach to determining eligibility. Some regard as unfair any program which excludes whole categories of low-income families from receiving benefits that are available to other categories of low-income families. Although some jobs and income programs are universal in the sense that they offer the same work subsidy and income guarantee options to all families,¹² most exclude families with employable members from eligibility for unconditional cash grants. In contrast, most NIT proposals treat all families and individuals alike except that the size of the income guarantee rises with family size. Opposition to the categorical approach runs deep and stems largely from experience under the current welfare system. The far more generous treatment often accorded to poor one-parent families over all other poor families has been highly inequitable and may have encouraged illegitimacy, family splitting, and delays in remarriage. But it does not follow that all categorical programs are inevitable.

In judging the equity of categorical versus universal programs, one must distinguish between equality of opportunity and equality of results. The NIT pays equal benefits to families with equal monetary needs and equal incomes. This policy is equitable from the standpoint of equality of results, but not necessarily from the standpoint of equality for opportunity. For example, high child care expenses and parental responsibilities make earning an income far more difficult for

¹² Both universal and categorical programs have been proposed and discussed. In 1972, the Senate Finance Committee proposed a categorical jobs and income program which offered public jobs and wage subsidies to two-parent families with children and unconditional cash grants only to one-parent families whose youngest child was under 6. For an example of a universal wage subsidy, negative income tax plan, see Richard Zeckhauser and Peter Schuck, "An Alternative to the Nixon Income Maintenance Plan," *Public Interest*, No. 19 (Spring, 1970), 120-30.

a mother heading a family with three young children than for two parents with two children. Paying benefits only on the basis of income and needs fails to take account of their unequal opportunities. The jobs and income approach attempts to distinguish between families partly on the basis of differential earnings capacities as well as on the basis of differential needs. Aged, blind, and disabled persons and one-parent families receive generous treatment because their earnings opportunities are generally poorer than those of other families.

Some may object that the policy of higher benefits for one-parent families does not use the opportunity criteria. Since most one-parent families result from illegitimacy, separation, or divorce, most parents have equal opportunities to remain in an intact, two-parent unit or to receive support if the unit splits. To provide special benefits to those choosing to split is to offer unequal benefits to those in equal circumstances. Although this view is the logical extension of applying the opportunity criteria used for workers, there is an important distinction. Work-leisure choices are clearly easier to alter than one's status as a deserted or divorced parent.

One objection is that categorization under a jobs and income program may create unfair misclassifications. After all, some one-parent families have earnings opportunities no worse than many two-parent families. By offering more favorable benefit schedules to one-parent families, jobs and income programs may treat families with equal opportunities unequally. A worse difficulty for jobs and income programs is that some families and individuals ineligible for income guarantees may be mentally or physically incapable of working. Universal NIT programs automatically provide an income floor for these groups while jobs and income programs must consider each worker on a case-by-case basis. Since currently there is no national program for temporarily disabled workers, some may be left with no income source at all. Universal programs make other misclassifications. They offer the same benefit schedules to families with different earnings opportunities, thereby treating unequals as equals. One example is the payment under some NIT proposals of full benefits to nonworking students. Some regard such payments as unfair on grounds that students have reasonable earnings opportunities and their low actual incomes result from a voluntary choice of trading off current for future income.

Impact on Work Effort and Aggregate Production

An important criticism of income supplement plans is that they discourage work by making welfare financially attractive and work financially unprofitable. One source of concern is that by working less, recipients reduce the Nation's total output. More significant politically is the fear that by working less, recipients add to the taxpayer's burden and to the dependency of the poor on the Government.

On the more straightforward issue of work reduction by recipients, one would expect the NIT to do more to discourage work effort than jobs and income programs. The NIT pays a moderate benefit to those who do not work at all and reduces benefits with each dollar a recipient earns. In contrast, jobs and income programs generally raise the monetary rewards derived from work. Except for those with dif-

ficult barriers to full-time work, families receive subsidies only if a family member works.

Nevertheless, the evidence of differential work incentive effects is inconclusive. Theoretically, it has been demonstrated that a wage rate subsidy might cause higher work reductions than an NIT.¹³ Subsidies to wages could lower work effort by helping participants achieve the same disposable income with fewer hours of work. Evidence from a recent experiment showed that families receiving NIT grants worked only slightly less than did comparable families not eligible for grants.¹⁴ On the other hand, nonexperimental econometric studies suggest the NIT has a larger work-reducing effect. One study found that a wage subsidy would have caused little or no decline in work effort, but that an NIT of comparable scale would have induced a 10 to 15 percent reduction in work hours.¹⁵

Although estimates of the effects of work-related subsidies and of the NIT are imprecise, NIT's impact on work behavior is the greater concern politically. Work reductions generally add to the NIT's budget costs but generally reduce the budget costs of work-related subsidy programs. This fact is not lost on taxpayers. Watching a low-income NIT recipient increase his leisure would be particularly upsetting to those who are financing half of his foregone wages. Taxpayers would be less concerned about wage subsidy recipients who take a few weeks off, since their vacation usually saves tax dollars.

Excessive concern with work-reducing effects of an NIT is not entirely justified. The evidence indicates that wives and youths are the groups most likely to reduce time at work and male family heads are least likely to do so. Since youths and wives have the socially productive alternatives of school and housework, their exit from the workforce probably would not result in large losses of real production. And from the popular standpoint, families with one full-time, year-round worker would be seen as fulfilling their obligation to support themselves.

Turning directly to the question of production losses, a number of additional issues arise. One problem common to both kinds of programs is the shifting of workers toward less productive jobs. A wage subsidy and a negative income tax narrow wage differences. Jobs paying \$2.50 and \$2 per hour before the programs might become worth \$2.75 and \$2.50 to the wage subsidy recipient and \$1.25 and \$1 to the NIT recipient.¹⁶ If the low-wage job is slightly more pleasant or less demanding than the high-wage job, programs that narrow the wage differential from 50 to 25 cents may cause some recipients to switch to the less productive job. In the long run, narrowing wage differences may cause workers to invest in less education and on-the-

¹³ Irwin Garfinkel, "A Skeptical Note on 'The Optimality' of Wage Subsidy Programs," *American Economic Review*, LXIII (June 1973), 447-453.

¹⁴ See the articles on the graduated work incentive experiment appearing in the *Journal of Human Resources*, IX, Nos. 2 and 4 (1974).

¹⁵ U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy, "Trade-Offs Between Alternative Income Maintenance Programs," by Samuel Rea, Jr., *How Income Supplements Affect Work Behavior*, Paper No. 13 (Washington, D.C.: Government Printing Office, 1974), pp. 33-63.

¹⁶ The wage subsidy assumed in the example is equal to one-half the difference between \$3 and the worker's wage.

job training. Alternatively, NIT plans may stimulate investments in job search, education, and migration by financing part of the largest cost, foregone earnings. Although both the NIT and wage subsidy would probably affect investment in human capital, analysts disagree as to the nature of these effects.¹⁷

Jobs and income programs may cause losses in private output if large numbers of workers move from private jobs into guaranteed public jobs. One potential result of this job shifting would be a reduction in private output accompanied by an increase in public output. But would output actually increase? Some observers question whether large numbers of low-wage workers would produce as much in guaranteed public jobs as they would in conventional jobs.

The job guarantee proposal in this paper provides a mechanism for large-scale job creation modeled after Canada's successful local initiatives program (LIP). Section III discusses this approach in detail. Although the scale of programs guaranteeing jobs exceeds the scale of LIP by a factor of 5 or 10, the LIP experience shows that a national program can create a large number of productive public jobs for low-to moderate-wage workers.

Cost-Effectiveness

One serious criticism of wage subsidy and public job guarantee plans is that their antipoverty efficiency is low.¹⁸ Poverty is a problem of low family income relative to the family's economic needs. Wage subsidies and public job guarantees direct their help to low-wage workers. Since many low-wage workers are in nonpoor families or are single, a large share of work subsidy benefits may go to the nonpoor.¹⁹ However, the inclusion of nonwage provisions can vastly improve the efficiency of wage subsidy, earnings subsidy, and public job plans.²⁰ Restricting the subsidies to one per family and reducing the subsidies by some percent of the family's nonemployment income are among the nonwage provisions that have been examined. Thus, the antipoverty efficiency of various types of plans depend on their specific features.

Measures other than antipoverty efficiency are also useful in comparing program alternatives. To measure a program's efficiency in equalizing income opportunities, one recent study examined the share

¹⁷ See Garfinkel, "A Skeptical Note," 447-53; Samuel Rea, Jr., "Investment in Human Capital and Income Maintenance Programs," Urban Institute Working Paper No. 970-2, Washington, D.C., 1973.

¹⁸ Antipoverty efficiency is the extent of poverty reduction per dollar of program expenditures, where poverty reductions are either the number of people escaping poverty or the total increase in dollar incomes of the preprogram poor.

¹⁹ Michael Barth found that a wage subsidy program paying half the difference between \$2.50 and the worker's wage in 1966 would have channeled only 14 percent of its expenditures to the poor. See U.S. Congress, Joint Economic Committee, "Universal Wage-Rate Subsidy: Benefits and Effects," by Michael Barth. *The Economics of Federal Subsidy Programs, pt. 4, Higher Education and Manpower Subsidies* (Washington, D.C.: Government Printing Office, 1972), pp. 52^a-23.

²⁰ Samuel Rea estimated on the basis of 1966 data that well over 36 percent of wage subsidy benefits would have gone to the presubsidy poor. Rea restricted his subsidy to one per family and reduced the subsidy 100 percent of the family's nonemployment income. See Joint Economic Committee, "Trade-Offs Between Alternative Income Maintenance Programs," Paper No. 13, pp. 33-63.

of benefits going to those with the lowest earning capacities.²¹ Still another way of looking at cost-efficiency is to consider the assured income opportunities of different income supplement programs. What do programs of comparable cost provide to families entirely dependent on Government help? Although the minimum incomes provided through NIT programs are worth considerably more to recipients than the minimum salary provided in a public job, some taxpayers are interested only in assuring the opportunity to attain a minimum income level at lowest cost.

Program Administration

Administrative efficiency and program integrity are important criteria for judging income maintenance programs. A powerful political argument for cutting expenditures on programs for the poor is that large amounts of money go to nonpoor families who maneuver their way onto welfare rolls and to well-paid bureaucrats who simply shuffle paper. This argument applies with considerable force to the current welfare system. Current programs have been plagued by complex design, divided authority, poor audit controls that allow substantial error and fraud, and wide discretion over policy by individual case-workers. Although agencies recently have attempted to streamline administration, studies indicate that the underlying design prevents programs from functioning smoothly.²²

The NIT's simplicity is an important administrative advantage over current welfare programs. Accurate reports on each filing unit's composition, size, and income are all that is necessary to determine the unit's NIT payment. Administering the NIT requires checking these income and family-size reports and sending checks to recipients. One difficult problem is obtaining accurate income reports. NIT recipients face high benefit-loss rates that operate in some ways like high income tax rates. Each dollar of reported earnings would cause a reduction in Government payments of 50 cents in many NIT plans. For the poor as well as for the rich, high tax rates provide temptation to hide income. A \$1.75 job paid in cash and easily hidden becomes worth more than a \$3 job that must be reported. Since many low-wage workers have access to jobs paying in cash, NIT administrators will have to expend considerable effort to insure accurate income reporting.

Jobs and income programs impose far heavier administrative burdens than the NIT. In addition to checking a unit's composition, size, and income, administrators must place filing units in their appropriate program category, check a wage subsidy recipient's hours worked or his wage rate, create productive public jobs, and supervise the operation of the public jobs program. One difficulty in obtaining accurate reporting is the incentive for wage subsidy recipients to misreport

²¹ See Irwin Garfinkel and Robert Haveman, "Earnings Capacity and the Anti-Poverty Effectiveness of Income Maintenance Alternatives," *American Economic Review, Papers and Proceedings*, LXIV (May, 1974), 196-204. Garfinkel and Haveman found that the share of benefits going to those with the lowest earnings capacities did not differ significantly between NIT and wage subsidy plans.

²² See, for example, U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy. *Issues in Welfare Administration: Welfare—An Administrative Nightmare*, by Sharon Galm, Paper No. 5 (Pt. 1) (Washington, D.C.: Government Printing Office, 1972).

hours worked. By overestimating hours worked and accurately reporting total earnings, workers could show inaccurately low wages. Since a wage subsidy generally makes higher per-hour payments to those at lower wages, the worker would gain benefits by making inflated reports of hours worked.

The largest administrative problems for jobs and income programs are the job creation and supervision functions. As noted above, employing public workers at unproductive jobs deprives the Nation of real production. Failure to discipline workers properly makes people believe recipients are getting paid for doing nothing, but strict discipline could open the program to charges of slavery. If a worker refused two or three jobs, should the Government disqualify him from income support? If so, for how long? The necessity for these kinds of decisions could make job guarantee programs highly arbitrary and administratively cumbersome.

Experience with administering an NIT provides grounds for optimism. Those operating the NIT experiments have gained considerable knowledge about procedures to assure accurate income reporting and timely NIT payments, and have kept administrative costs per case well below unit costs of current welfare programs.

Far less experience exists in administering jobs and income programs. The most difficult functions of job creation and worker supervision have operated successfully in small demonstration projects, such as the VERA Institute's job program for drug addicts and the Emergency Employment Act's welfare demonstration project, and in a national job creation program in Canada, the local initiatives program. But the scope of these programs is far less than programs that guarantee jobs and that must create 1 to 2.5 million productive jobs. Administrative costs certainly would be much higher for job guarantee programs than for NIT programs, especially in the first few years. The question is, are excessive costs in job guarantee programs inevitable? As administrators gain experience with the job creation tool and apply modern management techniques, administrative costs could fall to moderate levels.

Social Effects

The poor social impact of the current welfare system is its most dramatic failure. Welfare programs encourage family instability, generate feelings of inadequacy and dependency, and intensify the social divisions between income and ethnic groups. Many applicants who have to prove they are destitute before receiving benefits have found the system degrading. The hope is that alternative programs will alleviate some of the social problems related to welfare.

One program is the stigma attached to those receiving Government benefits and doing little or nothing in return. Welfare provisions that divide the poor into strict categories of workers and nonworkers have no doubt contributed to the problem. To recipients, welfare has been an admission of failure in the labor market or in maintaining a stable family. Recipients often express the goal of working their way off welfare. To nonrecipients, welfare payments subsidize lazy or immoral people. One indicator of the stigma associated with welfare programs is the extent to which eligible families participate. By this indicator, the welfare stigma felt by poor mothers heading families has declined

in recent years. A recent study found that the share of eligible mother-headed families participating in AFDC rose from 63 to 91 percent between 1967 and 1970.²³ Yet by the same criterion, the stigma from welfare participation felt by working-poor, two-parent families remains high. One study estimated that only 15 to 20 percent of families eligible for the AFDC-UF program actually participated.²⁴

One question of importance is whether alternative income supplement plans can provide benefits in a less stigmatizing manner. As in the case of welfare, the NIT would pay families an unconditional cash allowance not directly linked to work effort. But unlike welfare, the program could be administered as part of the income tax system and a large share of the participants would be workers. Many such workers could derive their benefits in the form of tax relief, and hence might feel no more like welfare recipients than ordinary taxpayers. Still, it is not clear what stigma effects might be associated with the NIT. The food stamp program, which currently provides unconditional income support for working and nonworking poor alike, has a better image than welfare. Yet the vast majority of eligible working poor and near-poor do not participate. This low participation may result from a lack of information, from a belief that income-tested benefits mean dependency, or from the fact that the program is administered by local welfare agencies and includes such traditional welfare features as stringent asset tests.

Job guarantee and wage subsidy programs may be a more socially attractive way of helping the poor. The assurance that most recipients must work to obtain benefits would appeal to taxpayers who finance the program. And recipients in a public job or wage-subsidized private job might feel that their benefits are earned and are not simply a Government hand-out. Holding a steady job could also improve the self-image of many poor persons.²⁵ On the other hand, job guarantee programs that involve largely unproductive, make-work projects could end up as degrading and unpopular as welfare.

Eliminating welfare's family splitting incentives is another goal of income maintenance policy. If welfare's impact on family splitting occurs by helping poor mother-headed families attain a high income relative to poor and even modest-income two-parent families, then programs which improve the relative income position of two-parent families should lessen family-splitting. Support for this view comes from a study which found that low male wage rates in an area independently induced added numbers of females heading families with children.²⁶ This result suggests that either extending direct income

²³ U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy, "Participation in the Aid to Families with Dependent Children Program (AFDC)," by Barbara Boland, *The Family, Poverty, and Welfare Programs: Factors Influencing Family Instability*, Paper No. 12 (Part I) (Washington, D.C.: Government Printing Office, 1973), p. 153.

²⁴ Russell M. Lidman, "Welfare For The 'Non-Deserving': A Study of the Unemployed Fathers Segment of the Aid to Families With Dependent Children Program," unpublished paper, July 11, 1974, ch. 1, p. 3.

²⁵ Studies by Eliot Liebow and Leonard Goodwin demonstrate that unemployment among slum-dwellers and welfare recipients lowers the workers' self-respect and self-confidence. See Eliot Liebow, *Tally's Corner* (Boston: Little, Brown and Co., 1967); Leonard Goodwin, *Do the Poor Want to Work?* (Washington, D.C.: Brookings Institution, 1972).

²⁶ Marjorie Honig, "AFDC Income, Recipient Rates, and Family Dissolution," *Journal of Human Resources*, IX (Summer, 1974), 303-322.

subsidies through an NIT or increasing the head's wage through job guarantees or wage subsidies could reduce separation and divorce.

Another view is that extending income supplements to poor two-parent families is by itself insufficient. Some sociological case studies suggest that it is the man's lack of employment, his failure as breadwinner, that is the source of the instability.²⁷ Additional evidence for this hypothesis comes from looking at the AFDC-UF program. Lidman found that of the 33 percent of recipient families leaving AFDC-UF within 5 months of the opening of the case, 21 percent of the discontinuances were attributable to abandonment.²⁸ Further, areas that offer AFDC-UF show no lower amounts of family splitting than other areas. Improving employment opportunities of male family heads could be a better approach to lowering family instability than providing minimum income support. But other sociological studies suggest that the *quality* of employment, not just the lack of employment, is crucial. Whether low-wage public jobs will improve feelings of self-worth derived from employment, and thereby stabilize families, is unclear.

III. A DESCRIPTION OF JOIN

Designing a sensible system to relieve poverty is a hard task. Even the simple approach of giving money directly to the poor forces decisions: Who is poor? How much should each poor person receive? What family members should comprise the recipient unit? How should payments be varied for families in different circumstances? The more complex antipoverty approach of jobs and income raises additional questions: Who deserves direct income payments and who deserves only benefits tied to work? Should work-related benefits take the form of public jobs or subsidized private employment? Answering such questions is burdensome, but the alternative is to condone a system that, to both the taxpayer and the poor, is unfair and unnecessarily costly.

This section presents and examines JOIN, a specific jobs and income proposal for replacing much of the current system of income supplement programs. The design of JOIN results from an attempt to use principles of equity and to weigh the cost and benefit implications of various program features. Because JOIN seeks to avoid undesirable features found in other proposed work subsidy programs, it is complex, more so than negative income tax proposals.

This section describes and explains the reasons for JOIN's basic features: its benefit structure, accounting period, and administrative apparatus; its relation to other income supplement programs and to the minimum wage; and JOIN's policies regarding State supplementation and regional variation.

The JOIN Benefit Structure

JOIN offers (1) public jobs, (2) wage subsidies, and/or (3) special income payments to low-income families. The JOIN proposal assumes these far-reaching changes in other programs: abolition of the current AFDC, AFDC-UF, food stamp and food distribution programs; en-

²⁷ These results are summarized in *Work in America*, pp. 145-148.

²⁸ Lidman, ch. V, pp. 7-9.

actment of a national health insurance program that would cover all poor families and, thus, replace medicaid; and replacement of the \$750 personal exemption in the income tax by a refundable tax credit of \$170 per person. Although these changes are not strictly a part of JOIN, they are helpful to its success.²⁹

Who Is Eligible for JOIN?

All families and virtually all single individuals would be eligible for JOIN benefits. Like every other income supplement program, JOIN must define the filing unit for purposes of determining benefits and counting income. JOIN does this on the basis of legal responsibility and family structure. JOIN has four filing unit categories as follows:

Group 1.—All single-parent families with at least one child under age 14. Members of group 1 filing units consist of the parent and all children under age 18.

Group 2.—All other families with at least one child under age 18. Group 2 includes one-parent families with children age 14 to 17, two-parent families with children under 18, and one-parent families with children under 18 and with a stepparent present. Members of group 2 filing units consist of the parent or parents, the stepparent, and all children under 18.

Group 3.—All married couples with no children under age 18. Members of group 3 units consist only of the husband and wife.

Group 4.—All single individuals age 18 or older. Group 4 includes all persons 18 or over who are not married and who have no children under 18 whether or not such persons live with other relatives.

Household status would be important only in the case of married couples who are separated. Spouses defined as separated for purposes of the JOIN program would be in separate filing units.

What Are the Job Benefits?

One member of each JOIN filing unit would be eligible for a wage subsidy or a public job. The JOIN wage subsidy is a per-hour payment to workers earning between \$1.80 and \$3 per hour. The subsidy equals one-half the difference between \$3 and the worker's wage. For example, a worker earning \$2 per hour would receive a 50-cents-per-hour subsidy, or one-half of ($\$3 - \2); a worker earning \$2.50 per hour would receive a 25-cents-per-hour subsidy, or one-half of ($\$3 - \2.50). JOIN would pay recipients a wage subsidy for each hour they worked up to a maximum of 40 hours per week. Workers paid less than \$1.80 per hour would be ineligible for wage subsidy payments, but would be guaranteed a special public job. The special public job would pay a gross wage rate of \$2.30 per hour, for a 40-hour weekly salary of \$92. A full-time, year-round worker at a special public job would earn

²⁹ The supplemental security income (SSI) program, which provides an income guarantee to poor aged, blind, and disabled persons, would continue in its present form, as would the low income allowance in the income tax code.

\$4,600, assuming a 50-week year. Weekly hours on a special public job would vary, but they could not be completely flexible. Although all JOIN filing units would be eligible for a wage subsidy or a public job, the value of these benefits would differ for different types of filing units because of the imposition of a surtax on income of some filing units' income. Table 1 summarizes these gross JOIN benefits.

TABLE 1.—*Gross hourly JOIN benefits by worker's wage*¹

Worker's wage	JOIN subsidy ²	Total hourly wage
Unemployed		
Less than \$1.80	(³)	\$2.30
\$1.80	(³)	2.30
\$2.00	\$0.60	2.40
\$2.30	\$0.50	2.50
\$2.60	\$0.35	2.65
\$3.00+	\$0.20	2.80
	0	3.00+

¹ Net JOIN benefits will be lower than gross benefits for many workers by the amount of a surtax applied to other family income.

² The wage subsidy formula determines benefits to workers with wages \$1.80 and above.

³ Special public job.

What Are the Income Benefits?

Only group 1 filing units, one-parent families with at least one child under 14, would be eligible for JOIN income benefits. JOIN would provide an income floor to group 1 units at levels that depend on their number of children. In addition to the JOIN income benefits, the refundable tax credits available to all filing units also would act as an income guarantee. For example, a \$170 per person tax credit is a \$680 income guarantee to a family of four. Table 2 illustrates the JOIN income benefits, tax credits, and total-income guarantees that would be available to group 1 units of different size. Group 1 units would retain eligibility for a wage subsidy or special public job. Gross JOIN payments to group 1 units would equal the JOIN income guarantee plus any wage subsidies or special public employment wages. Net JOIN payments would be less than gross payments by the amount of the JOIN surtax. Net JOIN payments would be considered taxable under the personal income tax, reducing further the unit's net gain in income.

TABLE 2.—*Income guarantees available to group 1 filing units by number of children*

Number of children	JOIN guarantee	Income tax credits	Income tax liability	Net JOIN guarantee after taxes
1	\$2,200	\$340	\$126	\$2,414
2	2,600	510	188	2,922
3	2,900	680	236	3,344
4	3,100	850	268	3,682
5+	3,300	1,020+	300	4,020+

What Is the JOIN Surtax? How Does it Work?

Each JOIN filing unit would be required to report the combined earnings and combined nonemployment income from all its members for purposes of determining the unit's surtax liability. The surtax is a payment the filing unit may have to make that reduces the net benefits it receives from participating in JOIN. Actual surtax liability depends on the filing unit's income and on the filing unit group into which it falls. The surtax payment is equal to one-half of all nonemployment income—other than the JOIN pure income payments to group 1 families—plus one-fourth of gross earnings—including wage subsidy and special public job wages—above some disregard level. The disregards vary from 0 for groups 1 and 4, to \$3,000 for group 3, and to \$5,000 for group 2.³⁰ Thus, a two-parent family with children under 18 would owe no surtax on earned income until total family earnings reached \$5,000. In contrast, a single individual would find his entire earnings subject to the JOIN surtax rate of 25 percent.

Table 3 summarizes the JOIN benefits and surtax payments for each filing unit group. Table 4 illustrates the minimum incomes JOIN would assure to individuals and to various types of families.

³⁰ A single formula would determine the filing unit's surtax:

$$T = .25 (E_1 + E_2 + S - D_1) + .50 U, \text{ where } 0 < T < E_2 + S + G$$

where:

- T = The surtax payment,
- E_1 = Total family earnings other than earnings from the special public job,
- E_2 = Earning from the special public job,
- S = The wage subsidy payment,
- U = Family nonemployment income other than JOIN pure income benefits,
- G = The unit's JOIN income guarantee (available to group 1 units), and
- D_1 = The earnings disregard that applies to filing unit i.

TABLE 3.—*JOIN benefits and surtax payments by filing unit group*

Filing unit group	Job benefits	Income benefits	Surtax payments
1—1-parent families with at least 1 child under age 14.	<p>Wage subsidy to those in regular jobs earning between \$1.80 and \$3 equaling $\frac{1}{2}$ the difference between \$3 and the worker's wage.</p> <p>$S = \frac{1}{2} (\\$3 - w) H$, where S = total subsidy w = wage rate paid by employer, and H = total hours worked over the entire year.</p> <p>Special public job paying \$2.30 per hour.</p>	<p>An income guarantee at a level depending on family size, as specified in table 1, and subject to income taxation, plus a refundable tax credit.</p>	<p>The surtax equals $\frac{1}{4}$ of all earned income, including the wage subsidy and special public job earnings, plus $\frac{1}{2}$ of all non-employment income exclusive of JOIN pure income benefits. The surtax cannot exceed the sum of the JOIN income guarantee, wage subsidy, and public job earnings.</p> <p>$T = .25 (E_1 + E_2 + S) + .50U$, where $0 \leq T \leq E + S + G$.</p>
2—All families with at least 1 child under age 18 other than group 1 families.	<p>Same as for group 1-----</p>	<p>None except refundable tax credit.</p>	<p>The surtax equals $\frac{1}{4}$ of all earned income, including the wage subsidy and special public job earnings, above \$5,000; plus $\frac{1}{2}$ of all nonemployment income. The surtax cannot exceed wage subsidies plus public job earnings.</p> <p>$T = .25 (E_1 + E_2 + S - \\$5,000) + .50U$, where $0 \leq T \leq E_2 + S$.</p>
3—All married couples with no children under age 18.	<p>-----do-----</p>	<p>-----do-----</p>	<p>The surtax equals $\frac{1}{4}$ of all earned income, including the wage subsidy and special public job earnings, above \$3,000; plus $\frac{1}{2}$ of all nonemployment income. The surtax cannot exceed wage subsidies plus public job earnings.</p> <p>$T = .25 (E_1 + E_2 + S - \\$3,000) + .50U$, where $0 \leq T \leq E_2 + S$.</p>

TABLE 3.—*JOIN benefits and surtax payments by filing unit group—Continued*

Filing unit group	Job benefits	Income benefits	Surtax payments
4—Single individuals.....	Same as for group 1.....	None except refundable tax credit.	<p>The surtax equals $\frac{1}{4}$ of all earned income, including the special public job earnings, plus $\frac{1}{2}$ of all nonemployment income. The surtax cannot exceed public job earnings.</p> <p>$T = .25(E_1 + E_2) + .50U$, where $0 \leq T \leq E_2$.</p>

The reader will note that single individuals would find the wage subsidy unprofitable on a year-round basis because the surtax would equal or exceed wage subsidy payments for all amounts of hours worked.

What Annual Net Incomes Would JOIN Assure to Units With a Full-Time, Year-Round Worker?

Although JOIN offers the same gross wage subsidy and special public job benefits to all filing units, their net income would be differentiated by JOIN surtax payments, personal income tax payments, tax credits, income from sources other than JOIN, and social security tax payments. To determine the minimum incomes available to different JOIN units, we assume that the unit has zero nonemployment income and only one full-time, year-round worker. Table 4 illustrates minimum net incomes for units in groups 1-4 whose workers earn a low wage in a regular job or gain employment in a special public job.

A man supporting a wife and two children could take home an income of \$4,510 per year from a full-time, year-round special public job. If he worked at a job paying as little as \$1.80, the family's net income would total \$4,734—up from \$3,389 before JOIN benefits and tax credits. Currently, such a family could receive food stamps with a bonus value of \$948 per year for a net total income after social security taxes of \$4,337. A one-parent family with three young children would receive an income guarantee of \$3,344 annually. This amount is \$104 above the July 1974 median State AFDC benefit level available to such a family, but \$772 below the combined average AFDC-food stamps level. Although the JOIN guarantee is less than combined AFDC-food stamp guarantees, it is as high or higher than guarantees under negative income tax proposals of equal or higher budget cost. In addition, JOIN would offer the one-parent family a wage subsidy or special public job. Working at the special public job for half a year, the parent would raise her family's net income to \$4,633.

TABLE 4.—*Minimum incomes to families and individuals provided through JOIN*

JOIN filing group	Job type	Hourly wage	Annual hours	Gross earnings	Social security taxes	JOIN wage subsidy	JOIN income guarantee	JOIN surtax	Income tax credits less tax liability	Total net income
1—1-parent family with 2 children under 14.	None						\$2,600		\$510—188	\$2,922
	Special public job.	\$2.30	1,000	\$2,300	\$134		2,600	\$575	510—485	4,216
	do	2.30	2,000	4,600	269		2,600	1,150	510—802	5,489
2—2-parent family with 2 children under 18.	Conventional job.	1.80	2,000	3,600	211	\$1,200	2,600	1,200	510—840	5,659
	Special public job.	2.30	2,000	4,600	269				680—501	4,510
	Conventional job.	1.80	2,000	3,600	211	1,200			680—535	4,734
3—Married couple, no children under 18.	do	2.30	2,000	4,600	269	700		75	680—607	5,029
	Special public job.	2.30	2,000	4,600	269			400	340—433	3,837
	Conventional job.	1.80	2,000	3,600	211	1,200		450	340—459	4,020
4—Single individual	do	2.30	2,000	4,600	269	700		575	340—522	4,274
	Special public job.	2.30	2,000	4,600	269			1,150	170—339	3,012

Married couples with no children under 18 and single individuals would also be guaranteed the opportunity to earn a modest income. If one spouse of a childless couple worked year-round at the special public job, the family's minimum net income would equal \$3,837. The worker would earn \$4,600 at the special public job, but the unit would pay a surtax of \$400, or 25 percent of earned income above \$3,000. Note that the net income from the full-time, year-round public job is lower for childless couples than for families with children because of the difference in the surtax formulas. Families with children do not face the 25-percent surtax on earnings until the unit's total earnings exceed \$5,000. The single individual's earnings is subject to a surtax beginning with his first dollar of earnings. As a result, his minimum net income through JOIN is equal to \$3,012. Although the JOIN minimum incomes available to childless couples and single individuals are lower than those available to families with children, they are considerably above the poverty lines and above the average benefits available under current programs. Average annual cash plus food benefits available to a penniless childless couple and single individual were \$1,362 and \$914 in July 1972;³¹ the 1973 poverty lines were \$2,984 and \$2,307 for childless couples and single individuals below age 65. The JOIN minimum benefits to childless couples and single individuals willing and able to work are triple the minimum incomes guaranteed under current programs.

Why Does JOIN Use Both the Wage Subsidy and the Public Job Guarantee?

Offering a wage subsidy and a public job guarantee adds to the difficulties of explaining and administering JOIN. Unfortunately, sole reliance on either the wage subsidy or the public job guarantee might prove unnecessarily costly primarily because of the uncertainty about employers' responses to changes in the wage rates of low-wage workers. Although the total cost of either approach depends on both the supply of and demand for low-wage workers, the demand side determines how efficient each alternative is at translating Government costs into extra earnings for workers. Although there is consensus that labor supply is relatively insensitive to small wage changes,³² no general agreement exists on the reaction of employers to a change in wage rates.³³

The influence of the demand for labor is significant. Consider first the efficiency of the public job guarantee. By guaranteeing jobs at a wage rate above the current wage of many workers, the Government compels employers to raise their wage rates in order to keep their

³¹ Joint Economic Committee, Paper No. 15, p. 5.

Note, since July 1972, food stamp benefits have been increased by 23 percent on average.

³² See Joint Economic Committee, "Income Transfer Programs and Work Effort: A Review," by Irwin Garfinkel, Paper No. 13, pp. 1-32.

³³ The estimates of the elasticity of demand for labor vary widely. Michael Barth cites studies reporting elasticities ranging from 0.3 to 2.8. Thus, the employers' reactions to a 1-percent wage increase may be to reduce employment by as little as 0.3 percent or by as much as 2.8 percent. See Michael Barth, "Market Effects of a Wage Subsidy," *Industrial and Labor Relations Review*, XXVII (July, 1974), 578.

low-wage workers. Each worker not held by private employers will move into a special public job. These moves are inefficient because the cost to the Government is the worker's entire wage, even though the benefit to the worker is only the increase in his wage.³⁴ Of course, workers remaining in private employment also benefit from the increased wage which employers must pay. The efficiency of the public job guarantee will depend on how many low-wage workers move from conventional jobs to specific public jobs and how many remain. If employers cut back their work force significantly rather than match the Government wage for special public jobs, the job guarantee approach will prove a costly way to increase earnings. Conversely, if the job guarantee sets off only a small reduction in conventional employment, then it will be highly efficient. By hiring a few workers for special public jobs, the Government will be able to raise the wages employers pay to low-wage workers at little budget cost.

The circumstances best for the public job guarantee are worst for the wage subsidy. A wage subsidy cuts the employers' cost of hiring low-wage workers. If employers respond to the lower costs by substantially expanding their demand for workers, wages will be bid up and the wage subsidy will result in increased employment and increased wages going to the worker. But if employer demand is insensitive to wage rate changes, the primary beneficiaries of the wage subsidy will be employers, not workers. Barth estimated the quantitative importance of differences in demand elasticities. He found that the costs of a wage subsidy could be 22-30 percent higher and that the share of costs going to workers could be 50-60 percent lower with a low demand elasticity than with a high one.³⁵

Thus, choosing the policy with the highest budget efficiency requires knowledge of actual market conditions in the low-wage sector. Since there is great uncertainty about actual market conditions, either policy alone could cost the Government a great deal without producing much improvement in the earnings of low-wage workers. Using both the job guarantee and the wage subsidy is insurance against such an unfortunate result.

Factors other than budget efficiency also are important in choosing a work subsidy. Traditionally, economists distinguish between the cost to society in lost, or less valued, real output and the transfers of output from one group of citizens to another. The net social cost of employing workers in special public jobs is the output they would have produced in the absence of the program less the amount they produce in public jobs. If the workers would have been idle, the social cost is near zero. But the budget cost is the amount taxpayers bear. To the extent that special public workers do not produce anything of value to taxpayers, the public job salaries are transfers from one group of citizens (taxpayers) to another (special public workers). Economists generally favor policies with the lowest social costs, partly on the grounds that other policies can correct any undesirable distri-

³⁴ The term "inefficiency" refers to distributional or antipoverty efficiency from the taxpayer's point of view. Efficient alternatives are those in which high percentages of Government expenditures go to poor or low-income families.

³⁵ These comparisons are between demand elasticities of 0.2 and 2.5, assuming a supply elasticity of +0.2. See Barth, "Market Effects of a Wage Subsidy," pp. 580-584.

butional consequences. Since the work-subsidy plan is the primary redistributive mechanism, social cost considerations should not take precedence over distributional aims. However, social costs should be taken into account. JOIN's dual approach insures against unnecessarily high social costs by holding down the number of low-skill workers that would have to be absorbed by special public jobs at the outset.

Related to the dual policy—wage subsidy and public job guarantee—is the decision to limit the wage subsidy to wages equal to or above \$1.80 per hour. Because of the public job component, this limit can work without inequities. Setting a minimum subsidy wage has political appeal in addition to possibly favorable economic effects. Many people believe that the government should not help employers pay such very low wages and that wage subsidies tend to subsidize only employers. The minimum subsidy wage would help allay their fears. Second, limiting the extent of the wage subsidy also limits the gain from illegal employer-employee collusion to misreport hours worked. Third, one may argue that inability to earn \$1.80 per hour in a conventional job may result from various artificial market restrictions or some easily correctable faults. In these circumstances, it is worthwhile for the Government to try to gain \$1.80 per hour worth of output from such workers rather than continuing to provide high wage subsidies indefinitely.

How Should JOIN Be Administered?

Administration of JOIN is an especially important issue since jobs and income plans are inherently more complex than the negative income tax alternative. Administering a negative income tax requires income reporting and verification, family status reporting and verification, and distribution of payments. Administrators of JOIN must perform the additional tasks of reporting and verifying wages and hours worked, applying the surtax, determining employability, and creating and monitoring as many as 2.5 million special public jobs. Given the size and diversity of these tasks, it is wise to divide the overall burden of administration. A natural division is between the financial provisions, employability determinations, and the job creation function.

The Internal Revenue Service is the most appropriate agency to administer the JOIN wage subsidy, the JOIN income guarantee, and the JOIN surtax. The advantages of IRS administration are numerous and important. First, IRS has extensive experience in income reporting, defining income for tax purposes, auditing income statements, designing payroll deduction systems, and making mass mailings. Second, verifying income reports for purposes of the JOIN surtax requires access to the confidential income reports sent to IRS. Third, IRS is the agency most capable of performing the job of reconciling a unit's income tax liability and net JOIN benefits. A unit's tax liability can only be determined after net JOIN benefits are known. Fourth, smooth integration of the JOIN wage subsidy and the income tax involves adjusting payroll deductions. Finally, IRS has a reputation for fairness, efficiency, and comprehensive auditing. This is an important

psychological advantage from the viewpoint of both recipient and taxpayer.

JOIN would give IRS a number of new tasks. All JOIN participants, including those not subject to the income tax, would have to report total unit earnings and nonemployment income. Not only would IRS have to collect returns from more persons, it also would have to obtain information on income sources not currently taxable, primarily payments from other income transfer programs. One potentially difficult job would be that of recording and verifying wage rates and hours worked for wage subsidy applicants and linking records of wage subsidy and public employment payments to combined filing unit income. IRS would have to require that employers keep records of wage rates or hours worked in addition to normal payroll records. Since nearly three-fourths of the workers eligible for the JOIN wage subsidy normally are paid on an hourly basis,³⁶ this change may not be troublesome.

A wage subsidy in any form creates an incentive for workers and employers to collude in order to misreport hours worked. By overstating hours worked for a given payroll check, employers and employees can show a wage rate lower than the true wage rate. The lower wage allows the worker to receive a higher subsidy from the Government at no cost to the employer or allows employers and employees to share the added subsidy payment. By establishing a minimum subsidy wage below which no subsidy is paid, and by limiting the number of hours per week eligible for subsidy, JOIN restricts the size of the collusion incentive. Further, an effective random auditing system and penalties against employers and employees are likely to make misreporting unprofitable for the firm.

How Does JOIN Distinguish Employable From Unemployable Applicants?

Determining employability is a problem for all jobs and income programs, but JOIN minimizes it by qualifying only one group—one parent families with children under age 14—for unconditional cash grants regardless of work capacity. Defining what constitutes separation of parents and verifying that separation is real and not feigned are potential administrative problems, but they do not require judgment about employability per se. All other JOIN filing units are ineligible for nonwork payments. Nevertheless, some persons in such JOIN filing units may be or claim to be mentally or physically incapable of working. By itself the JOIN program cannot handle such cases.

Many of the persons considered unemployable would be eligible for cash benefits from the supplemental security income (SSI) program, open to all the aged, blind, and long-term disabled who have low income and assets.³⁷ The Social Security Administration, which administers SSI, would continue to be responsible for determining age, blindness, and the severity of a disability.

³⁶ This figure is derived from unpublished data reported in the U.S. Department of Commerce, Bureau of the Census, Current Population Survey, May 1974.

³⁷ Workers whose disability is expected to last 1 year or longer are eligible for SSI.

There would remain two problems affected by employability. One concerns workers not disabled enough to receive SSI but who nevertheless are useless as public or private workers. If such workers applied for a JOIN public job and tried their best to perform, JOIN administrators would have to utilize them in some capacity or pay them wages for not working. If JOIN administrators questioned their work effort, such workers could be suspended for some specified waiting period. The second problem is the lack of coverage for the temporarily disabled. A person with a broken leg may be incapable of working and thus disqualified from JOIN, wage subsidy or special public jobs; but since he is only temporarily disabled he also is ineligible for SSI benefits. Since few States have programs to cover the temporarily disabled, some needy persons would be omitted from income help, as today. The continued existence of this problem shows that JOIN by itself cannot solve all income problems. A supplementary program would be needed to provide coverage for the temporarily disabled.

How Does JOIN Create Jobs?

One of the most controversial parts of a program of guaranteed jobs is its pledge to create jobs for all who want them, for whatever period of time they want them. Would new public jobs have value? How would the Government supervise workers so that they actually perform their assignments? How could discipline be enforced if the Government is guaranteeing a job to all? These questions create doubt that a guaranteed employment program ever can be well administered and suggest that the method of administration is critical to all such programs.

JOIN would establish a special public corporation to administer its guaranteed jobs component. This public corporation, called Employment For All (EFA), would work closely with State Employment services (ES) and with IRS. Applicants for public jobs would first be sent to ES to determine whether a private or conventional public job is available that pays at least \$1.80 per hour. This aspect of the placement process is important. If special public jobs are more satisfying than the available private jobs, the slightly higher wages in private jobs may not prevent extensive shifts toward public jobs. To avoid cost increases associated with such substitution, ES would have to build in tough requirements that temporarily disqualify from public jobs those able to find jobs offering acceptable wages, whether or not the worker deemed the jobs suitable to his profession. Determining what types of referrals are suitable for various applicants will be difficult and probably controversial.

If ES places the applicant in a private or conventional public job or if the applicant finds one himself, he would file for a wage subsidy payment with the local IRS office or through his employer. If both ES and the applicant failed to locate a private or conventional public job within 1 week, then ES would refer the applicant to EFA. This new public corporation would be required to place the applicant in a special public job within 10 working days or to begin paying him the public employment wage anyway. EFA would report wages paid for special public jobs to IRS. EFA also would work closely with

IRS officers to insure that its special public workers filed a family income report monthly to the IRS for purposes of determining the unit's surtax liability.

The primary task of EFA would be to create productive jobs and to monitor the performance of those who filled them. Although there are many models of public job creation, the Canadian local initiatives program (LIP) is one of the most successful. LIP is a national job creation program that has been in operation since 1971. LIP sponsorship of 15,000 projects has created over 256,000 jobs with an average duration of 6 months. (These figures are cumulative totals from fall 1971 through the end of 1974.) LIP jobs have been highly visible to communities. In one test of the productivity of LIP jobs, evaluators found that community leaders believed that 90 percent of the jobs produced worthwhile public goods and services.³⁸ With some modifications, EFA would adopt the LIP approach as described below.

That is, EFA would create nearly all the jobs provided under JOIN by granting contracts to individuals, to private nonprofit organizations, and to units of Federal, State, and local governments. The contracting units or project sponsors would agree to perform specific tasks using special public employees (hereafter called SPE's). EFA would solicit project proposals for any non-profit productive activity. EFA then would choose which projects to fund on the basis of the value of the project's output to the public, the project's ease in employing SPE's, and the value of the job to the SPE. If the LIP experience in Canada is a good guide, EFA would encounter no trouble in soliciting a surplus of good proposals.

Project sponsors would sign a contract with EFA specifying the tasks the sponsor would fulfill, the approximate number of workers the sponsor would use, the date of termination or the dates specific output targets would be reached, the wages that EFA would pay, and the amount of EFA money that would go to the sponsor for purposes other than employing SPE's. EFA would be entitled to suspend payments or to cancel the contract if the project sponsor failed to abide by his part of the contract. EFA monitors would work with sponsors and potential sponsors to help them decide on the tasks to specify in the contract, to provide technical advice during the contract period, and to negotiate changes in the contract or other compromises necessary to avoid payment suspensions or cancellations.

Making project sponsors responsible for managing projects would relieve the Federal Government from supervising the work of individual employees. The project sponsor would have to make sure that the SPE's performed their tasks in order that the project fulfill its contract. A project sponsor could control discipline through the normal hiring and firing process. One way to make the discipline meaningful would be to require ever-longer waiting periods before renewed eligibility for JOIN benefits. After the first firing, the JOIN applicant might have to wait 10-15 working days before he could apply to EFA for another job. The second firing might lengthen the period to 15-20 days. During these periods needy families might be eligible only for

³⁸ F. J. Hawkes, W. D. Gabbert, and V. M. Bryant, "LIP Evaluation 1972-73: Impact on Employees and Communities," prepared for the Government of Canada, Department of Manpower and Immigration, Strategic Planning and Research Division, July 15, 1973 (mimeographed).

medical insurance and for emergency assistance provided through local governments. Although other methods for handling troublesome workers might be tried, it is important to allow project sponsors to retain the responsibility and the power to enforce discipline. Actual experience under the LIP program suggests that the discipline problem would not be a major one.³⁹

One potential problem for EFA is to fund the appropriate number of job slots so that job openings equal job applicants in each location. If EFA chooses projects on an ongoing basis and if good project proposals create a demand that exceeds the supply of workers, funding the correct number of job slots should not be a problem. To the extent that there are insufficient numbers of good project proposals in the necessary locations, EFA might have to undertake its own projects. But this role of EFA should be limited. EFA should seek to solicit, choose, and monitor projects, not design and manage them.

What Are Some Typical EFA Projects? What Tasks Would They Perform?

JOIN's success will depend largely on how well EFA utilizes special public employees. To the extent that EFA projects perform useful tasks and the public views the output as productive, JOIN will be a popular and desirable program. Is such a result likely or are EFA projects likely to produce only make-work jobs that are seen as penalizing the poor? Specific examples of actual projects show how EFA can work. The LIP program provides many examples of projects proposed and operated by private individuals and nonprofit organizations. In many rural areas, local residents proposed to build or to improve their local community halls. Although LIP allowed overhead expenses equal only to 17 percent of payrolls, the rural project sponsors nevertheless were able to obtain the necessary materials, often from contributions from private firms or local governments. Other projects common in rural areas were environmental and recreational in nature. Some cleared trails for hiking, one built modest resort facilities for low-income vacationers, and another renovated part of a local hall for the sport of curling.

Urban projects varied widely. A number of projects provided sheltered workshops for the physically, mentally, and emotionally disabled. One Montreal project taught physically disabled and mentally retarded persons how to refinish furniture and to make paintings, needlepoint tapestries, and clothing. Another Montreal project provided services to indigent people, such as repairing appliances and furniture and helping them move. In Toronto, one LIP project utilized unemployed Chinese immigrants to repair houses of low-income widows. On this project, the sponsor worked closely with the local government, which chose the houses to be repaired, inspected the repairs to insure compliance with local building codes, and paid for the

³⁹ Although worker discipline was not a major problem, LIP workers were not guaranteed another job even after a waiting period. Thus, it might appear easier to discipline workers under LIP than under JOIN. However, in practice, the alternatives for fired workers may not differ significantly since many LIP workers fired for cause can receive unemployment insurance or welfare payments. Thus, under JOIN and LIP, the government assumes some responsibility for workers fired for cause.

materials used. Another Toronto project began as one to provide recreational activities for children in a low-income public housing project. The project's role expanded into such areas as temporary infant care to allow mothers to run errands, organization of adults in the project to help prevent vandalism, and education of tenants about birth control and venereal disease. Virtually all the workers came from the housing project itself. The jobs also served as transitional employment, allowing many to gain enough self-confidence to move into regular employment.

Of course, not all the LIP projects fulfilled vital public needs or employed the most disadvantaged workers. But an overwhelming share of projects, 90 percent, did meet their contract objectives. And of the unsuccessful projects, very few involved fraud or malfeasance. On the basis of public popularity, LIP projects have been highly successful. The program began as politically controversial but has reached the point where few, if any, Members of Parliament oppose LIP. LIP has demonstrated that the Canadian Government is responsive to the wishes of its people, especially its needy citizens. By means of LIP, many Canadians have seen their initiative or that of their neighbors turned into a reality.

Actual EFA-type projects also have worked well in the United States. One outstanding example is the Vera Institute's wildcat project in New York City. Wildcat has employed over 1,000 former drug addicts in a variety of productive activities. Wildcat workers have water-blasted the dirt off firehouses and police stations, fixed up abandoned buildings in slum areas, cleaned the garbage and helped remove rats in Harlem, and painted park benches in Central Park. The program has been so successful that the New York City government will provide funds to help increase employment to 3,000 per year. The Ford Foundation and the U.S. Department of Labor plan to fund jointly a national work experiment to employ the hard-core unemployed, including ex-drug addicts, ex-convicts, and welfare mothers.⁴⁰

Another promising set of EFA-type projects are those that utilize funds from conventional Government agencies as well as from a special job creation agency. The grant from the conventional agency could pay for skilled workers and materials while the special job funds could pay for special public employees. One example of such a project is the Follow Through program funded by the U.S. Office of Education (OE). Follow Through is a demonstration project intended to indicate whether and in what ways compensatory education for former Head Start pupils and other disadvantaged children can help raise their educational achievement. Many of the demonstration projects employed parents of the needy children as well as educational research professionals. Although the program was intended only as a demonstration project, many local educators are disappointed that continued funding from OE is unavailable.⁴¹ EFA would provide a way to lower the cost of Follow Through to OE or to local school systems. A local

⁴⁰ Bruce Porter, "The Wildcat Way," *The New York Times Magazine*, Apr. 28, 1974.

⁴¹ Many speakers expressed their disappointment at the Feb. 14, 1974 meeting on Follow Through sponsored by the Educational Staff Seminar, Washington, D.C. See for example, the comments prepared by Milton Goldberg, executive director, Early Childhood Programs, Philadelphia, Pa.

Follow Through project could obtain funding from OE or the local school system to pay the professionals and could apply for EFA project funds to pay the less skilled aides. Other useful projects EFA could help to expand in this manner include day care centers and recreational centers.

Why Does JOIN Provide to One-Parent Families With Young Children an Income Guarantee Not Available to Other Families?

An important criticism of the current welfare system is that benefits are far more generous to one-parent than to two-parent families of equal size and income. The wide benefit differentials encourage family-splitting⁴² and create inequities by providing significantly different benefits to equally needy families. Recently a national study of welfare benefits in July 1972 found that average benefits available to one- and two-parent penniless families of four differed by about \$1,000 per year.⁴³ And even this figure understates the relative disadvantage of two-parent families since their benefits are to a larger extent restricted to food purchases and since their actual participation in cash programs is lower, possibly in part because of more stringent administrative procedures. The average figures do not reveal the much larger variations in benefits available to one- and to two-parent families. Cash and food benefits available to penniless two-parent families of four were \$1,500 or less in counties where nearly half of all poor people live, but all counties provided higher amounts to one-parent families of four.

One may ask why the JOIN program perpetuates differences in treatment by allowing only one-parent families with young children to receive benefits without working. First, it is important to note that the JOIN program would reduce benefit differentials considerably. One-parent families with children above 13 would no longer be eligible for income guarantees unrelated to work. The JOIN families remaining eligible for direct cash benefits would receive a less generous guarantee than currently available from welfare and food stamps in the median State. JOIN benefits to two-parent families would exceed those currently available, assuming that at least one parent is willing to work. Second, although one-parent families could continue to receive some benefits without working, JOIN strongly encourages work by members of such families. In addition to the low 25-percent benefit-loss rate on earnings, JOIN allows group 1 filing units to earn wage subsidy benefits and to take a special public job. Thus, JOIN's treatment of one- and two-parent families constitutes a significant change in policy away from the current welfare system.

The question that remains is whether JOIN should eliminate income guarantees entirely and provide only work-conditioned benefits to all families. Although this approach seems more evenhanded, it is unwise for many reasons. First and most important, an equitable policy requires making distinctions in the treatment of unequals. On the basis of work expenses alone, one-parent families with young children have larger needs when the parent works. The two-parent family has at least one additional adult who can share the market work and housework

⁴² Joint Economic Committee. "The Impact of Welfare Payment Levels on Family Stability," by Marjorie Honig, Paper No. 12 (Pt. I), pp. 37-53.

⁴³ Joint Economic Committee, Paper No. 15, p. 5.

responsibilities. In short, life is more difficult on average for a one-parent family. A work subsidy plan could recognize these differences by providing one-parent families with child care benefits instead of income guarantees. By providing child care benefits to one-parent families, the Government could require the parents to work in order to receive cash benefits. This policy has at least three pitfalls. One is that Government-provided child care is exceedingly costly. To meet Federal day care requirements requires an annual cost of well over \$2,000 per preschool child.⁴⁴ Since there is little evidence that such expensive care is more beneficial to children than the low-cost care a JOIN mother could purchase privately, the JOIN income guarantee may make both the family and the taxpayer better off.⁴⁵ Second, preventing poor mothers from caring for their infant children is potentially harmful. Allowing such mothers no alternative but absence from their child seems unnecessarily tough. Third, completely eliminating any income support from nonworking mothers heading families with young children represents too large and too sudden a change from current practice. To expect any group to suffer a large loss from the introduction of JOIN is unfair. Limiting the income guarantee to families with at least one child under age 14 would exclude few current AFDC families. Less than 7 percent of AFDC families in January 1973 had no children under age 15.⁴⁶

One worthy alternative would be to allow one-parent families with young children to substitute child care benefits for their income guarantees.⁴⁷ Some argue that child care of reasonable quality and cost is simply unavailable to many families. Without this child care option, many mothers heading families might not have the opportunity to work outside the home. Instead of gaining such rewards from work as self-esteem and improved job skills, many women would have to continue outside the mainstream of society. Child care programs also offer the potential for helping children from low-income families to improve their learning abilities, even if the potential of such programs has yet to be realized. The JOIN program might provide group 1 filing units with the option of foregoing their income guarantee in return for Government-provided child care plus the same work subsidies and surtax treatment as group 2 units. Families accepting this option and working full time would implicitly end up paying about \$1,300 per year to obtain the child care benefits. Although the additional Government costs would probably exceed \$1,300, one could justify the policy on investment grounds, both for the children and the parent, and on grounds that one-parent family heads otherwise

⁴⁴ U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy, "Day Care: Need, Costs, Benefits, Alternatives," by Vivian Lewis, *Issues in the Coordination of Public Welfare Programs*, Paper No. 7 (Washington, D.C.: Government Printing Office, 1973), pp. 119-21.

⁴⁵ Simulations prepared by Ralph Husby suggest that providing day care benefits and requiring 1-parent families to work adds to the cost of an income support program. See "Day Care for Families on Public Assistance: Workfare vs. Welfare," *Industrial and Labor Relations Review*, XXVII (July 1974), 503-10; also see Joint Economic Committee, Paper No. 7, pp. 130-34.

⁴⁶ U.S. Department of Health, Education, and Welfare, Social and Rehabilitation Service, *Findings of the 1973 AFDC Study: Part I, Demographic and Program Characteristics*, DHEW Publication No. (SRS) 74-03764, June 1974, p. 44.

⁴⁷ Marilyn Falik deserves credit for encouraging me to make this proposal.

would be unable to work. Since most group 1 filing units would probably not use this option, the Government would not have to embark on an enormous child care program. However, the option clearly would provide all welfare mothers with the opportunity to work.

Why Does JOIN Place a Surtax on Earned and Unearned Income of the Filing Unit?

The surtax provisions in JOIN represent an important departure from other wage subsidy and public employment proposals. Group 1 filing units receive an income guarantee and face a surtax on earned and nonemployment income as they would under any negative income tax. But application of a surtax to work-conditioned benefits is unusual. The primary purpose of the surtax is to concentrate program benefits on the neediest families. An advantage of the surtax is that it allows the Government to provide ostensibly equal wage offers to all workers, but to vary the value of the work-related benefits based on family circumstances. This is accomplished largely by varying the amounts of earnings that different filing unit groups may disregard in computing surtax liability. Since group 2 units—most families with children under 18—presumably have larger income needs than group 3 units—childless couples—and group 4 units—single individuals—JOIN allows group 2 units to disregard the highest amount of family earnings. Earned income in group 2 units is not subject to the surtax until it exceeds \$5,000. For similar reasons, the earnings disregard is higher for group 3 than for group 4 filing units.

The surtax helps to produce a smooth reduction in the attractiveness of the Government job and the wage subsidy as other family income rises. Table 5 illustrates how the effective wage in the guaranteed job for a full-time, year-round worker varies with the earnings of other family members and with total family nonemployment income. The effective wage is the net per-hour gain in family income, or the gross wage less the JOIN surtax, from working at the public job. By lowering effective wage offers with increased family income, JOIN provides successively lower financial incentives to take advantage of the special Government job or the wage subsidy. At the same time, JOIN does not completely exclude persons from families with modest incomes who are willing to work for low wages. The justification is that the Government should be willing to assure jobs to all who are willing to work. Since funds are too limited to provide jobs to all at moderate wage rates, JOIN gives priority to those with the least access to income relative to their family needs. To those with less urgent needs, the Government's offer is helpful only if the worker has poor alternatives. For example, a second earner in a family with children whose primary breadwinner earns \$5,000 per year would not find the special public job financially attractive unless she were unable to find a job at a \$1.73 wage. Earnings of \$5,000 by one partner in a childless couple would lower the effective public job wage to the other spouse to \$1.48 per hour. Although these income deficiencies are not the most severe, people in such families should have the opportunity to supplement their incomes if they are willing to work at low wages.

TABLE 5.—*Effective public job wage rates for workers in units with other family earnings and nonemployment income*

	Effective wage ¹ of year-round, full-time worker in special public job			
	Group 1 (One-parent families with at least one child under 14) ²	Group 2 (All other families with children under 18)	Group 3 (Childless married couples)	Group 4 ³ (Single individuals)
Other family earnings				
\$0-----	\$1. 73	\$2. 30	\$2. 10	\$1. 73
\$1,000-----	1. 73	2. 23	1. 98	(4)
\$2,000-----	1. 73	2. 10	1. 85	(4)
\$3,000-----	1. 73	1. 98	1. 73	(4)
\$4,000-----	1. 73	1. 85	1. 60	(4)
\$5,000-----	1. 73	1. 73	1. 48	(4)
\$6,000-----	1. 73	1. 60	1. 35	(4)
Nonemployment income				
\$0-----	1. 73	2. 30	2. 10	1. 73
\$1,000-----	1. 73	2. 05	1. 85	1. 48
\$2,000-----	1. 73	1. 80	1. 60	1. 23
\$3,000-----	1. 73	1. 55	1. 35	. 98
\$4,000-----	1. 73	1. 30	1. 10	. 73

¹ The effective hourly wage rates are equal to gross earnings less JOIN surtax, divided by 2,000 hrs. These wage rates are calculated before applying the personal income tax and the social security tax. The effect of the personal income tax would be to lessen the extent to which effective wage rates decline with other family earnings and with nonemployment income.

² The public job wage rate of group 1 workers would remain constant for all levels of earned and nonemployment income. The reason is that a mother heading a family and receiving direct income grants would pay a surtax on nonemployment income whether or not she also receives public job or wage subsidy benefits.

³ It is assumed that the single individual works only 2,000 hrs and that all his unit's earnings come from the special public job.

⁴ No other earners in unit.

What Accounting Period Does JOIN Use for Purposes of Counting Income and Providing Benefits?

The accounting period issue is significant for all income supplement programs. Accounting periods are the time periods over which a recipient unit's income is counted in determining benefits. One important criticism of current welfare programs is that their use of short accounting periods (often 1 month) leads to inequities and to savings disincentives. The inequity occurs as families with unstable incomes over the year receive considerably higher annual benefits than families with equal annual incomes that are stable through the year. Short accounting periods increase the attractiveness of unstable employment and decrease the necessity for savings.

Choosing the appropriate accounting period is difficult. A short accounting period allows the program to respond quickly to unexpected needs of families, but a long accounting period is necessary to retain strong savings incentives and equal treatment of people with equal annual incomes. The length of the accounting period also is a vital determinant of budget costs.⁴⁸ At any monthly benefit level,

⁴⁸ Jodie Allen demonstrates how costs of a negative income tax can vary by 16 percent from one type of accounting period to another. See U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy, "Designing Income Maintenance Systems: The Income Accounting Problem," by Jodie Allen, *Issues in Welfare Administration: Implications of the Income Maintenance Experiments*, Paper No. 5 (Pt. 3) (Washington, D.C.: Government Printing Office, 1973), pp. 84-98.

making the accounting period shorter adds to program costs since families with moderate annual incomes, but temporary shortfalls in income are better able to qualify for benefits.

Accounting period issues of two kinds arise for JOIN. One is the time period over which filing unit income is counted for purposes of the JOIN surtax. The second concerns the methods of paying JOIN benefits and of computing and charging the JOIN surtax.

Use of short accounting periods for purposes of counting income subject to the surtax has disadvantages under JOIN similar to those under a negative income tax. This is, of course, true for group 1 filing units, whose JOIN benefits operate as a negative income tax. In the case of JOIN units eligible only for the wage subsidy or the public job guarantee, short accounting periods would reduce substantially the effectiveness of the JOIN surtax in concentrating benefits on low-income families. Indeed, it is likely that the surtax would hardly operate at all, since filing units would likely have little income in the months they utilize JOIN. A filing unit with a high annual income but with unemployment in a particular month would be able to take the public job for that month without paying any surtax. In addition, this policy would subsidize seasonal employment to a great extent, encourage unstable employment generally, and discourage savings. On the other hand, an annual accounting period would be highly insensitive to abrupt changes in the needs of families, and could cause overly severe surtax penalties that discourage work. If a family unit in group 2 had earned \$8,000 over the first 10 months of the year and the breadwinner became unemployed without unemployment insurance, the required surtax payment of \$750 would deter the unit from using the JOIN public job offer of \$400 per month. Alternatively, if the unit's breadwinner worked at a public job for the first 2 months and then earned \$8,000 in a regular job for the rest of the year, the JOIN surtax would make his work at the public job virtually worthless financially. Although this policy does have the advantage of holding down costs, it is probably too unresponsive to changes in family circumstances.

One compromise is to prorate the surtax payment based on the percentage of the year that a JOIN filing unit uses the income guarantee, wage subsidy, or public job. One might multiply a unit's surtax liability times the percentage of the year the unit claimed JOIN benefits. The surtax would equal 25 percent of all earnings above the unit's earnings disregard plus 50 percent of all nonemployment income, all multiplied by the unit's months in JOIN divided by 12.⁴⁹ Thus, the actual surtax applying to a JOIN unit that used the public job for 2 months of full-time work would be 2/12 times the unit's annual surtax. The proration approach allows JOIN to respond to losses of income sources by moderate-income families, while continuing to take account of the unit's entire annual income. And those who worked in a public job or earned a wage subsidy for a few months early in the year would suffer considerably lower surtax penalties from taking a good paying conventional job for the rest of the year. A less costly adjustment

⁴⁹ The new surtax formula would be:

$$T = (M/12) [(.25) (E_1 + E_2 + S - D_1) + (.50) U],$$

where M = months the unit receives JOIN benefits and where

$$0 < T < E_2 + S + G$$

See footnote 30 for symbol definitions.

would be to use partial proration. For example, up to 6 months of participation, the adjustment would be twice the share of the year the worker participated in JOIN; beyond 6 months of participation, recipients would pay the unadjusted surtax rate. The JOIN cost estimates discussed in this paper use this partial adjustment. The added costs of even partial proration are particularly high in the case of single individuals, who are often part-year workers.⁵⁰ Since it is not the purpose of the adjustment to give part-year, mostly student, workers a special advantage over full-year, single workers, it is appropriate to require single individuals to pay the full rather than prorated surtax.

JOIN payment periods would be twice monthly and JOIN income reporting periods would be monthly. As in the case of the personal income tax, payroll deductions or additions would reflect the unit's expected income through the year. The use of prospective estimation should not create recoupment hardships if estimates are too low. Because of the low surtax rates and proration of the surtax payment, unexpected increases in a JOIN unit's income would not involve large repayment amounts. Actual recoupment would not be particularly difficult since the Internal Revenue Service would administer the JOIN surtax. As an example of how JOIN would operate, consider a unit whose family head became unemployed after working at a conventional job from January through March. The unit could apply for a public job in April and would gain placement after a 10-day waiting period. As part of the application process, the unit would have to report earned and nonemployment income received earlier in the year and social security numbers of all members of the filing unit. After computing the expected surtax payments per payment period, the IRS would inform the JOIN employment corporation of any deductions from the worker's public job salary check. Income earned from other sources later in the year would also be subject to payroll deductions to reflect the JOIN surtax. At the end of each calendar year, each JOIN filing unit would have to file a supplementary return that would allow for annual reconciliations.

Should JOIN Benefits Be Subject to the Federal Personal Income Tax and to Social Security Taxes?

To determine the appropriate tax treatment of JOIN benefits, equity and incentive issues must be considered. The policy decision concerning social security taxes is relatively easy. The JOIN income guarantee and wage subsidy payments are not comparable to earned income paid by an employer, but the public job payments are. On these grounds, only the latter should be subject to social security taxes. Covering special public jobs under the social security system helps build up rights to future income for low-wage workers and helps retain the near universality of social security coverage. Requiring social security payments from JOIN special public workers also has the advantage of demonstrating to the workers and the public that the special jobs are to be "real" jobs.

⁵⁰ A partial adjustment would add about \$600 million to the costs of covering single individuals. See sec. IV.

Making JOIN benefits taxable under the personal income tax involves other questions. Consider first the net benefits derived from the wage subsidy and public jobs. On the one hand, it appears unwise for the Government to make payments to a family and then ask the family to repay part of the benefits. But other considerations should prevail. If the JOIN benefits were not taxable, then earnings disincentives would be high at moderate levels just above the JOIN disregards. The surtax rate of 25 percent and the income tax rates of 18-20 percent would be additive. Above a unit's earnings disregard, a dollar increase in earnings would raise the JOIN surtax by \$0.25, and the income tax by \$0.19, for a total tax of \$0.44. But if JOIN benefits were taxable, the combined tax rate would be lower. The income tax rate of 19 percent would apply to the unit's \$0.75 net gain in income after deducting the JOIN surtax. Thus, instead of facing a 44-percent tax rate on additional earnings, the filing unit would be subject to a combined tax rate of 39 percent. Second, it would be a distortion of the term "income" not to count public job earnings as income for purposes of the income tax. JOIN participants should not be exempted from the general responsibilities of other members of society.

Deciding to tax net wage subsidy and public job benefits virtually determines the policy regarding the JOIN income guarantee. Since there is no way to isolate how much of the group 1 filing unit's surtax goes toward reducing the income guarantee and how much goes to reduce the wage subsidy or public job benefits, taxable income would be difficult to determine unless the JOIN income guarantee were also subject to the income tax. Exempting the JOIN guarantee from the income tax also would have undesirable consequences for work incentives, since JOIN surtax rates and personal income tax rates would be additive. The Government can adjust for the fact that JOIN benefits are taxable by providing higher benefits than would be the case if they were exempt from taxation.

One further problem is that the JOIN and income tax filing units are different. The recommended solution is to attribute income from net JOIN benefits to the income tax return of the head of the unit.

How Does JOIN Affect Current Cash Welfare Programs?

JOIN is designed to replace the current AFDC and AFDC-UF programs with a more comprehensive, more equitable, more efficient, and potentially more generous system of income support. All families eligible for AFDC and AFDC-UF could receive sufficient benefits under JOIN. Further, JOIN's coverage of poor two-parent families, childless couples, and single individuals would allow State and local governments to phase out general assistance programs that provide regular income support. However, JOIN would not eliminate the need for all other cash welfare programs. SSI would continue to guarantee a minimum income to the blind, aged, and disabled in recognition of their limited ability to work. The veterans' pension program could remain or be subsumed under SSI. Since either alternative is consistent with the smooth operation of JOIN, the paper does not discuss this issue. As noted above, temporary disability programs would continue to serve an important role, since such workers would be ineligible

for SSI and social security benefits and would be unable to earn JOIN benefits. Local emergency assistance (EA) programs should continue and possibly be expanded. With JOIN providing the necessary ongoing income supplements, EA programs could concentrate on helping people meet short-term, emergency needs, including families whose income sources and savings are wiped out but whose high income early in the year makes them ineligible for JOIN.

What Role Should Other Income Supplement Programs Play After the Introduction of JOIN?

Too often the welfare system is viewed narrowly as the programs providing cash aid to the poor—AFDC, SSI, and general assistance. In recent years, analysts increasingly have come to see the importance of considering how income supplement programs operate in combination. Most recipients of public welfare benefits appear to participate in more than one program. The recipient's financial incentives to work, to save, to migrate, and to separate or to form family units depend not only on cash programs, but also on the food stamp, public housing, day care, and medicaid programs. Also, dollars spent by Federal, State, and local governments on one program may reduce dollars available to spend on other programs. One must take account of the entire system of income supplement programs in introducing JOIN.

Consider first the programs providing noncash aid on the basis of need. The most important are food stamps, public housing, medicaid, and child care programs. If JOIN provides sufficient direct income support for low-income families, in-kind programs would be justified only as measures to deal with special problems in the private market or to insure that all persons obtain certain essentials. As general measures, in-kind programs are undesirable because they restrict the freedom of recipients to buy what they feel they need, they add to the work disincentive problem, and they increase administrative costs. Housing subsidies may be especially restrictive since they often require that the recipient accept a highly subsidized apartment in a specific location or go without housing help. Benefit-loss rates from food stamps and public housing alone result in a 50-percent cut in a poor worker's net wage.

Since retaining in-kind programs as they are would offset many of the advantages of JOIN, a number of changes are desirable. First, food stamps should be eliminated entirely. JOIN's wage subsidy and job guarantee benefits replace food stamp aid to the working poor in a way that allows recipients freedom to buy what they want and that builds rather than reduces incentives to work. Second, although it is impractical to eliminate housing subsidy programs, their transfer elements should be reduced considerably. This can be partially achieved by counting the value of the housing subsidy as income for purposes of the JOIN program. This device reduces the work disincentive other-

wise caused by participating in both JOIN and housing subsidy programs, and lessens the inequities caused by provision of large housing subsidies to a few families and none to most equally needy families.⁵¹ Housing programs for poor families can best operate by concentrating on relieving housing market imperfections that result in high rents for all low-income families. Third, the Federal Government should not allow federally aided child care facilities to charge fees based on income. The principles are the same as in the case of housing subsidy programs. Income-based child care programs would offset the work-encouraging features of JOIN. And such programs are likely to have the poor equity features of housing subsidy programs. Child care programs should focus primarily on improving the availability of child care for all families.

Health programs for poor families would continue to be needed. But medicaid which confines free health services largely to fatherless or jobless poor families and no aid to all other poor families other than aged and disabled should be replaced by some form of national health insurance. All of the broad national health insurance plans currently under consideration in the Congress would enlarge government-aided coverage to include intact poor families.

JOIN's job guarantee has significant implications for the structure of the unemployment insurance (UI) program. Since JOIN would assure a job to nearly all individuals willing to work at a special public job, UI would be able to concentrate on two main tasks: (1) temporary help to the unemployed, especially the moderate- and high-wage unemployed whose normal earnings far exceed JOIN wages and for whom the surtax effectively makes JOIN benefits unavailable; and (2) encouraging job search so that mismatches between employee and employer are minimized. UI no longer is the necessary or appropriate tool for handling problems of long-term unemployment and low income. On equity grounds, there is no reason to treat chronic unemployment facing UI eligibles any differently from chronic low earnings received by those not eligible for UI. Workers with both kinds of problems may have to accept special public jobs. Thus, extended UI benefits should be eliminated, payments to encourage job search should be limited in duration, and UI should replace 50 percent of aftertax earnings of workers who earn up to 1.5 times the median State wage.⁵²

The question of whether UI recipients should be allowed to accept JOIN jobs depends on whether States cut UI benefits \$1 for each dollar of JOIN earnings from partial employment. If States continued to reduce UI benefits dollar for dollar for all part-time earnings, UI claimants who worked in JOIN jobs would add a Government worker at no net cost to the Government. Federal expenditures would rise and UI trust fund payments would fall. If UI benefits declined only partially with part-time earnings, a worker might earn more from a combination of UI and JOIN payments than from his regular job.

⁵¹ U.S. Congress, House Committee on Banking and Currency, *Housing and Community Development Legislation—1973*, "Housing in the Seventies," report of the Department of Housing and Urban Development before the Subcommittee on Housing, 93d Cong., 1st sess., p. 2103.

⁵² Along with these changes, a study should examine the financing of UI, especially the possibility of applying a lower tax rate to all earnings rather than a moderate tax on employers for the first small amount of earnings of each worker. The low-wage worker might end up bearing much of the UI tax but receive only a small share of UI benefits.

*Do JOIN Benefits Vary by Geographic Area?*⁵³

The JOIN plan offers wage subsidies, special public jobs, and income guarantees on an equal basis throughout the country. Many would complain that this policy fails to take account of area differences in prices and wages. A national benefit level would provide higher real benefits to those in low-price areas than to those in high-price areas. And a single public wage offer may induce a considerably higher share of special public workers to settle in low-wage than in high-wage areas. Although these arguments have merit, they are not convincing.

Upon close inspection, the justification for varying JOIN benefits to reflect area price differences is weak. Living costs do not differ substantially for low-income families.⁵⁴ What variations do exist are considerably larger within regions than between regions.⁵⁵ As a result, adjusting benefits by area price differences would require variations between areas close to each other. But these and other observed price variations may reflect differences in living standards instead of price differences for the same package of goods. Prices may be higher in Washington than in Baltimore, or higher in San Francisco than in Fresno because of differences in unmeasured environmental advantages. To the extent that such advantages cause price differentials between areas, policies that adjust benefits on the basis of observed price differences are inequitable since they provide higher real incomes in high- than in low-price areas. The policy is also inefficient because it allows some beneficiaries to avoid bearing the higher real costs of living in the environmentally attractive areas.

Many of the same arguments apply to proposals for varying benefits to reflect area wage differences. It is inequitable to provide high JOIN benefits in areas where real wages are high, whether measured in terms of observed wages and prices or after adjusting for environmental quality differences. However, special cost advantages to firms may result in equal real wages but differential money wages. In this case benefit variations would not necessarily be inequitable.

The efficiency implications of varying JOIN benefits are complex. In one sense, offering equal wage subsidies and equal public job wages is inefficient. The government would be artificially lowering wage differentials between areas without regard to differences in productivity. As a result, the incentive for workers to move from less productive to more productive areas would decline and the incentive for firms to move from high-wage to low-wage areas could also decline. Further, equal public wage offers could produce large area differences in the percentage of low-wage workers employed in special public jobs.

These arguments are not compelling. Actual reductions in private employment might not differ much from one area to another. The percentage of an area's workers currently below the public wage offer

⁵³ For a more extended discussion of the question of regional variations in income supplement benefits, see Joint Economic Committee, *Income Security for Americans: Recommendations of the Public Welfare Study*, ch. VI.

⁵⁴ Timothy Smeeding calculates that the widest intercity variations in prices low-income people pay are about 12-15 percent. See his "Cost of Living Differentials at Low-Income Levels," Institute for Research on Poverty, Discussion Paper No. 190-74, Madison, Wis., 1974.

⁵⁵ Joint Economic Committee, "Current Public Assistance Benefits and An Assessment of State Supplementation Under Proposed Federal Alternatives," by Irene Lurie, Paper No. 7, pp. 221-254.

would not determine the percentage employment reduction in conventional jobs. The actual reduction would depend on employer responses to the wage subsidy as well as to the public job wage. In fact, the adverse employment effects of JOIN in low-wage areas would be less severe than the effects of the minimum wage. A minimum wage and public job guarantee at the same wage both would place a floor under the wage employees would receive. But in the case of JOIN, employers would not have to raise their wages to the public wage job in order to retain workers. With the JOIN wage subsidy, a \$1.80 per hour conventional job would be worth more than a \$2.30 special public job. JOIN's full impact may be to leave constant area differentials in the wages paid by employers. The public job guarantee would have a larger upward effect but the wage subsidy would have a larger downward effect on wages employers must pay in formerly low-wage areas.

May States Supplement JOIN Benefits Out of Their Own Funds?

JOIN's use of a national standard for all geographic areas does not rule out State supplementation of federally determined benefits. However, strict limits on State supplementation are necessary so that such additions do not subvert the purposes of JOIN. States should not be allowed to raise either the public job wage or the wage subsidy schedule. Supplementing only the public job wage would encourage many workers to choose special public jobs over conventional jobs and would draw many outside the labor force into special public jobs. State additions to only the wage subsidy would substantially widen coverage and could channel an increased share of benefits to employers. A great portion of the total cost of State supplements to the wage subsidy and/or public job wage would be paid by the Federal Government. For example, a State's action raising the public wage from \$2.30 to \$2.50 could cause a 15-percent increase in the number of workers applying for special public jobs. The State cost would be 20 cents per hour for all special public workers, but the added Federal cost would be \$2.30 per hour for all new workers. Judging by the experience in the AFDC program, which allows States to determine benefit levels and requires Federal sharing of all costs, State supplementation of JOIN work subsidies would bring about sizable Federal cost increases, mostly channeled toward high-income States.

State supplements based entirely on income have fewer disadvantages than do supplements to JOIN work subsidies. Consider a State supplement that provides \$1,000 to a two-parent family with three children and declines by 20 cents with each dollar of family income. Such a subsidy would probably reduce rather than increase Federal costs. If the added cash income and the decline in the effective wage causes JOIN recipients to work fewer hours, the number of hours subsidized by JOIN also would fall. In contrast, a similar supplement provided to fatherless families with young children would raise Federal costs if the added income guarantee and the rise in the benefit-loss rate induced reductions in work. Although such indirect Federal cost increases may be acceptable, some limitations on income-conditioned State supplements are necessary. For example, supplements made available to one-parent families with children also would have to be available to intact families. Otherwise, the financial incentives for

family splitting and for delays in remarriage could become too large. Limits on the percentage by which the supplement declines with family income also are necessary in order to avoid the work-discouraging features of the current welfare system. Over some income ranges and for some filing unit groups, benefit-loss rates and JOIN surtax rates could add up to create sizable financial disincentives to work.

What Happens to Families Whose Benefits Decline With the Introduction of JOIN?

Replacing AFDC, AFDC-UF, and food stamps with the JOIN program and the tax credit would cut the benefits guaranteed to some current welfare recipients. In July 1972, the cash plus food benefits available to a single parent and two children with no private income was between \$3,000 and \$5,000 per year in counties where 42 percent of all poor people lived.⁵⁶ The sum of JOIN guarantees less tax liability plus tax credits would equal \$2,922 annually for similar families with young children but families whose youngest child is above 13 would receive only \$510 in tax credits as an income guarantee. Although the income guarantees are lower than current guarantees in many areas, JOIN's offer of a job or wage subsidy are offsetting advantages. Nevertheless, it is clear that JOIN would cause income losses for some current recipients, making desirable transition measures.

The problem is not severe in the case of AFDC-UF recipients because half of the States do not offer the program and participation is low in States that do. Turnover is high so that the income losses are likely to be temporary. Most important, a lack of available jobs is theoretically the only barrier preventing AFDC-UF recipients from working. JOIN guarantees access to a job at a level that assures a total income to full-time workers that is nearly as high as the highest amounts available to unemployed workers under AFDC-UF and food stamps.

The adjustment of AFDC recipients presents a more difficult problem. JOIN lowers to 14 the age below which children qualify one-parent families for income guarantees. The current minimum age is 18 or 21 in AFDC. However, this change would disqualify only about 7 percent of AFDC families, based on January 1973 caseload figures. Some AFDC families in high payment States would lose income since they have no workers and their JOIN income guarantee is less than their AFDC payment. Although as many as half the AFDC mothers do work at least part of the year, half do not. Thus, a large percentage of recipients might not take advantage of JOIN's work opportunities and some of these nonworkers would lose income. To avoid income losses for many one-parent families. States should be required to use some of their tax savings from the Federal takeover of AFDC and AFDC-UF to compensate AFDC recipients for income losses caused by the introduction of JOIN. Since this special hold-harmless measure is designed to help specific recipients adjust to the new JOIN program, it should operate only for 2 years.

⁵⁶ Joint Economic Committee, Paper No. 15, p. 38. Note that since July 1972, food stamp benefits have been increased by 23 percent on average, and several States have raised AFDC payment levels as well.

What Is the Relationship Between JOIN and the Minimum Wage?

The Federal minimum wage and the JOIN program have similar purposes. Both are intended to assure some minimum compensation for all workers. Current law mandates an increase in the Federal minimum wage to \$2.30 per hour and a substantial broadening of coverage. By fiscal year 1977, the earliest year JOIN could begin, the special public job wage would equal the Federal minimum wage. If JOIN benefits did not rise above the levels described in this paper, employers would have to be able to pay workers as little as \$1.80 as long as the worker's total wage—inclusive of a wage subsidy—equals or exceeds \$2.30 per hour. This would require a change in Federal law so that compliance with the minimum wage provisions depends on the worker's total wage and not simply on the employer's payment.⁵⁷ Without such a change, budget costs of JOIN could rise sharply, as the reduction in private employment caused by the higher minimum wage brings an increase in applications for special public jobs. Counting the worker's total wage is consistent with the objectives of the minimum wage law. The value of each person's labor would be at least \$2.30 per hour from a social point of view. In fact, JOIN would advance a more important goal. Not only could no worker receive less than \$2.30 per hour, but nearly all workers would be assured a job at that wage.⁵⁸

One anomaly could develop in the demand for single individuals and for other workers who would find the wage subsidy unprofitable. Recall that the surtax on single individuals sometimes works to eliminate any financial advantage they might gain from the wage subsidy. Secondary workers in wealthy families or in families in which another member has claimed the JOIN work subsidy would also be ineligible for wage subsidy benefits. One result is that employers would be unable to hire such workers at wage rates less than \$2.30 per hour. At the same time, the same employers could pay those able to use the wage subsidy as little as \$1.80 per hour. A single individual would have to command \$2.30 per hour in a conventional job covered by the minimum wage or take the special public job at the effective, after-surtax wage of \$1.73 per hour. Secondary workers ineligible for the wage subsidy would have to find a \$2.30 conventional job or become unemployed.

It is difficult to see a solution to this problem other than allowing employers to pay wage rates as low as \$1.80 to all workers, on the presumption that the neediest workers will receive the wage subsidy for a gross wage of \$2.30 and that the high minimum wage protection is less important for other workers. Reducing the gross wage available to single individuals and secondary workers is not comparable to the recent attempts to pass a subminimum wage for teenagers. An important argument against the subminimum was that adults might be displaced as employers tried to hire the lowest cost workers. But under the reduced minimum proposed here, the lowest wage cost to employers of hiring either adult family heads or young single individuals would be the same \$1.80 per hour. Further, JOIN would assure adults in families with children or childless couples one job at \$2.30 per hour.

⁵⁷ There is precedent for this approach in the current treatment of tips. Employers need not pay the full minimum themselves if their employees' total wage including tips exceeds the minimum.

⁵⁸ Single individuals would receive the assurance of a job at an effective wage of \$1.73 per hour after taking their surtax payments into account.

Reducing the minimum wage could help some employers by lowering the wages they must pay. But offsetting this effect will be an upward push on wages generated by the public job wage floor and the shifting of some private workers into special public jobs.

How Should JOIN Benefits Vary Over Time?

The concept of economic poverty has a number of interpretations. To many, poverty is a matter strictly of material deprivation, or inability to gain sufficient food, clothing, and shelter necessary for a decent life. This absolute concept is reflected in the official poverty definitions used by the U.S. Bureau of the Census. After defining poverty in material terms in a base year, the Census Bureau has adjusted poverty income thresholds upward only by the percentage increase in consumer prices. To others, poverty is a relative concept. According to these analysts, one should define poverty income thresholds as a percentage of average family income and should adjust these thresholds by the percentage increase in average family income.⁵⁹ A compromise view, which seems to reflect opinions of the public, is that poverty has both absolute and relative elements.⁶⁰ This middle position implies a policy of adjusting poverty income thresholds by some percentage of the increase in average money income.

Accepting the compromise position helps but does not completely settle the issue of adjusting JOIN benefits. If average incomes always rose at as high or higher rate than prices, one reasonable adjustment for JOIN benefits would be to raise all parameters by the percentage increase in prices plus some portion, say 50 percent, of the additional percentage rise in average income. Thus, a rise in prices of 5 percent and a rise in average money income of 8 percent would cause a rise in JOIN benefits of 6.5 percent, or 5 plus one-half of (8—5). The problem is deciding on a reasonable adjustment if prices rise faster than average money incomes. In these cases, equal sharing by JOIN recipients of the decline in real incomes would require adjusting JOIN benefits only by the rise in average income. To summarize, the annual percentage adjustment to JOIN benefit parameters would be the lesser of (a) the percentage increase in prices plus half the difference between the percentage increases in average money income and in prices; and (b) the percentage increases in average money income.

IV. JOIN'S IMPACT ON BUDGET COSTS, FAMILY INCOME, AND PATTERNS OF WORK

In recent years the Nation has learned that its ability to finance worthwhile programs is limited. Scarce resources require that we choose among competing objectives and then design the most effective programs to achieve those goals. Among Americans there is broad agreement that the poor should be helped in a humane, equitable, and efficient manner. But there is no consensus about how much to spend

⁵⁹ U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy, "Poverty, Living Standards, and Family Well-Being," by Lee Rainwater, Paper No. 12 (Part II) (Washington, D.C.: Government Printing Office, 1973), pp. 207-254.

⁶⁰ Robert Kilpatrick, "The Income Elasticity of the Poverty Line," *The Review of Economics and Statistics*, LV, No. 3 (August 1973), 327-32.

on income maintenance programs, nor about how to spend the money allocated most effectively. Because of the strong competition for scarce tax dollars among income maintenance, education, health care, environmental, and defense programs, new initiatives to help the poor are difficult to pass. The proposed program must not only be well designed; it also must promise results at a modest cost.

This section shows JOIN to be a highly cost-effective way to help the poor and reform the welfare system. JOIN would assure a net income of \$4,500 to all families of four with a full-time worker at a net budget cost of about \$9 billion in 1975. (This figure does not include the added costs to taxpayers for whom the added value of tax credits is less than the lost value of personal exemptions.) In comparison, it is estimated that a negative income tax guaranteeing \$3,600 to a family of four would add about \$13-14 billion in fiscal year 1977.^{60a} JOIN would be highly efficient in reaching the poor. JOIN would raise the cash incomes of the pretransfer poor by nearly \$8 billion.

Estimates of the income gains and budget costs of programs as large as JOIN deserve careful scrutiny. This chapter allows the reader to examine the methodology for deriving the estimates and to see a detailed breakdown of budget costs and income gains. The first section describes the general methodology and the source of data. The next section presents the gross budget costs by type of family and by type of benefit. It also points out the expenditure reductions assumed to take place with the introduction of JOIN. Results from this section yield an estimate of JOIN's net addition to Federal budget costs in 1976. The third section gives a detailed examination of the income gains anticipated from JOIN. Included here are estimates of income gains accruing to the poor, to the AFDC population and to low-income families of various sizes. The fourth section analyzes the number and location of new public jobs, and the occupations and industries of the workers receiving wage subsidies and of those moving to special public jobs.

Methodology and Data Sources

The estimates of JOIN's costs and benefits come from a computer simulation of the JOIN plan on a national sample of households. The effort utilized the transfer income model (TRIM), a comprehensive microsimulation program developed at the President's Commission on Income Maintenance Programs and the Urban Institute with funds from the Ford Foundation and the Department of Health, Education, and Welfare. TRIM is designed to operate efficiently with large bodies of data on the characteristics of thousands of individuals and families. The primary data source for the JOIN estimates was the March 1971 Current Population Survey (CPS). The CPS is a national sample of 50,000 households; the March CPS includes questions on income over the previous year.

Special steps were required to simulate the effects of JOIN. First, the 1971 data had to be projected to a later year. Originally, the intention was to estimate JOIN's costs and benefits for calendar year 1976. However, as a result of the unanticipated high inflation rates,

^{60a} This estimate is derived from an interpolation of estimates of NIT programs appearing in Barry Blechman, Edward Gramlich, and Robert Hartman, *Setting National Priorities: The 1975 Budget*, (Brookings Institution, Washington, D.C.), pp. 198-204. The estimate here also assumes a 50 percent tax on earned and unearned income.

the growth factors used to "age" the wage and income data actually were more applicable to mid-1974 through mid-1975. Thus, we refer throughout the paper to estimates for fiscal year 1975. Second, the TRIM program made a number of adjustments for the underreporting of income. Third, a wage rate for each worker was computed; it equals the worker's earnings the previous year—1970 adjusted upward to 1974-75—divided by the product of his weeks worked the previous year times the average hours worked during the survey week by members of his age, sex, race, marital status, occupation and industry subgroup.

The following steps provide a general description of the simulation. First, TRIM divided all families and individuals into JOIN filing units. Second, by checking the wage and hours worked of each filing unit member, TRIM determined the maximum gross benefits potentially available to the unit from the wage subsidy or job guarantee. One-parent families with at least one child under age 14 were assigned their gross income guarantee. Third, the JOIN surtax was calculated. Fourth, each unit in which gross JOIN benefits exceeded the surtax were counted as JOIN participants and their net benefits were computed. For workers expected to choose the JOIN public job over a private job, the net JOIN benefit included only the difference in earnings less any surtax; but the net JOIN cost included the entire public job salary less any surtax. Next, net JOIN benefits were added to the tax base for purposes of computing the Federal income tax. Finally, the tax option in TRIM computed income taxes for all tax filing units after substituting the \$170 tax credit for the \$750 personal exemption.

The estimates prepared for this paper are based on simple behavioral responses to JOIN by workers and firms.⁶¹ The major assumptions used in this paper concerning worker and firm reactions are:

(1) JOIN does not change the amount of time workers spend in the labor force; that is, the sum of hours spent employed plus hours spent unemployed remains constant.

(2) All families who gain any positive benefits participate in JOIN.

(3) All JOIN participants earning between \$1.80 and \$3 per hour remain in conventional jobs and receive a wage subsidy. The wage rates paid by employers do not change.

(4) JOIN participants earning less than \$1.80 per hour generally accept a special public job, but a few gain wage increases to \$1.80, continue in their current jobs, and receive wage subsidies.⁶²

(5) Those workers with observed unemployment and for whom JOIN benefits are profitable work most of their previously un-

⁶¹ The second paper in this volume uses a well-constructed labor market model to assess the impact of JOIN on the time workers spend in the labor force, on the change in the work force available to private employers, and on the changes in wage rates paid by employers. Although these reactions are potentially important for JOIN's costs and benefits, they are difficult to predict. The different techniques applied in the two papers in this volume provide some measure of the importance of labor market reactions to JOIN. See Lerman, MacRae, Yezer, "Jobs and Income (JOIN): A Labor Market Analysis."

⁶² Some workers originally paid less than \$1.80 will remain on their jobs as their employer meets the Government's wage offer. The probability that a worker stays on his current job at an increased wage equals one minus a multiple of the percentage difference between \$1.80 and the worker's pre-program wage.

employed hours in special public jobs. However, workers do not take JOIN special jobs until after their sixth week of unemployment or until after their unemployment insurance becomes less profitable than JOIN.

(6) In a JOIN filing unit in which either husband or wife may accept the JOIN work subsidy, the subsidized worker is the one who would have gained the highest gross benefit based on his or her preprogram wage rate and hours worked.

(7) JOIN does not induce any changes in family or household composition.

The structure of the JOIN plan simulated here is the same as described in section III with the following exceptions. First, the accounting period adjustment to the surtax formula used the percentage of hours subsidized rather than the percentage of months subsidized. That is, a worker's surtax payment equaled his unadjusted surtax times twice the fraction of the full 2,000-hour year that the worker received wage subsidies or special public employment. If the worker's total amount of subsidized hours were 500, his actual surtax payment would have equaled one-half (or 2 times $500/2,000$) times the basic surtax payment. One result of this accounting period adjustment is to make the wage subsidy profitable for some single individuals. The second difference is that the surtax rate applying to the earnings of single individuals is 33 percent in this simulation as compared to the 25-percent rate noted in section III. The purpose of using this higher surtax rate is to offset the unrealistically low wage rates imputed to this group. Third, we assume JOIN wage subsidies and special public jobs offer complete flexibility. Each hour the recipient is employed or unemployed may be subsidized.

One important problem in estimating JOIN costs and benefits from CPS data is the absence of direct measures of the worker's wage. As noted above, the wage is a significant determinant of JOIN benefits. Thus, it was necessary to impute an average wage for each worker. Although no detailed analysis was performed, comparisons of these imputed wage rates with direct wage measures reported in the May 1974 Current Population Survey indicated that the wage rates used in this study underestimated the worker's actual wage.

How Much Does JOIN Cost?

JOIN would have many effects on the Federal budget. On the expenditure side, additional outlays would be necessary to pay for JOIN's wage subsidy, public employment, and income guarantee programs. Reductions in expenditures from the elimination of AFDC and food stamps and from increased contributions by JOIN recipients to other transfer programs would partially offset direct JOIN expenditures. On the tax collections side, the replacement of the \$750 personal exemption with a \$170 refundable tax credit would reduce overall tax payments; but net JOIN benefits would add to the tax base, thereby increasing collections. This section examines direct expenditures required to operate JOIN and the estimated loss in tax revenues; analyzes the components of JOIN's gross costs, taking note of possible sources of bias, and finally, deducts the costs of programs eliminated or reduced in scale upon the introduction of JOIN to estimate its net costs.

JOIN's direct expenditures would go primarily to workers in the form of wage subsidies and salaries for working in special public jobs. In order to receive these subsidies, a worker would have to file a special return reporting his filing unit's nonemployment and earned income for purposes of the JOIN surtax. The figures presented in table 6 are payments for each type of subsidy less the surtax payments owed by participating filing units. Workers in filing unit groups 2, 3, and 4 may receive a wage subsidy only, a public employment salary only, or both. Those paid only a wage subsidy are workers with preprogram wage rates between \$1.80 and \$3 and with little or no unemployment. Public employment salaries go to workers with preprogram wage rates below \$1.80. Some public job salaries raise the wage rates of workers who earn wages between \$1.80 and \$3 during weeks of employment, but who gain access to public jobs when unemployed for 6 or more weeks. In the case of work subsidy recipients in group 1 filing units, it is not possible to separate income guarantee payments from wage subsidies or from public employment wages. Thus, the figures for work subsidy benefits to this group include their income guarantee benefits.

TABLE 6.—Gross ¹ costs of JOIN by filing unit group and by type of benefit

[In millions of dollars]

	Group 1. one-parent families with at least one child under 14 ²	Group 2. other families with children under 18	Group 3. married couples with no children under 18	Group 4. single individuals 18 and over	Total
Wage subsidy only-----	454	342	69	40	905
Public employment only--	948	2, 286	1, 524	5, 763	10, 521
Wage subsidy and public employment-----	72	361	157	538	1, 128
Income guarantee only---	6, 979	-----	-----	-----	6, 979
Total-----	8, 453	2, 989	1, 750	6, 341	19, 533

¹ Gross costs are costs before deducting expenditure savings from eliminating or reducing other transfer programs and before taxation of JOIN benefits under the Federal income tax.

² The cost figures applying to group 1's work subsidy benefits are the combined costs of the income guarantee and each work subsidy for those group 1 units who receive both kinds of benefits.

The total gross cost of JOIN's wage subsidy, public employment, and income guarantee programs is \$19.5 billion. The high income guarantee costs are understandable since JOIN replaces the AFDC program with more generous cash benefits for the average one-parent family. The composition of public employment costs is somewhat surprising. Guaranteeing jobs to all married couples with and without children under 18 costs less than \$4 billion. Even though single individuals are eligible for a job on far poorer terms than adults in other filing units (\$1.73 per hour compared to \$2.30), more than half of the job creation costs would go to employ single individuals. It should be recalled that not all of these single individuals live in separate households. Many no doubt live with low- and middle-income

families and their earnings could help reduce poverty in larger families.⁶³

The surtax feature of JOIN is important in preventing costs from rising substantially. Income guarantee programs all use benefit-loss rates so that payments go to low- and moderate-income families. But it is unusual to impose a surtax on work subsidy benefits for those receiving no income guarantee. If no surtax were imposed on groups receiving only wage subsidies or public jobs, JOIN's costs would rise by about \$10.6 billion. And a large share of these added costs would go to middle- and upper-income families.

The figures in table 6 do not include administrative costs. There is no clear way to estimate administrative costs. One approach is to assign to JOIN the costs of administering AFDC. Although AFDC is simply a cash grant program, it is difficult to administer because of its fragmented authority and its myriad of special rules. Moreover, many jurisdictions do not use modern computer techniques. Nevertheless, the JOIN program probably would require at least the \$1 billion for administration projected for AFDC. Providing money for overhead costs of special public jobs is another potential JOIN cost. This is not an income maintenance cost, but a cost of producing a higher level for public services. In Canada's LIP program, which created jobs in a way similar to JOIN, a fixed 17 percent of salaries was paid for overhead by the Federal Government. Although this would add about \$1.7 billion to JOIN's costs, much of this money could come from those sponsoring JOIN projects, from State and local governments who gain costs savings from JOIN, and from sponsoring Federal agencies.

A final cost is the loss in tax revenues. The net loss is the added cost of substituting a \$170 refundable tax credit for the current \$750 personal exemption minus the gain from treating net JOIN benefits as taxable income. The TRIM tax model's estimate is a loss of \$2.6 billion. That is, tax revenues in the presence of the JOIN program and the tax changes are projected at \$2.6 billion less than in the absence of these changes.

In estimating JOIN's gross costs, inadequate data, uncertainty about worker and employer reactions, and uncertainty about administrative costs made it impossible to insure accuracy. Although lack of time and money prevented detailed analysis of the biases, it is clear that major sources of bias run in both directions. Among the factors biasing costs upward are:

(1) The wage rates imputed for single individuals are far too low; as a result, many single individuals who would appear to benefit from JOIN in fact would not. The increased surtax on single individuals partially offsets this factor, but some upward bias in the costs of JOIN for single individuals probably remains. Wage rates imputed to other workers also appeared to underestimate their actual wages.

(2) The assumption that workers who qualify for any JOIN benefits—no matter how low—would participate is unrealistic.

⁶³ About 60 percent of the males and about 60 percent of the females who would work in JOIN public jobs live in households with their families.

Undoubtedly, many would find small JOIN benefits not worth the time and other costs of application.

(3) The assumption that nearly all workers who earned pre-JOIN wage rates below \$1.80 and who are eligible for public jobs would move to public jobs is conservative. In fact, employers would retain most of these workers by raising their wage rates. The estimates are biased upward to the extent that they overstate those in public jobs and understate those receiving the wage subsidy.

(4) The family and individual incomes reported to census interviewers are lower than actual incomes. Estimates of JOIN net benefits are correspondingly higher than actual payments would be.

(5) The estimates are based on paying wage subsidies for each hour the JOIN recipient works. In fact, JOIN wage subsidies would cover a maximum of 40 hours per week. Also, the assumption of complete flexibility in hours of special public jobs probably biases costs upward.

Other factors bias the cost estimates downward. Among them are:

(1) The assumption that the JOIN job guarantee and wage subsidies do not draw new workers into the labor force. If many who are not employed and not actively seeking jobs decide to take special public jobs, JOIN's costs could rise substantially.

(2) The assumption that JOIN's wage subsidy would not cause some drop in wages paid by employers. JOIN's wage subsidy may draw added workers into the labor market, which would be expected to lower the wage paid by employers. A reduction in the wage employers pay would mean an increase in the JOIN wage subsidy payments.

(3) The assumption that workers choose private jobs over public jobs if the private wage is higher. Workers may prefer public jobs, despite lower wages, because of job content or location. JOIN workers moving from subsidized private jobs to special public jobs add to budget costs.

(4) Finally, the estimates for administrative and overhead costs may be low. Experience with job creation efforts in the United States suggests that administration and overhead costs would be higher than those assumed for JOIN. But Canada's local initiatives program achieved low administrative costs largely by monitoring rather than administering individual projects.

This paper assumes that the biases exactly offset each other. Thus, the gross costs of the JOIN and tax credit plans are estimated at:

	<i>Billions</i>
JOIN direct costs-----	\$19.5
JOIN administrative and overhead costs-----	1.4
Loss in tax revenues-----	2.6
Gross Federal cost-----	23.5

Since adoption of JOIN and the tax credit would eliminate some Federal programs and curtail expenditures in others, the gross costs would far exceed the net costs. Savings in Federal expenditures depend on such uncertainties as food prices, changes in State welfare

payment standards, and the enactment of some form of national health insurance. The estimated reductions are listed below.

	<i>Billions</i>
Increased social security tax revenue.....	\$0.5
Elimination of Federal matching for AFDC payments.....	5.0
Elimination of Federal matching for AFDC administration.....	.5
Elimination of the food stamp program.....	6.3
Reduction due to increased contributions for national health insurance.....	1.0
Reductions in expenditures on housing subsidy, school lunch, college loans and grants, and aid to Indians and Cuban refugees.....	1.2
Total expenditure savings.....	14.5

Subtracting the expenditure savings of \$14.5 billion from the gross costs of \$23.5 billion leaves a net cost to the Federal budget of \$9 billion. Thus, for the JOIN and tax credit plans not to increase the Federal budget deficit \$9 billion would have to be raised through tax increases and other expenditure cuts. Of course, such painful steps might not be necessary if the natural yearly increase in tax revenues resulting from growth in personal income is used to finance JOIN and the tax credit. And if demand expansion is called for to stimulate growth and to reduce unemployment, for example, the increase in the budget deficit resulting from the JOIN and tax credit plans might be desirable.

Although the \$9 billion figure represents a realistic estimate of the new costs of JOIN and the tax credit in 1975, it is possible to attain cost savings and shifts in benefits by adjusting some features of the plan. One recommendation is to require that single individuals use the unadjusted surtax formula. That is, instead of paying a surtax based on their income and their hours in the program, single individual would have to pay the full 25 percent of earnings and 50 percent of nonemployment income. This change alone would save \$600 million. Another change might be to eliminate coverage of all single individuals or of those between age 18 and 20. The first step would be drastic, but it would save about \$6 billion. The second might be justified on the ground that many young singles can obtain parental support. The probable cost savings of not covering 18- to 20-year-olds would be about \$3 billion. Both of these steps would also reduce substantially the number of public jobs that would have to be created. Restricting the coverage of single individuals may be wise and necessary action in order to phase in JOIN sensibly. But moving away from the comprehensive nature of JOIN would be inequitable and would limit JOIN's effectiveness in dealing with the serious problems of youth unemployment.⁶⁴

Those who desire higher family benefits could raise the public employment wage from \$2.30 to \$2.50 or higher and the wage subsidy target wage from \$3 to \$3.50 or higher. If single individuals are excluded from these increases, the added costs would be moderate. Moving from \$2.30 to a \$2.40 public job wage and increasing the target wage to \$3.10 would add less than \$450 million to total program costs. Although further 10-cent wage increases would cost more, the percentage increase in program coverage would probably be less than the

⁶⁴ The unemployment rate for 18-20 years-olds is consistently well above the national average. The March 1974 unemployment rate for 18-19 year-old, full-time workers was 14.2 percent. Although many young single individuals do obtain help from other family members, others may resort to the street when they cannot find jobs.

potential cost savings from restricting the coverage of single individuals. Of course, wage guarantees to families could also be increased by raising the overall program costs.

By How Much Does JOIN Raise Family Incomes?

The primary purpose of JOIN is to increase the income opportunities of the poor and near-poor. Their actual income gains depend largely on the degree to which they participate in JOIN's job guarantee and wage subsidy programs. In preparing the simulations for this paper, it was assumed that all eligible workers would apply for JOIN, but that they would not increase or decrease their time spent in the labor force. Thus, the cash income gains for JOIN participants would come from four sources:

(a) JOIN's wage subsidy and job guarantee components would raise the wage rate of participants during hours of employment.

(b) JOIN's job guarantee component would provide employment and earnings to participants during hours previously spent unemployed.

(c) JOIN's income guarantee component would increase incomes of some one-parent families in part by paying higher benefits than they now receive from AFDC.

(d) The replacement of the \$750 personal exemption with a \$170 refundable credit would increase the incomes of most low- and middle-income families.

To assess JOIN's total impact on family income, this section compares pre-JOIN with post-JOIN incomes for various types of families. In principle, one should use a measure of spendable income— income after taxes and after Government transfer benefits. Unfortunately, the data do not include Government in-kind benefits in spite of their importance to low-income families. This omission affects the comparisons to the extent that the level of in-kind benefits may be higher before than after the introduction of JOIN. The largest effect of this kind is the elimination of food stamps. Since food stamps are not included as income, pre-JOIN incomes appearing below are underestimates of what total pre-JOIN incomes would be. The comparisons are between pre-JOIN and post-JOIN cash incomes.

The income comparisons for families of different sizes appear in table 7. The number in a particular cell represents the average pre-JOIN or post-JOIN net income (gross income minus taxes plus cash income transfer benefits) for families of a given size and whose gross incomes lie within a given income class. For example, the average post-JOIN net income among families of four whose gross pre-JOIN income was between \$2,000 and \$2,999 would be \$4,088. The average income gain for this subgroup is \$1,588, or \$4,088 minus the pre-JOIN average net income of \$2,500. Note that \$1,588 is the average gain for all families in the subgroup, not simply those families with JOIN participants.

TABLE 7.—*JOIN's impact on net family incomes by family size*¹

Pre-JOIN gross income class ²	All families		Family size 2		Family size 4		Family size 6	
	Net pre-JOIN	Net post-JOIN	Net pre-JOIN	Net post-JOIN	Net pre-JOIN	Net post-JOIN	Net pre-JOIN	Net post-JOIN
\$0 to \$999-----	396	1,430	375	1,608	296	2,750	250	3,100
\$1,000 to \$1,999-----	1,537	2,044	1,554	2,246	1,500	3,458	1,429	3,857
\$2,000 to \$2,999-----	2,484	2,933	2,511	2,950	2,500	4,088	2,448	4,413
\$3,000 to \$3,999-----	3,481	3,898	3,512	3,943	3,493	4,291	3,444	4,815
\$4,000 to \$4,999-----	4,489	4,814	4,488	4,819	4,533	5,225	4,464	5,835
\$5,000 to \$5,999-----	5,506	5,786	5,502	5,744	5,500	6,102	5,511	6,370
\$6,000 to \$7,999-----	7,008	7,220	6,988	7,115	7,056	7,422	7,132	7,808
\$8,000 to \$9,999-----	9,055	9,132	8,991	9,033	9,038	9,216	9,016	9,455
\$10,000 to \$14,999-----	12,344	12,406	12,301	12,283	12,394	12,488	12,470	12,658
\$15,000+-----	24,748	24,659	26,016	25,849	22,898	22,834	25,323	25,342

¹ Net family income equals gross income minus Federal income taxes plus all cash transfer payments.

² Pre-JOIN gross income equals gross income plus all cash transfer payments.

The comparisons show that low-income families would register sizable gains in cash income. The dollar gains would be the highest for families with the lowest pre-JOIN incomes and for the largest families. Looking down the column with income estimates for families of four, one finds that estimated gains are a hefty \$1,958 for families in the \$1,000-\$1,999 class; the increases remain substantial but decline as one moves up the income brackets. Near-poor families of four (in the \$5,000-\$5,999 class) would gain a \$602 average increase. Within each gross income class, JOIN's impact rises with family size. In the \$6,000-\$7,999 income class, the average gain for a family of six is \$676, well above the \$127 and \$366 gains for families of two and four. The reasons benefits rise with family size are the tax credits and the fact that large families contain more workers, and thus more potential JOIN participants than small ones.

JOIN would be effective in channeling its benefits toward the lowest income families. For example, as shown in table 8, families with gross pre-JOIN incomes of less than \$4,000 will make up about 20 percent of the population but would receive 64 percent of the cash income gains. About 85 percent of the net income gains would go to families whose pre-JOIN incomes are less than \$6,000. According to estimates of JOIN's impact on the poverty population, JOIN would cut in half the poverty gap for families with two or more members. The cash incomes of the poor would rise by \$7.8 billion, or about two-thirds of the total cash income gain estimated and over 90 percent of JOIN's net costs.

TABLE 8.—*Share of total income gains by income class*

Pre-JOIN gross income ¹	Number of families (in thousands)	Percent of families	Average net income gain ²	Total income gain ³ (in billions of dollars)	Percent of total gain
\$0 to \$999.....	2, 068	2. 8	1, 034	2. 138	17. 7
\$1,000 to \$1,999.....	3, 642	5. 0	507	1. 846	15. 3
\$2,000 to \$2,999.....	4, 668	6. 4	449	2. 096	17. 4
\$3,000 to \$3,999.....	3, 878	5. 3	417	1. 579	13. 1
\$4,000 to \$4,999.....	3, 878	5. 3	325	1. 255	10. 4
\$5,000 to \$5,999.....	3, 838	5. 2	280	1. 075	9. 0
\$6,000 to \$7,999.....	7, 970	10. 8	212	1. 690	14. 0
\$8,000 to \$9,999.....	8, 217	11. 2	77	. 633	5. 2
\$10,000 to \$14,999.....	17, 523	23. 8	62	1. 086	9. 0
\$15,000 +.....	17, 647	24. 0	-89	-1. 571	-13. 0
Total.....	73, 508	99. 8	164	12. 078	100. 0

¹ Pre-JOIN gross income equals gross income plus all cash transfer payments.

² Net income gain equals net post-JOIN income minus net pre-JOIN income. See table 7.

³ The \$12,000,000,000 figure for JOIN's aggregate income gain is higher than JOIN's \$9,000,000,000 cost primarily because table 8 measures only increases in cash income. In fact, the gains in total income would be lower than those appearing in tables 7 and 8 since low-income families would lose food stamp benefits and would pay more for housing and other noncash subsidies. Other factors that account for the difference between JOIN's income gains and its net costs are the underreporting of welfare income, the reduced State welfare expenditures, and the extent to which public employment payments cost more to the government than they gain for the recipient.

Although JOIN income guarantees are lower than AFDC income plus food stamp guarantees in the median State, JOIN would raise the average cash income of families with AFDC income. Replacing AFDC with JOIN would mean an average cash gain of \$532 per family with AFDC income. The gains would be largest for families with the lowest incomes. The average cash income of the 862,000 families with AFDC income whose total pre-JOIN incomes were less than \$3,000 would rise from \$1,979 to \$3,195. These gains would occur mostly because JOIN would narrow the current wide State payment differentials.

JOIN's largest regional impact on family income would occur in the South, since its wages and welfare payments are the lowest of the four regions. Over 50 percent of the total income gains from JOIN would go to southern families, although they make up only 30 percent of the Nation's families. Interestingly, southern families would gain larger increases both because they are concentrated most heavily in the bottom income classes and because their gains are highest within income classes. For example, the average net income of families in the \$3,000-\$3,999 income class would be about \$3,500 in the pre-JOIN situation. JOIN would raise the income of southern families in this group to \$4,148, an increase of about \$650, while the gains for families in the Northeast, North Central, and West regions would be only \$209, \$341, and \$292. The probable reason for this effect is that poverty in the South, relative to poverty in other regions, is more related to insufficient earnings than to the problem of one-parent families. JOIN's work-related approach is therefore especially beneficial to the South. The percentage of total hours worked spent in JOIN public jobs would be about 5.6 percent in the South, as compared to 3.0, 3.1, and 4.5 percent in the Northeast, North Central, and West regions.

How Does JOIN Affect Work Patterns?

Millions of workers would participate in the JOIN wage subsidy or work at the JOIN public job. A large number of these workers would earn wage subsidies or public job wages for a small number of hours. Nevertheless, the total impact on work patterns would be significant. This section first considers the effects of the job guarantee, including the number of new jobs required, the types of workers in public jobs, the location of the public jobs, and the industries and occupations from which public workers are drawn. The second part of the section examines the potential effects of the JOIN wage subsidies.

JOIN would create public jobs for low-wage workers during their weeks of employment and unemployment and for moderate-wage workers during their weeks of unemployment. The best way of summarizing the job creation effort is to convert hours worked in JOIN public jobs to full-time, year-round equivalent jobs.⁶⁵ The assumption is that program managers could create full-time, year-round openings which one or more workers would fill for the full year. Of course, it is an exaggeration to suggest that the managers could match openings and workers completely, but the assumption greatly simplifies the exposition.

⁶⁵ Full-time, year-round equivalent jobs equal the number of hours worked in public jobs divided by 2,000 hours.

The total number of JOIN jobs is substantial. As table 9 shows, nearly 2.5 million JOIN public jobs would have to be created. It is noteworthy that 56 percent of the public jobs would result from applications of single individuals. As noted above, the wages imputed to single individuals appear biased downward. If this is true, then the number of public jobs could be overestimated significantly. Another reason for an overestimate is the conservative assumption about the extent to which employers retain their workers by meeting the Government's wage offer. Even if the number of jobs to be created is an overestimate, JOIN administrators still have a massive job creation task.

TABLE 9.—*Number of JOIN public jobs by family type and by employment status of workers*

Public job covers—	Number of full-time, year-round equivalent public jobs (in thousands) ¹				Total
	Group 1— 1-parent families with at least 1 child under 14	Group 2— all other families with children under 18	Group 3— married couples without children under 18	Group 4— single individuals	
1. Workers with low wages during weeks worked ² ----	153	388	286	1, 026	1, 853
2. Workers with low wages during weeks unemployed ² -----	7	68	46	182	303
3. Workers with moderate wages during weeks unemployed ³ -----	7	91	50	173	321
Total-----	167	547	382	1, 381	2, 477

¹ The number of full-time, year-round equivalent public jobs represents the total hours in public employment divided by 2,000 hours.

² These workers are projected to earn wage rates below \$1.80 in the absence of JOIN. For this group, row 1 is the cost estimate of employing such workers in public jobs during weeks they otherwise would work in low wage private jobs. Row 2 is the estimate of employing such workers in public jobs during weeks they otherwise would be unemployed.

³ These workers had wages between \$1.80 and \$3 during their weeks worked.

Note.—The estimates of hours in public employment are derived from the cost simulation results discussed in the text. To determine hours in public employment, we divided gross public employment payments before surtax deductions by \$2.30.

In one sense, this task may be regarded as a great burden. But in another sense, the Government is getting a bargain. With a net cost of \$6.6 billion for the entire JOIN program, not including the tax credit, the Government cost per job is well under \$3,000. A modestly successful creation effort could yield more in public benefits than the Government's costs. Another way of looking at the problem is to consider the social cost measured in lost private output. If the public workers would produce considerably less in public projects than they would have in private jobs, then there would be a loss in total national output. Taxpayers might get a bargain in adding jobs at low cost, but consumers would lose as the reduced private output drove prices up. One factor that mitigates losses in private output is that about one out of four of the public jobs would be filled by workers who would

have been unemployed in the absence of JOIN. The output loss they induce is near zero. Another factor is that production by JOIN workers might substitute for production by higher-skill, conventional public employees. Such substitution would improve overall labor productivity, could lower the costs of public services, and would mean a far smaller addition to total public employment.

To assess the extent of lost private output, it is useful to ask from which industries those filling the public jobs come. The simulation estimates indicate that 58 percent of workers would come from such labor-intensive industries as retail trade, personal services, and professional and related services. Less than 14 percent of workers would come from manufacturing. Thus, most of the public workers would come from low productivity industries. The fact that most of these workers would not have worked with much capital in their private jobs means that low overhead public jobs would not necessarily be less productive.

The location of public jobs may also affect their productivity. Although the locations are broadly representative of total hours of employment, the southern and rural areas are overrepresented. The southern and rural areas, which contain 30 and 20 percent of the labor force, would gain 42 and 28 percent of JOIN jobs. This result is somewhat unfortunate in that work stations have to be highly dispersed. On the other hand, many of these JOIN workers would come from farms, where rapid gains in productivity are continuing to eliminate jobs for low-skill workers. The large number of rural workers adds to the importance of using the job creation approach operating under the local initiative program (LIP) in Canada. Reliance on local initiative to design projects was especially successful in Canadian rural areas. The LIP approach is particularly conducive to development of many small projects, as is necessary in rural areas. Another advantage of job creation in rural areas is the easier development of construction projects. These areas do not contain powerful construction unions, and their housing needs are substantial. JOIN, in cooperation with other agencies, could develop homebuilding programs in rural areas that utilize local low-wage workers.

Turning to the distribution of wage subsidies, one finds similar locational and industrial patterns. Again, workers in southern and rural areas would receive the highest proportions of benefits. Of all hours subsidized, 54 percent would be in the South and 33 percent would be in rural areas. The industrial distribution of wage subsidy recipients would differ somewhat from that of public job recipients. The shift would be primarily from personal services to manufacturing. While about 20 percent of public job workers would come from personal services and 13 percent from manufacturing, only 7 percent of hours subsidized would be in personal services as compared to 24 percent in manufacturing. This shift would ease the problem of administering the wage subsidy since fewer workers would be in the industry in which hours worked are easiest to misreport.

Although JOIN benefits would be concentrated among workers in low-wage areas and industries, JOIN's impact on overall wage and employment patterns probably would not be significant. In most areas and industries, about 5 percent of workers would earn higher wages through wage subsidies and public jobs. JOIN's maximum impact

would occur in the southern and rural areas and in the retail trade and personal services industries, where 10 percent or fewer workers would receive JOIN wage subsidies or take JOIN public jobs.

JOIN would cause some narrowing of differentials in gross wages received by workers, but its impact on wages paid by employers would probably be small. Although the simulations presented here show substantially more workers taking public jobs than receiving wage subsidies, this result is due largely to the assumption of a high elasticity of labor demand. In fact, it is likely that the upward wage pressure generated by JOIN job guarantees would be offset by downward pressure resulting from the JOIN wage subsidy. The relative incidence of public jobs and wage subsidies would be similar among most areas and industries. For example, 28 percent of JOIN public workers would come from rural areas, thereby driving up rural wages; but 33 percent of hours subsidized would be in rural areas, thereby lowering rural wages.

The exceptions would be in the manufacturing and personal services industries. As noted above, manufacturing workers would benefit more from the wage subsidy than from public jobs while the opposite would be true for workers in personal services industries.

Does JOIN Cause Production Losses and Social Costs?

One fear about the JOIN program is that it might cause substantial production losses. If JOIN public jobs were unproductive, then national output would fall by the amount JOIN workers would have produced in the private sector. An additional decline would result from hiring new public employees to administer JOIN.⁶⁶ How serious is this problem?

The largest potential output loss is the amount JOIN public workers would have produced in conventional jobs. Making the usual assumption that workers are paid according to their marginal contribution to output, one may approximate the value of lost output by calculating the amount of wages JOIN public workers would have earned in the absence of JOIN. A high estimate of this figure is \$6 billion.⁶⁷

Administrative costs also represent losses in national output. The employees and other inputs necessary to administer JOIN could be used to produce other goods and services. Although one can only speculate about JOIN's total administrative costs, they should not exceed \$2 billion. A \$2 billion administrative cost is twice the projected cost of administering AFDC. While AFDC administrators do not have to perform job creation and monitoring functions, AFDC costs are already unnecessarily high because of the program's complexity, the large numbers of separate administrative units, and the slow adoption of modern management techniques.

⁶⁶ Another potential cost is the loss due to labor market distortions introduced by the JOIN wage subsidy. These are likely to be minimal since the JOIN public job component would push wages upward and would offset wage declines resulting from the wage subsidy.

⁶⁷ This estimate comes from the simulations described earlier. A direct estimate is available of the hours JOIN public workers would have worked in private jobs. All would have earned less than \$1.80 per hour during those hours. Using \$1.70 as the average private wage yields the \$6 billion estimate.

Combining the \$2 billion in administration costs with the \$6 billion in foregone production by JOIN public workers yields a total loss of \$8 billion. But this estimate is based on assuming a zero value of output for JOIN public workers, hardly a reasonable assumption. JOIN participants would work about 5 billion hours in JOIN public jobs. If their labor were worth only \$1 per hour, JOIN output would equal \$5 billion. Thus, the gain in JOIN output would offset most of the loss in private output.

V. JOIN'S ADVANTAGE OVER STANDARD PUBLIC SERVICE EMPLOYMENT PROGRAMS

Proposals for expanded public service employment programs have attracted a large following in recent months. With high rates of inflation forcing a policy of restraint on the President, the Congress, and the Federal Reserve Board, many see public service employment (PSE) programs as the best feasible way to combat the high and growing unemployment rates. The cost to the Government is low since nearly every dollar goes toward hiring added workers, and the cost in inflation is low since the jobs are targeted toward high unemployment areas and disadvantaged workers.

Although JOIN too would expand public employment substantially, it differs significantly from recent PSE proposals. JOIN offers a number of advantages over expanded PSE programs. It would reduce unemployment more at any rate of inflation; it would help the disadvantaged more at any level of Federal expenditures; and it would do far more to reform the Nation's welfare system. After describing the major differences between JOIN and PSE proposals, this chapter shows why JOIN is superior as a macroeconomic tool and as a measure to improve equity.

How Do PSE Programs Differ From JOIN?

PSE programs were launched by the Emergency Employment Act of 1971 (EEA) and now operate under the Comprehensive Employment and Training Act of 1973 (CETA). Most proposals for expanded PSE simply call for expanding expenditures and job creation under CETA. Except for scale, the recent proposals are similar in utilizing the approach embodied under EEA and CETA. JOIN's program design is entirely different from the design of EEA and CETA. The following are the most important differences:

(1) PSE programs offer a fixed number of moderate wage jobs; JOIN guarantees one public job at low wages to all families and single individuals.

(2) PSE programs attempt to channel jobs toward the disadvantaged primarily by stating the intent of Congress; JOIN insures that jobs go to the neediest families by means of a surtax on the other family income.

(3) PSE programs focus their direct employment-creating efforts exclusively on jobs in the public sector; JOIN's wage subsidy component encourages expanded private sector employment.

(4) PSE programs are temporary, countercyclical measures that operate on top of the existing system of income supplement pro-

grams; JOIN is a permanent program that reforms much of the current welfare system.

(5) PSE programs rely entirely on existing State and local government bureaucracies to create jobs; JOIN utilizes the initiative of nongovernment institutions and individuals and requires Federal, State, and local agencies to compete for funds.

How Well Do PSE Programs and JOIN Fight Unemployment?

The conventional policy for combating high aggregate unemployment rates is to expand the demand for goods and services in the economy. Unfortunately, current high inflation rates rule out general expansionary policies. The high unemployment-high inflation dilemma adds urgency to the search for tools that reduce unemployment without fueling inflation.⁶⁸

In the current economic situation, the employment strategy must limit price pressure emanating from product and labor markets. One way to contain pressure on product markets is to maximize the employment impact for any given dollar increase in aggregate demand. Here PSE is less effective than JOIN. First, although each Federal dollar spent on PSE programs is intended for the hiring of additional public employees, some Federal dollars simply substitute for normal State and local payroll expenditures. Studies attempting to estimate the importance of this substitution effect suggest that about 50 percent of PSE dollars refinance old jobs rather than create new ones.⁶⁹ To the extent that PSE money ends up going to State and local taxpayers or toward normal State and local expenditures, PSE's employment impact per dollar increase in demand is no better than general expansion measures. Under the JOIN program, the ability of State and local governments to refinance positions with Federal dollars would be far more limited. Competition for JOIN job creation funds with nongovernmental institutions and Federal agencies would mean that State and local agencies would receive project funds only if they submitted winning proposals. JOIN administrators could exert greater control to assure that little substitution takes place. Further, JOIN's low wage offers and ban against State and local government wage supplementation would prevent them from financing their normal higher paid positions with JOIN funds.

Second, the fact that wage offers are lower under JOIN than under PSE programs means that JOIN would add more to employment for a given increase in aggregate demand. The cost of full-time, year-round JOIN salaries are a maximum of \$4,600, considerably less than the \$7,000-\$8,000 levels common in PSE programs. The third cost

⁶⁸ Economists disagree on whether there exists a short-run tradeoff between unemployment and inflation or a natural unemployment rate below which accelerating rates of inflation are set off. But they agree on the desirability of finding tools other than aggregate demand policies to reduce unemployment. Among the more popular proposals in the 1960's were expanded training programs and repealing the minimum wage. More recently, suggestions have been made to expand greatly the role of the Employment Service and to restructure the financial incentives in the unemployment insurance system.

⁶⁹ For a number of these estimates, see U.S. Department of Labor, Office of the Assistant Secretary for Policy, Evaluation, and Research, "An Impact Evaluation of the Public Employment Program," by George Johnson and James Tomola, Technical Analysis Paper No. 17, Washington, D.C., April 1974, pp. 5-17.

issue relates to savings in Government transfer payments. Many claim that PSE program reduce the costs of other programs on the basis of the hope that PSE dollars go to hire large proportions of workers who otherwise would receive food stamps, welfare payments, and unemployment insurance. JOIN insures savings in other programs by using its income guarantee and work subsidy components to replace food stamps and welfare.

Another advantage of JOIN over PSE programs is its higher effectiveness in limiting the demand pressure on nonlabor inputs, such as energy and other materials. Although both JOIN and PSE programs encourage Government production to become more labor-intensive, only JOIN through its wage subsidy provides similar financial incentives to private producers. Since the private sector contains a wider range of production options and probably greater responsiveness to financial incentives, JOIN's wage subsidy may add to employment without undue pressure on the market for other inputs. Further, the wage subsidy may also create more jobs per dollar increase in aggregate demand than public employment programs.

Turning to the impact of JOIN and PSE programs on labor market pressure, one again finds that JOIN is likely to be less inflationary. The best way to limit pressure on labor markets is to channel the jobs toward disadvantaged workers, since they generally face the highest unemployment rates. Here PSE programs have a poor record. In recent experience under the Emergency Employment Act, only 17 percent of the workers hired met the official criteria of "disadvantaged."⁷⁰ In fact, Johnson and Tomola found that EEA employees averaged higher levels of schooling than the entire experienced labor force. For example, 70 percent of EEA employees completed high school as compared to 61 percent of the experienced labor force.⁷¹ In contrast, JOIN's payment structure insures that only those with the poorest alternative job opportunities would choose to work in public jobs. Comparing data on EEA workers with the simulation findings on the expected effects of JOIN, one finds that JOIN would employ a higher share of workers from slack labor markets. Youth and women, who bear the highest unemployment rates, would make up about 30 and 53 percent of JOIN workers, as compared to 22 and 28 percent of EEA workers.⁷² Workers from welfare families would gain a far higher share of JOIN jobs than the 12 percent they obtained under EEA. JOIN workers would also come from industries with competitive labor markets. The simulations provide information on the industry and occupation in which JOIN workers last found employment. About 40 percent had last worked in the retail trade or personal services industries. Only 6 percent had been affiliated with the durable goods manufacturing industry, the industry with unions which traditionally exert strong wage-push pressure. Upward wage pressure on the low-wage industries losing workers to special public jobs would be offset by JOIN's wage subsidy.

⁷⁰ Sar Levitan and Robert Taggart, "Summary Report I: An Overview," *Emergency Employment Act: The PEP Generation* (Salt Lake City: Olympus Publishing Co., 1974), p. 26.

⁷¹ U.S. Department of Labor, "An Impact Evaluation of the Public Employment Program."

⁷² Levitan and Taggart, pp. 27-28.

How Well Do PSE and JOIN Programs Help the Disadvantaged and Promote Equity?

Helping the disadvantaged and promoting equity are important long-run goals. But they are also complementary with the goal of reducing unemployment in the short run. As noted above, targeting the added jobs toward disadvantaged workers probably would cause the least upward pressure on wages and prices. And relieving the special burdens on the lowest income families makes a policy of economic restraint more tolerable and easier for policymakers to impose.

One potential benefit to disadvantaged workers of PSE and JOIN programs is their impact on artificial hiring criteria. Many argue that irrelevant education and experience requirements exclude disadvantaged workers from good jobs and prevent an expanded labor supply from relieving wage pressure.⁷³ State and local governments are among the most conspicuous offenders. Overly rigid civil service rules and defensive public employee unions often perpetuate clearly irrelevant hiring criteria.⁷⁴ Thus far, PSE programs have failed to help disadvantaged workers avoid these employment barriers. Under EEA, few State and local governments reformed their civil service procedures or restructured jobs in spite of the legislative mandate to do so.⁷⁵ This conclusion even applies to the demonstration projects especially designed to hire large numbers of welfare recipients.⁷⁶

JOIN avoids the problem of artificial hiring criteria by channeling money and jobs through nongovernmental institutions and by limiting eligibility for JOIN jobs. If State and local agencies do use unrealistically high hiring standards for jobs that could be performed by less skilled workers, nongovernmental institutions may be able to perform some tasks in less costly ways. JOIN administrators would be receptive to proposals for low cost ways to perform various tasks, including those traditionally done by State and local agencies. Since JOIN administrators would not have to channel money through State and local agencies, JOIN could require that agencies bidding for JOIN project funds must reform their hiring criteria for conventional jobs.

JOIN would target more jobs to the disadvantaged than PSE programs for another important reason. By offering a large number of low wage jobs, JOIN insures that jobs go to those with the poorest alternatives. In contrast, PSE programs offer a limited number of jobs paying at least \$7,000-\$8,000 per year. This figure exceeded the earnings of 20 million full-time workers with 50-52 weeks of employment, over one-third of all year-round, full-time workers in 1972. Nearly 10 million year-round, full-time workers then earned between \$5,000 and \$7,000.⁷⁷ It is no wonder that PSE jobs look attractive to an enormous

⁷³ See, for example, U.S. Congress, Joint Economic Committee, *The American Distribution of Income*, Lester Thurow and Robert E. B. Lucas (Washington, D.C.: Government Printing Office, 1972).

⁷⁴ Marilyn Gittrell, "Public Employment and the Public Service," *Public Service Employment, An Analysis of Its History, Problems, and Prospects*, ed., Gartner, Nixon, and Reissman (New York: Praeger Publications, 1973), pp. 121-142.

⁷⁵ Levitan and Taggart, p. 36; *Emergency Employment Act, Statutes at Large*, LXXXV (1973).

⁷⁶ See the Auerbach Associates report to the U.S. Department of Labor, "Lowering Artificial Barriers to Public Employment of the Disadvantaged: The Welfare Demonstration Program and Institutional Change." June 29, 1973.

⁷⁷ U.S. Department of Commerce, Bureau of the Census "Money Income in 1972 of Families and Persons in the United States." Current Population Reports, Series P-60 (Washington, D.C.: Government Printing Office, 1973), pp. 132-33.

number of workers who would not normally be considered "disadvantaged." The desire of Government managers to hire good workers and the pressure from personnel people and public employee unions to maintain civil service hiring criteria adds to the likelihood that PSE jobs will not generally go to disadvantaged workers.

PSE's high wage policy is especially disturbing on grounds of promoting equity. Even supposing the PSE managers can target jobs to people whose earnings would have been no higher than \$5,000 per year, the subsidy elements in PSE would be inequitable. A PSE program offering 1 million jobs would cover only a small proportion of all persons with earnings under \$5,000 who desire such jobs. As a result, the PSE program would be providing a considerable subsidy to 5-8 percent of all eligibles and nothing to the rest, except some moderate pressure on the general wage level. PSE's distributional efficiency is also limited by the fact that many moderate-wage jobs go to secondary workers and single individuals, whose needs are well under those of many family heads unable to find any job.

JOIN is a far more equitable proposal. Every family and individual would be eligible for a wage subsidy or public job, not just a lucky few. Further, JOIN's surtax provision takes account of the differential needs of different types of family units, thereby improving the extent to which JOIN targets its job opportunities toward the neediest families. The JOIN program recognizes the goal of assuring good jobs to all Americans who want to work. Unfortunately, scarce Government funds limit the JOIN job offers to one per family and to low wage offers. Still, JOIN does guarantee that no family will be without a source of employment.

The JOIN guarantees would improve the conduct of macroeconomic policy directly and indirectly. Insuring that all family units are able to have at least one paid full-time worker avoids the excessive unemployment burden normally borne by low-wage workers and low-income families. With an equitable sharing of the burden of economic restraint, such a policy becomes easier to impose in inflationary periods.

JOBS AND INCOME (JOIN): A LABOR MARKET ANALYSIS

By R. I. LERMAN, C. D. MACRAE, and A. M. J. YEZER*

I. INTRODUCTION

A major controversy in the welfare reform rebate is whether to adopt an employment subsidy program or a purely income-conditioned program. An important limitation of such income-conditioned programs as the negative income tax (NIT) is their effect on the financial reward for working. In order to assure poor families a moderate income at reasonable costs to the taxpayer under an NIT, the implicit tax rate on earned income of recipients would have to reach near 50 percent or higher. The substantial reduction in the financial return to work and the provision of an income guarantee could trigger a reduction in work hours. And, if not, the NIT might still be considered unfair because it narrows greatly the income differences among persons working at the same wage but for considerably different numbers of hours.

Many work subsidy programs have been proposed as alternatives to the NIT, but these programs also may have some undesirable economic effects. Wage subsidies themselves could lower work hours, as much or more than an NIT.¹ To some extent they may reduce the wages employers pay, thereby offsetting Government attempts to raise the incomes of low wage workers. And wage subsidies may channel too large a share of Government dollars toward secondary workers in middle and upper income families. Guaranteed employment plans may draw laborers from the private sector and may cause employers to reduce their employment of low-wage workers, again raising the Government costs per dollar of improvement in the incomes of poor and near-poor families.

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¹Irwin Garfinkel, "A Skeptical Note on 'The Optimality' of Wage Subsidy Programs," *American Economic Review*, June 1973, pp. 447-453; and Jonathan Kesselman, "Incentive Effects of Transfer Systems Once Again," *Journal of Human Resources*, Winter 1973, pp. 119-129.

Theoretically, work subsidy plans could induce a wide range of effects on labor supply, wage rates, and poverty.² The actual outcome depends on the precise nature of the subsidy program and on the reactions of workers and employers. Although the few empirical studies of work subsidy plans provide some useful results, their value is limited by the failure to take account of the demand side of the labor market.³

The purpose of this paper is to simulate the wage, employment and, hence, earnings effects of a proposed work subsidy program. The Jobs and Income proposal (JOIN) is a comprehensive one that would replace several existing welfare programs. The JOIN design attempts to overcome some important criticisms of work subsidy programs. To focus program benefits on the poorest families, JOIN utilizes a surtax on total family income. This surtax varies somewhat with the presumed needs of different kinds of families. To avoid substantial reductions in the wages employers pay or in the number of low-wage workers they hire, JOIN has both wage subsidy and guaranteed job components. Using either program alone could result in low cost-effectiveness, depending on how demand for low-wage workers changes with wage-rate changes. The substantial uncertainty about employer reactions makes the combination wage-subsidy, guaranteed-job approach advisable. A third component of JOIN is an income guarantee available only to one-parent families with at least one child under age 14. Although this feature is not efficient because of its categorical nature, the only alternative may be that the Federal Government provide child care to all such families to free the parents for full-time work.

Estimating the impact of JOIN on the wages employers pay, on the levels of employment in conventional jobs and in special public jobs, and on the incomes of low-income families is an extraordinarily difficult task. Perhaps the largest problem is the uncertainty about how workers and employers would react to the JOIN program. Even the direction of JOIN effects on the labor supplied by workers and the number of workers demanded by employers is ambiguous. A higher wage through the wage subsidy or special public job may cause workers to increase or decrease their time at work. The surtax on other family earnings might cause the second earner to reduce his work time but the surtax on family unearned income could raise the work time of all family members. Demand for workers by conventional employers could rise if the JOIN wage subsidy allows employers to pay lower wages. But employment demand could also fall since the public employment component of JOIN might increase the wages employers must pay.

These worker and employer responses could exert a considerable impact on the Government costs and the income gains that result from the JOIN program. In order to take such responses into account, the

² See for example, Peter Mieszkowski, "The Indirect Market Effects of Wage-Subsidies and Public Employment Programs," this volume; and Jonathan Kesselman, "A Comprehensive Approach to Income Maintenance: SWIFT," *Journal of Public Economics*, February 1973, pp. 59-88.

³ Samuel Rea, Jr., "Trade-Offs Between Alternative Income Maintenance Programs," in *Studies in Public Welfare*, Paper No. 13, Subcommittee on Fiscal Policy, Joint Economic Committee, U.S. Congress (U.S. Government Printing Office, Washington 1974); see, however, Michael Barth, "Market Effects of a Wage Subsidy," *Industrial and Labor Relations Review*, April 1974, pp. 575-585.

paper utilizes an econometric model of the market for labor. The model includes equations representing how workers react to wage and income changes and how employers react to wage changes. The model also uses the notion that adjustments in the market yield a wage rate at which the amount of labor workers are willing to provide is equal to the amount of labor firms are willing to employ. The model offers a systematic approach to estimating the impact of JOIN on changes in labor supply and demand, which in turn determine changes in wage rates, conventional employment, and special public employment.

A combined program of wage subsidies, public employment and income guarantees has the potential for transferring a work subsidy to participants without dissipating the benefits of the subsidy to nonparticipants through higher market wage rates or displacing them with lower wage rates. The reason for this potential is that the wage subsidy would tend to increase manhours supplied to the private sector while the income guarantee and public employment would tend to work in the opposite direction. If this potential is realized then the program would be labor market neutral. By this we mean that it would transfer benefits to participants through the fiscal process without also transferring benefits or costs to nonparticipants through the labor market. If the program is truly market neutral, then the costs are borne solely through the fiscal mechanism.

The primary objective of this paper is to determine the labor market effects of JOIN, in particular the degree to which the program would be market neutral. Both the structure of JOIN and a particular set of program parameters have already been presented in the first paper of this volume. In this paper we simulate a JOIN program with the same structure but with a higher level of family benefits. We simulate an alternative set of program parameters both because there is room for reasonable debate regarding the appropriate parameters and because we believe that within limits the scale of benefits is less important than the structure of the program in determining market neutrality. Moreover, since we are concerned with the market effects of a combined wage subsidy, public employment, and income guarantee program, we believe that these effects will stand out more clearly with higher benefit levels. Lower benefits would in general only diminish labor market effects.

The next section describes the JOIN program. Following this description is a translation of the program's benefit structure into effects on wages and nonemployment income. How JOIN influences the wage rates and nonemployment income of each family type largely determines JOIN's impact on labor supply. The fourth section explains the State labor market model used to simulate JOIN. The simulations provide predictions of how JOIN would affect wages, employment, incomes, and program payments to participants if introduced in 1976. The next section reports and interprets these simulation results and points out their limitations. The final section presents a summary and conclusions.

II. A DESCRIPTION OF JOIN

The jobs and income (JOIN) program is a comprehensive one embodying wage subsidies, guaranteed public jobs, and income guarantees. JOIN is universal in the sense that all families and individuals are potentially eligible for benefits, and categorical in the sense that benefit generosity depends partly on family type. This section outlines the basic financial structure of the program. A detailed description and analysis of JOIN appears elsewhere.⁴

All families or individuals fall into one and only one filing unit group. The five filing unit categories are: (1) two-parent families with at least one child under age 18; (2) one-parent families with at least one child under age 18 and no children under age 14; (3) one-parent families with at least one child under age 14; (4) childless married couples; (5) single individuals age 18 and over. Filing units 1, 2, and 3 exclude all family members other than a parent, spouse, or child under age 18. Children age 18 and over are not in the same unit with their parents, whether or not they live together.

Each filing unit is eligible for one wage subsidy or one public job. Filing units in category 3 are also eligible for an income guarantee. Finally all filing units are subject to a surtax based on total family earnings and total family nonemployment income.⁵ All filing units could designate one and only one person 18 or over to receive the wage subsidy or public job. In the version of JOIN with higher family benefits considered in this paper, if the person worked in a private job or in a conventional public job paying between \$2.10 and \$4 per hour, he would be eligible for a wage subsidy equaling one-half the difference between \$4 and the person's wage. For example, a worker earning \$2.50 per hour would receive a \$0.75 per hour subsidy, thereby raising his total wage to \$3.25 per hour. As the worker's net wage varied from \$2.10 to \$4, his wage subsidy would decline but his gross wage would rise. If the applicant's job paid less than \$2.10 per hour, he would be ineligible for the wage subsidy, but he could work at a special public job paying \$3 per hour.

Group 3 filing units would be eligible for an income guarantee in addition to the wage subsidy or job guarantee. The income guarantee would depend on family size as follows:

Family size :	<i>Income guarantee</i>
2 -----	\$2, 800
3 -----	3, 100
4 -----	3, 400
5 -----	3, 700
6 or more -----	3, 900

⁴ Robert I. Lerman, "JOIN: A Jobs and Income Program for American Families," this volume.

⁵ The JOIN plan outlined in the first paper in this volume includes a provision for transforming the current \$750 personal income tax exemption into refundable tax credits. The value of the tax credits could equal about \$200 per person with no loss in Federal tax revenues. Because the complexities of integrating the income tax changes into the model would have required substantial time and money, the simulations included in this paper do not take account of this provision.

All filing units receiving JOIN benefits would be subject to a surtax. The following surtax formula would apply:

$$(1) \quad T = .25(E_1 + E_2 + S - D_i) + .5Y^n, \quad \text{for } i = 1, 2, 3, 4,$$

$$T = .35(E_1 + E_2 + S) + .5Y^n \quad \text{for } i = 5$$

where $0 < T < E_2 + S + G$
and

- T = The surtax payment;
 E_1 = Total annual family earnings other than earnings from the special public job;
 E_2 = Annual dollar earnings from the special public job;
 S = The wage subsidy payment, in dollars per year;
 Y^n = Annual family nonemployment income other than JOIN benefits;
 G = The annual income guarantee available to group 3, and;
 D_i = The annual earnings disregard that applies to filing unit group i .

The disregard parameters for 1976 are:

$$D_1 = D_2 = D_4 = \$6,600, \text{ and } D_3 = D_5 = 0.$$

The surtax formulas are identical for groups except primarily for differences in the amount of earnings disregarded. For example, two-parent families with children under 18 would pay no surtax on family earnings below \$6,600 while single parent families with children under 14 would be subject to a 25-percent surtax on all family earnings. The effect of the zero disregard on single individuals (group 5) is to render their wage subsidy alternative unprofitable. Single individuals would not choose to apply for a wage subsidy, because at wage rates between \$2.10 and \$4, their surtax would always equal or exceed their wage subsidy. Group 3 filing units would find the wage subsidy profitable in spite of the zero earnings disregard. For example, at a private wage of \$2.50, a working mother heading a family and receiving an income guarantee would face a \$1.88 effective wage without the wage subsidy and a \$2.44 effective wage with the subsidy (.75 × 3.25).

One may derive two expressions for the net income of JOIN recipients, after benefits and surtaxes. These formulas are:

$$(2) \quad Y_1 = E_1 + E_2 + S + .5Y^n + G \quad \text{for } i = 1, 2, 3, 4$$

where $E_1 + E_2 + S < D_i$,

$$Y_1 = .75(E_1 + E_2 + S) + .25D_i + .5Y^n + G \quad \text{for } i = 1, 2, 3, 4$$

where $E_1 + E_2 + S \geq D_i$,

and

$$(3) \quad Y_1 = .65(E_1 + E_2 + S) + .5Y^n \quad \text{for } i = 5,$$

with Y_1 = total annual family income of JOIN recipients after benefits and surtax payments.

Equation (2) applies to those filing units whose earnings are below the earnings disregard levels and therefore not subject to any surtax. Such units would still have to pay a surtax equal to one-half of non-employment income. Equation (3) applies to units receiving JOIN benefits whose earnings are above the unit's disregard level. Since the disregard level for groups 3 and 5 is zero, each dollar of earnings is subject to the surtax and therefore equation (3) always applies. Equations (2) and (3) cover only those units whose net income after JOIN benefits and surtaxes exceeds their net income from earned and non-employment income.

This description is sufficient for analyzing how JOIN influences the individual's total supply of labor, but not the distribution of labor between the public and private sectors. The distribution depends partly on the nature of public jobs. Although many of the jobs would fill public needs not met currently, some of their work would undoubtedly be similar to work that conventional public employees might perform.⁶ In other words, governments may use JOIN funds to substitute special public workers for conventional workers on the public payroll. Thus, the net expansion in public jobs would be less than the number of jobs funded by JOIN. In this simulation, however, we assume for the sake of simplicity that there is no substitution of special public employees for conventional ones, so that all public jobs funded by JOIN add to the total demand for labor.

III. THE IMPACT OF JOIN ON LABOR SUPPLY

The first step in simulating the effects of the JOIN program is to analyze how recipients would change the amount they work. A family member or individual might have a larger or smaller probability of working and might work longer or shorter hours as a result of the JOIN program. The wage subsidy and special public jobs would improve the wage opportunities for many JOIN recipients. But the higher wage both increases the return to added hours of work, inducing an increase in labor supply, and allows workers to afford added leisure, inducing a decrease in labor supply. The JOIN surtax provisions might also raise or lower work effort. The surtax on nonemployment income reduces the family's ability to afford leisure while the surtax on earnings causes a decline in the effective wage rate for some workers in JOIN filing units.

These considerations alone suggest that the analysis of labor supply changes is a complex and difficult one. This section describes in as simple a fashion as possible the techniques used in this paper to estimate such labor supply changes. Unfortunately, the presentation is of necessity somewhat technical. Thus, those readers who are not interested in the analytical approach may want to skim this section and move to the following sections.

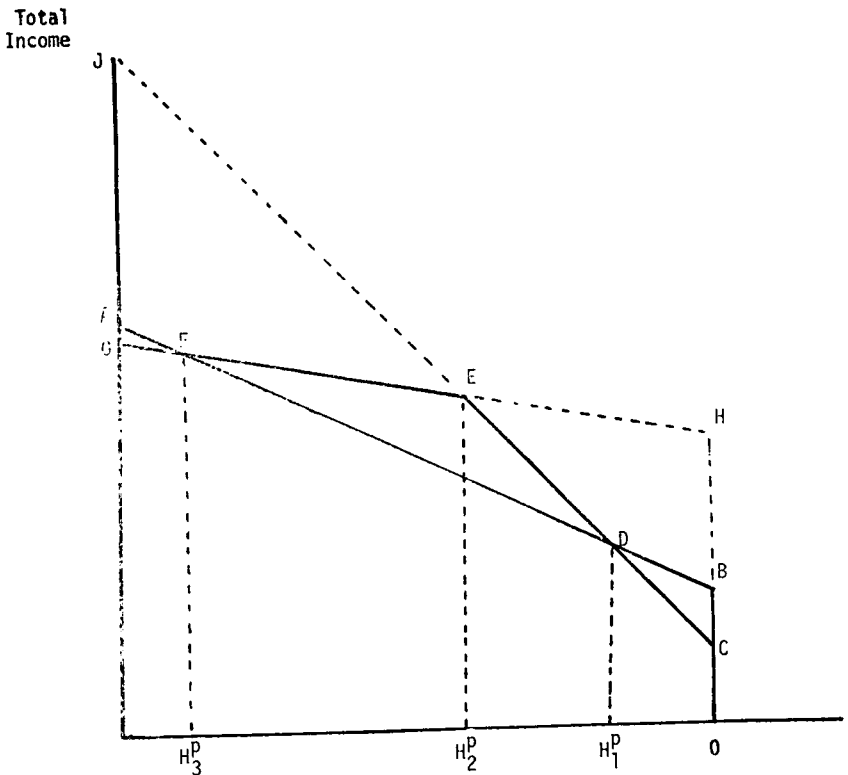
The labor-supply analysis draws on economic theory and on estimates of how workers currently respond to wage and income changes.

⁶ The substitution of special public workers for conventional public workers may occur in a variety of ways. One is simply to replace low-skill conventional public workers with low-skill special public workers. A second is to alter the mix of labor toward low-skill and away from medium- and high-skill workers to perform a given task. A third is to replace projects of conventional public agencies with projects performed by outside-project sponsors using special public workers that accomplish the same goal.

Economic theory suggests that the amount individuals choose to work depends primarily on their wage rate, on their nonemployment income, and on their preferences for leisure and income. Faced with a wage rate and a level of nonemployment income that is beyond the worker's control in the short run, it is assumed that the worker chooses that amount of work time which maximizes his satisfaction level. JOIN has a potentially important effect on this choice since it influences the worker's wage and nonemployment income opportunities. Estimating JOIN's impact first requires specifying exactly how the program would alter each person's wage and income opportunities. Then, using statistically derived relationships between the amounts different people work and their wage rates, nonemployment income, and some other factors, one can estimate how wage and nonemployment income changes induced by JOIN would influence the amount recipients work.

This way in which JOIN alters a particular filing units' wage and income opportunities depends on the wage rates of the filing unit members, the category of the filing unit, and the filing unit's nonem-

FIGURE 1.—Budget constraint of a single worker with and without the JOIN wage subsidy.*



* This figure applies to JOIN family types 1, 2, and 4. See figure 2 for the budget constraint for type 3. Type 5 families are not eligible for the wage subsidy.

ployment income. For exposition purposes it is worthwhile to begin with the case of a multiperson filing unit with a single worker.

The object is to consider how JOIN alters the worker's wage rate and nonemployment income at every level of hours worked. As noted above, JOIN offers benefits in the form of wage subsidy, a public job at a fixed wage rate, and/or an income guarantee to category 3 filing units. But JOIN applies a surtax on earnings and nonemployment income that may be charged against benefit payments. Except for category 3 units, workers are eligible for JOIN benefits only if their wage rate is below the target wage under the wage subsidy.

Consider first those units whose wage rates are in the wage subsidy range. Figure 1 illustrates such a worker's alternatives for income and hours worked with and without the JOIN program. Corresponding to the lines in figure 1 indicating the worker's options are equations that relate total income to the level of hours worked. Without the JOIN program, the worker's income is based on the following equation:

$$(4) \quad Y = W^p H^p + Y^n$$

where

Y = Total income in dollars per year;

W^p = The hourly wage rate of the primary worker;

H^p = Annual hours worked by the primary worker; and

Y^n = Annual nonemployment income of the filing unit.

Line AB illustrates this equation. Eligibility for the JOIN program may increase the worker's wage and nonemployment income. At earnings levels below the filing unit's earnings disregard under the JOIN surtax, the worker's income is based on the following equation:

$$(5) \quad Y = (2.00 + .5W^p) H^p + .5Y^n.$$

Segment CE illustrates this equation. Note that at work hours below point D the worker attains a higher income by remaining out of JOIN. This is because the surtax applied to his nonemployment income is larger than the benefit from the wage subsidy payments. As work hours increase beyond H^p_1 , the worker gains by receiving the wage subsidy even after paying the JOIN surtax. The hours level at which participating in JOIN increases family income is determined by setting income in equations (4) and (5) equal and solving for hours to obtain the following equation:

$$(6) \quad H^p_1 = \text{Max}\{0, (.5Y^n)/(2.00 - .5W^p)\}.$$

If nonemployment income is zero, then JOIN becomes immediately profitable.

A third segment applies to those JOIN filing units whose earnings exceed the JOIN disregard. Such families face a 25 percent surtax on earnings and a tax on nonemployment income, except type 5 families for whom the surtax is 35 percent. At hours yielding earnings above the filing unit's disregard, D_i , family income equals:

$$(7) \quad Y = (1 - 0.25) (2.00 + .50W^p) H^p + .5Y^n + .25D_i.$$

Line GFEH illustrates this equation. The line is applicable to the individual at hours worked levels between points E and F. In this range of hours worked, the JOIN subsidy is financially profitable but the surtax on added earnings applies. The hours level at point E equals:

$$(8) \quad H_2^p = \frac{D_t}{2.00 + .5W^p}$$

At hours levels beyond point F, the JOIN program becomes no longer profitable for the worker. The fact that segment AF lies above segment GF illustrates that income is higher without the JOIN benefits and JOIN surtax than with them. Segment AF lies along line AB, which represents equation (4). The hours level at point F, at which income is equal whether or not the unit participates in JOIN, equals

$$(9) \quad H_3^p = (.25D - .5Y^n) / [W^p - .75(2.00 - .5W^p)].$$

In summary, one may see how the JOIN program can raise the income attainable over some ranges of hours worked by comparing line BDEFA with line BA. The problem of the labor supply analysis is to determine how the new options illustrated by segment DEF would influence the worker's choice of hours worked. According to economic theory, the worker will choose the point which maximizes his satisfaction level. Given the worker's preferences for leisure and income, it is possible to derive a general expression for how the hours level he chooses depends on his wage rate and his level of nonemployment income. In the absence of JOIN, this expression is:

$$(10) \quad H^p = h^p(W^p, Y^p),$$

where h^p is a function the form of which will be estimated later in this paper. In principle, one could easily determine H^p by simply plugging into (10) the worker's new wage rate and level of nonemployment income under JOIN. The problem is that the worker's effective wage, (his net increase in income for an added hour worked) and his net nonemployment income level depend on the hours range the worker chooses. That is, there is no single wage rate and nonemployment income level appropriate for all hours levels.

A general solution to this problem is to assume that workers make only small changes in hours worked in response to JOIN. Under this assumption, workers whose original level of hours worked was observed in a particular region would choose a new hours level based on effective wages and nonemployment incomes relevant to that range. For example, workers supplying hours in the AF and DB ranges would face the same wage rates and nonemployment income levels after JOIN and would be expected not to change their hours choice. But effective wage rates and nonemployment incomes would differ over the hours range between H^{p_1} and H^{p_2} . Those whose original hours levels were between H^{p_1} and H^{p_2} would choose hours levels under the JOIN program based on the following equation:

$$(11) \quad H^p = h^p((2.00 + .5W^p), .5Y^n).$$

The workers in this range would face a new effective wage, $2 + .5W^p$, and a new effective nonemployment income level, $.5Y^n$. Those whose original hours levels were between H^p_2 and H^p_3 would choose hours levels under JOIN based on the following equation:

$$(12) \quad H^p = h^p (.75(2 + .5W^p), .5Y^n + .25D_i).$$

For this group, the effective wage is $.75(2 + .5W^p)$ or three-quarters of the effective wage for the group in range DE. The reduction results from the application of the surtax on earnings. The group would also act as if its nonemployment income were equal to $.5Y^n + .25D_i$, or OH in figure 1. To the worker choosing over range, DE, JOIN acts as if it places a surtax on all his earnings and as if it provides an income transfer equal to the surtax not paid on the first D_i dollars of income.

One aspect of the JOIN program is that at certain levels of income workers are confronted with a discontinuous increase in marginal tax rates. Labor supply theory says that under these circumstances workers at a variety of wage rates will work just the number of hours that maintains their earnings at the level where the tax rate increases. This result occurs in the transition between receipt of the wage subsidy with no surtax on earnings, segment DE, and a wage subsidy in which earnings are subject to the surtax, segment EF. Point E is a peak which represents the best choice for workers at many wage rates. This point represents the hours level at which earnings are just equal to the earnings disregard, D_i .

Although the general approach of using equations (7), (8), and (9) is appropriate in many cases, this procedure can yield incorrect results. One problem occurs for those whose predicted hours are near points D and F. For this group, it is clearly inappropriate to base predictions as if they were faced with only a single set of wage rate, nonemployment income opportunities. It can be demonstrated that workers who would appear to choose points very near D and F if their choice were based on only one option would actually choose other points if confronted with the entire range of JOIN options. Unfortunately, it is impossible without substantial information about individual preferences to determine which option or which range of hours worked would yield the best choice for any individual. However, there is a presumption that points near D and F are inferior to points further away from D and F. Thus, the choice predicted in this simulation is the one further away from D or F. To determine which point is closer requires using a ratio test that compares, for example, the hours levels at point D with the hours levels chosen using equation (10), segment BD, and equation (11), segment DE.

Although the analysis discussed above covers only single worker filing units who are eligible for a wage subsidy, the same techniques are applicable to other situations. Consider workers who would be ineligible for the wage subsidy because their highest wage was less than \$2.10 per hour. This group would be eligible for a special public job paying \$3 per hour. Figure 1 again illustrates the options facing such workers in filing units with only one worker. But the equations would have to be adjusted. Equations (4) and (10) would remain the same since they represent the individual's wage and nonemployment income in the absence of JOIN. In equations (5) and (11), one would

replace the effective hourly wage term, $2 + .5W^p$, with the figure \$3. This would cover the range in which none of the workers' earnings would be subject to the surtax. In (7) and (12), one would again replace the effective wage term, $.75(2 + .50W^p)$, with the figure \$2.25. Over the hours range covered by these equations, earnings are subject to a 25 percent surtax, thereby reducing the public employment wage from \$3 to an effective wage of \$2.25.

JOIN has a slightly different effect on the budget constraint of category 3 filing units. Since this group may receive an income guarantee, they receive an immediate benefit of $G = .5Y^n$ at zero hours of work (G denotes the dollar guarantee level). Those in this category would find their options altered by JOIN to CEFA in figure 2. BC represents the guarantee minus one-half other nonemployment income and we assume that this number is positive. Notice that the worker in figure 2 will participate in JOIN unless hours exceed H'_3 .

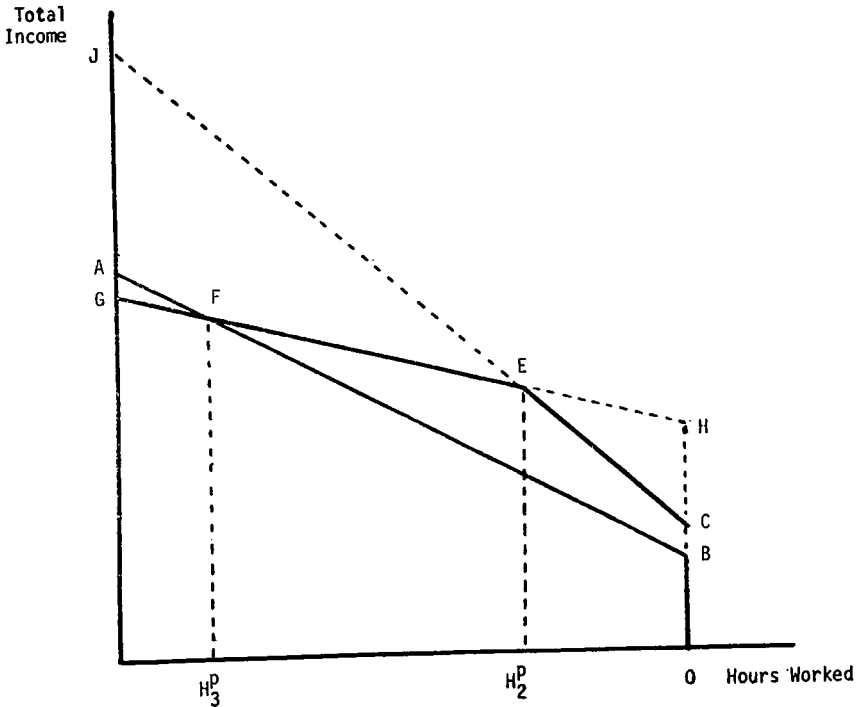


FIGURE 2.—Budget constraint of a single worker in a JOIN category 3 family with and without a JOIN wage subsidy.

Single individuals (category 5) would find that part of figure 1 describes their budget constraint. As noted above, only the special public job is potentially advantageous for this group. If the category 5 worker's best wage were less than \$2.25, then JOIN might prove profitable. The worker's options under JOIN would resemble BDEJ in figure 1. At hours levels under H^p_1 , the surtax on the worker's nonemployment income would exceed the effective earnings gain from the \$3 public

job less the 25 percent surtax on earnings. Beyond H^* , the worker's effective wage would be \$2.25 and he would participate in public employment.

The important groups not covered by the preceding discussion are those filing units with more than one worker. These cases are highly complex to analyze, but the same general techniques are applicable. The analysis of this case is not presented in this paper, but is available from the authors upon request. Nevertheless, the reader should be aware of the general approach. One basic assumption is that the filing unit acts so as to maximize its satisfaction, where its satisfaction level depends on total income of the unit and the leisure of each of its members. It follows that one worker's choice concerning his work time depends partly on the time spent at work and the earnings of the other worker. The filing unit has a broad range of options since either worker may accept the work subsidy. Presumably, the unit will choose the hours of work for each member, and choose the person who is to receive the subsidy that maximizes satisfaction for the filing unit as a whole. The analytical techniques employed, but not presented in this paper, attempt to simulate those decisions.

IV. USING THE STATE LABOR MARKET MODEL TO SIMULATE JOIN

A comprehensive analysis of JOIN requires an assessment of its impact on the hours people work and on the wages employers pay. If workers eligible to receive the JOIN wage subsidy increase their time at work, JOIN's cost to the Government may rise as a result of the additional hours subsidized. In addition, the subsidy cost per hour will rise if the increase in the labor force causes a fall in the wages employers pay. Alternatively, employers may have to increase their wage offers in order to retain workers who otherwise might accept JOIN's public job guarantee. Increased wage rates, in turn, will reduce JOIN costs as more people stay in private employment and fewer people go into special public jobs.

Use of a State labor market model allows one to simulate how JOIN would influence wage rates paid in private employment, the total employment levels in public and private employment, the extent to which JOIN draws new workers into the labor force, and JOIN's benefits to recipients and nonrecipients. The model represents the wage determination process in each State of the United States with a system of equations.⁷ One set of equations relates the way work hours supplied by workers depend on their wage rates, their nonemployment income, their dependents, and their other personal characteristics. Another equation expresses the relationship between the amount of labor demanded by firms, and the wages they pay, and the overall level of output. The model determines the market wage by finding that wage rate which equates labor supplied and labor demanded.

In commonsense terms, the model assumes that the hours which persons of each demographic type choose to work are a function of the wage rate they can obtain and their nonemployment income. In other words, it assumes that Americans in every State have the same relative preferences between income and leisure, and that they behave

⁷ See Peter M. Greenston and C. Duncan MacRae, "Labor Markets, Human Capital, and the Structure of Earnings," The Urban Institute, July 1974.

differently in different States only because of variations in the wage rate and the availability of nonemployment income. Similarly, the model assumes that the number of labor hours which employers in each State wish to purchase depends on the level and composition of State output and the wage rate prevailing in the State. In other words, the model assumes that given similar output composition, employers in each State will vary their demand for labor hours per dollar of output solely on the basis of the prevailing wage rates in the State. Finally, the model assumes that employers enjoy perfect flexibility in substituting workers of various skill levels for one another. As a consequence, the model assumes that the effect of a rise in the wage rate is that employers will choose to substitute capital for labor. Given these assumptions, the State labor market model tells us how American workers and employers can be expected to respond to variations in wage rates.

To simulate the effects of JOIN, one first specifies how JOIN would affect the wage and income opportunities of all families and individuals. The previous section performed this task. Next, one plugs these new effective wage and income figures into the labor supply equations derived from State-by-State analysis to determine their effect of JOIN on the amount people work and on the numbers of workers remaining in private jobs and the numbers taking the special public jobs offered under JOIN. This next step does not take account of the feedback effect of changes in labor supply on the wages employers pay. If JOIN changes the amount of labor supplied to private firms, the pre-JOIN wage will no longer result in equality between labor supplied and labor demanded. Thus, the model must find the new wage that will bring supply and demand into equality. As the model solves new for the wage level, it simultaneously determines the amount people work in private and in public employment, their total earnings, and their total subsidies from JOIN.

To understand the logic of the model requires an examination of its equations and how they describe the behavior of workers and firms. Consider first the labor supply equations. Since different population groups are expected to respond differently to changes in wage rates and nonemployment income, separate equations are necessary for each group. For example, family heads vary their work patterns in different ways than wives do; young persons in different ways than old persons; and well educated workers in different ways than less educated workers. Of primary importance is the distinction between labor supplied by the primary worker and labor supplied by secondary workers in each family. The other distinctions of significance are between different types of families. To determine which types of families show similar labor supply behavior, a special statistical technique was employed to select the groupings on the basis of minimum within-group wage variation and maximum between-group variation. This technique classified all families into eight groups based on the characteristics of the family head. The most relevant groupings were found to be families headed by those with the following characteristics:

- (1) Male and female, age 36 and over, 16 or more years of schooling completed;
- (2) Male and female, age 16-35, 16 or more years of schooling completed;

- (3) Male, age 36 and over, 0-11 years of schooling completed;
 - (4) Male, age 36 and over, 12 years of schooling completed;
 - (5) Male, age 36 and over, 13-15 years of schooling completed;
 - (6) Male, age 16-35, 0-15 years of schooling completed;
 - (7) Female, age 36 and over, 0-15 years of schooling completed;
- and
- (8) Female, age 16-35, 0-15 years of schooling completed.

The model of labor supply behavior consists of separate equations for primary and secondary workers in each of the eight family types. The equations explain the variation across 30 States and groups of States in the average number of hours worked per family per year on the basis of economic and demographic variables. For example, State variations in average hours worked by secondary workers of a particular family type depend on variations in their average wage, in the average wage of the primary worker in that family type, in the family's nonemployment income plus the earnings of the primary workers, and variations in the percentage of secondary workers who are white, between age 22 and 54, male, living with a spouse, responsible for dependents, and residing in an urban area. Econometric estimates of the relationship between hours worked and the explanatory variables use data on each variable derived from the 1970 Census Public Use Sample of 1 of every 1,000 households. The estimated relationships determine the quantitative significance of each of the variables. One finding is that State variations in wages of secondary workers in some family types stimulate significant increases in hours worked while for secondary workers in other family types wages have no discernible impact on hours worked.

Although separate estimates of labor supply relationships were performed for 16 groups—primary and secondary workers in eight family types—the results were similar for some groups. In fact, only three separate equations were necessary to explain variations in hours worked of secondary workers. Behavior of primary workers differed sufficiently by family type to require seven separate equations. In most of the equations, it was found that higher wages and lower nonemployment income induce longer work hours. In some cases, work hours increase as wages increase only to a certain level after which further wage increases appear to reduce or to leave average work hours constant.

Equations representing the demand for workers also take account of worker differences. But for employers, the relevant differences are those affecting worker productivity rather than those affecting family status. The demand for college graduates will clearly differ from the demand for workers without a high school education. In order to simplify the analysis, the model translates hours worked by different types of workers into equivalent productivity units as measured by relative wages. The hours worked by one group of workers is used as the basis of comparison. Hours worked by all other groups become translated into hours of the base—or numeraire—group on the basis of wage differences. The base group is male, primary workers, high school graduates, over age 36. One hour of work by male college graduates over 36 might become 2 hours in terms of the base group's hours. Alternatively, the value in numeraire hours of an hour worked by males with less than a high school education might be only one-half

an hour. The precise ratio of one group's hours to the numeraire's hours is equal to the ratio of the wage rates. In theory, relative wages are equal to relative productivities when markets are in equilibrium. To determine which relative wage weights to assign to workers of different productivity in all State areas, an equation relating relative wage rates to age-sex-education characteristics was estimated.⁸ Although some differences in relative wage rates appeared between Southern and non-Southern States, relative wage rates are reasonably constant over most areas. Using the wages derived in the relative wage equations, hours worked by those with different productivities were aggregated into a single hours measure.

The demand for labor part of the model is an equation intended to represent the impact of wage rates on employers' demand for workers. The actual equation relates State variations in the number of equivalent-quality hours worked—per dollar of State output—to State variations in wage rates of the base group and to State variations in the proportion of State output in manufacturing and construction. The estimated equation is based on 1969 data and the results indicate that a 1 percent higher wage of the base group is associated with about a 1 percent lower demand for labor hours. The output proportion variable is not statistically significant.

The demand for labor equation along with the condition that hours demanded equal hours supplied completes the model. An iterative solution technique solves for the wage for the base group that equates supply and demand. The wages of other groups of workers follow directly from the ratio of their wage rates to the wage rate of the base group. One important assumption embodied in the model's demand equation is that workers of different skill levels are perfectly substitutable at some fixed ratio. That is, if the wage level of a high skill is three times that of a low skill worker, firms may substitute three low skill workers for one high skill worker at no loss or gain in output. This assumption implies that relative wage rates of different classes of workers are fixed. Thus, JOIN's impact on the wages of one class of workers, say the base group, will have an equal percentage effect on wages of all other classes of workers. By assumption, JOIN cannot improve or worsen the relative position of low wage workers as measured by their market wage rate relative to that of other workers.

One problem in using the State labor market model to simulate the effects of JOIN is the difference in units of analysis. JOIN eligibility criteria for various filing unit categories are based on the nuclear family and on legal responsibility. One filing unit group consists of both parents and all children under 18. Children 18 and over and other household members not married to the family head are in different filing units. In contrast, the family unit used in the model and in most labor supply analysis includes all household members related to the head, regardless of their ages. The solution adopted here is to treat all secondary family workers not married to the primary worker as eligible for JOIN. This assumes that secondary workers in families with no spouse present are not under age 18 and that the secondary worker in families with a spouse present is the spouse.

A second problem arises because JOIN is universal but the State labor market model includes only the civilian nonagricultural labor

⁸ Ibid.

force. Since wage rates in the agricultural sector are low, a significant number of workers excluded from this analysis may in fact be eligible for JOIN benefits.

V. SIMULATION RESULTS AND IMPLICATIONS

We have discussed the inputs into the simulation process: Labor supply analysis of JOIN and the structure of the State labor market model. This section is divided into a discussion of assumptions made to update the model to make forecasts for 1976 and an analysis of macro and micro effects of the JOIN program.

The program parameters of JOIN are designed to apply to a program implemented in 1976. Basic exogenous inputs into the State labor market model were updated to 1976 by projecting the growth of output, unearned income, population, and labor productivity from the 1970 census data base used to estimate the model. Furthermore, since all monetary values (wage rates, earnings, income and output) in the econometric model are expressed in 1969 dollars, the parameters of the 1976 JOIN were first converted to 1969 dollar values. This is accomplished by multiplying them by the ratio of the 1969 GNP deflator to an estimate of the 1976 GNP deflator (obtained from the National Planning Association).⁹ Then the above mentioned variables are projected into 1976 and the model is simulated with and without the program. Finally, the predicted values are translated into 1976 dollar values by multiplying them by the ratio of the 1976 GNP deflator to the 1969 GNP deflator. The projections are based on the following trends and assumptions. Nonfarm output is assumed to grow in all States at the same rate as national output, which has been projected to increase from \$837.3 billion in 1973 to \$905.0 billion in 1976 (in constant 1958 dollars), or a real growth of 24.7 percent from 1969 to 1976.¹⁰ Corresponding to this growth in real output, unearned income is projected to grow at the same rate. The number of families in each State is assumed to continue to grow at the same rate of 1.48 percent a year which occurred over the period 1960-73. The demographic composition variables are assumed to remain at their 1969 values.

Labor productivity increased at a 3.1 percent annual rate over the period 1969-73 and is projected to grow in 1974-76 at the same 3.0 percent rate that prevailed in the last two decades.¹¹ The effect of the labor embodied technical progress is both to increase the number of equivalent-quality hours and to reduce the average cost of labor to firms. Since quality per man hour is assumed to increase by 22.7 percent over 1969-76, firms obtained 1.227 (H_j^a) equivalent-quality hours at a market wage of W_{ij}^* so that the average cost of labor to firms is only $W_{ij}^*/1.227$. The reduction in average cost will just absorb the increase in effective supply since demand is slightly elastic. Therefore, on net, the effect of increased labor productivity is to increase wage rates slightly.

⁹ Forecasts of the GNP Implicit Price Deflator are contained in National Planning Association, *The U.S. Economy: 1973-1983*, Washington, D.C., 1974.

¹⁰ The 1976 estimate is a Chase Econometric forecast.

¹¹ Productivity trends are discussed in *Manpower Report of the President*, Washington, D.C., March 1973, pp. 11-12.

The predicted values of the model are reported by JOIN category. But some individuals who are classified by JOIN as eligible category 5 families, are actually members of extended family units living together. Such individuals appear in tables as secondary workers and are associated with the JOIN category appropriate for their family head. Insofar as such extended families pool income from all sources, it would be misleading to list family members under two JOIN categories, and give the impression that they were separate units each with rather low income.¹²

For each category we report an average value of primary (W^p) and secondary (W^s) wage rates, hours per family (H^p/F , H^s/F), earnings per family (E^p/F , E^s/F), and family unearned income (Y^n) over all States. Wage rates are weighted by hours, while hours and earnings per family are weighted by families.

In tables 1 and 2 the preprogram predicted average values by JOIN category for participants and nonparticipants are reported. In the Nation, an average of 4 percent of families have primary workers participating while 0.7 percent of families have secondary workers participating in JOIN. In the absence of the program workers in these families on the average have significantly lower wage rates, levels of employment and unearned income than workers in nonparticipating families. Thus both their earned and their total income is lower. Nationally, workers from participating families are predicted to earn \$2,500 per year in contrast to \$8,100 per year for workers from nonparticipating families.

The postprogram predicted values of the annual Government cost per family (COSTP, COSTS) and annual subsidy per family (SUBP, SUBS) are reported along with equilibrium wage rates and annual hours worked in tables 3 and 4. Government costs include the wage subsidy net of the JOIN tax, the income guarantee cost for category 3 families, and the wage bill in public employment net of JOIN tax on participants. Figures for the annual subsidy per worker for primary and secondary workers indicate the increase in earnings above those determined by private market wage rates. Thus the entire amount of wage subsidy payments and any income guarantee is included in this figure. But, for individuals participating in public employment, the subsidy is an implicit wage subsidy equal to wage differences in public and private employment. Thus our estimate of subsidy is the earnings differential associated with this wage subsidy.

¹² It should be noted that secondary values for categories 2 and 3 are identical because they differ only in the age of dependents, whereas the corresponding primary groups also differ in benefits provided to participants.

TABLE 1.—Preprogram predicated values for 1976 by JOIN category, nonparticipants

JOIN category	W ^p	W ^s	H ^p	H ^s	E ^p	E ^s	Y ^a	Non-PARTP	Non-PARTS
1-----	\$7. 80	\$4. 13	1, 068	266	\$8, 337	\$1, 098	\$1, 287	20, 712, 000	20, 673, 000
2-----	8. 12	4. 32	816	178	6, 617	770	1, 421	2, 445, 000	2, 540, 000
3-----	8. 69	4. 32	1, 149	178	9, 982	770	1, 577	3, 133, 000	5, 158, 000
4-----	8. 12	4. 07	960	289	7, 801	1, 175	1, 679	24, 269, 000	24, 416, 000
5-----	6. 96	4. 24	650	152	4, 526	643	1, 824	16, 964, 000	16, 964, 000
6 ¹ -----	7. 84	4. 13	919	237	7, 201	978	1, 584	67, 524, 000	69, 753, 000

¹ Weighted average of 1 through 5.

Key:

W^p—Private market wage of primary worker in dollars per man-hour.
W^s—Private market wage of secondary worker in dollars per man-hour.
H^p—Annual man-hours of primary worker.
H^s—Annual man-hours of secondary worker.

E^p—Annual earnings of primary worker.

E^s—Annual earnings of secondary worker.

Y^a—Annual family nonlabor income in dollars.

Non-PARTP—Number of families with no participating primary worker.

Non-PARTS—Number of families with no participating secondary worker.

TABLE 2.—Preprogram predicted values for 1976 by JOIN category, program participants

JOIN category	W ^p	W ^s	H ^p	H ^s	E ^p	E ^s	Y ^a	PARTP	PARTS
1-----	\$3. 21	\$2. 48	1, 521	222	\$4, 887	\$550	\$871	268, 000	307, 000
2-----	3. 00	2. 16	1, 271	273	3, 804	593	412	111, 000	16, 000
3-----	3. 31	2. 16	359	273	1, 191	593	1, 076	2, 059, 000	33, 000
4-----	3. 12	2. 48	1, 331	219	4, 150	543	785	258, 000	110, 000
5-----	-----	-----	0	0	0	0	0	0	0
6 ¹ -----	3. 22	2. 44	607	226	1, 954	553	983	2, 697, 000	468, 000

¹ Weighted average of 1 through 5.

Key—All notation is as described in table 1 except—

PARTP—Number of families with a primary worker participating.
PARTS—Number of families with a secondary worker participating.

TABLE 3.—Postprogram predicted values for 1976 by JOIN category, nonparticipants

JOIN category	W ^p	W ^a	H ^p	H ^a	E ^p	E ^a	Y ^a	Non-PARTP	Non-PARTS
1-----	\$7. 76	\$4. 11	1, 073	268	\$8, 333	\$1, 100	\$1, 287	20, 712, 000	20, 673, 000
2-----	8. 07	4. 30	819	179	6, 609	771	1, 422	2, 445, 000	2, 540, 000
3-----	8. 63	4. 30	1, 155	176	9, 973	755	1, 577	3, 133, 000	5, 158, 000
4-----	8. 08	4. 05	966	290	7, 806	1, 175	1, 679	24, 269, 000	24, 416, 000
5-----	6. 93	4. 21	652	152	4, 516	640	1, 824	16, 964, 000	16, 964, 000
6 ¹ -----	7. 80	4. 12	923	237	7, 198	977	1, 584	67, 524, 000	69, 753, 000

¹ Weighted average of 1 through 5.

Key: All notation as described in table 1.

TABLE 4.—Postprogram predicted values for 1976 by JOIN category, participants

JOIN category	W ^p	W ^a	H ^p	H ^a	E ^p	E ^a	Y ^a	COSTP	COSTS	SUBP	SUBS	PARTP	PARTS
1-----	\$3. 55	\$3. 15	1, 660	367	\$5, 889	\$1, 155	\$870	\$272	\$210	\$272	\$210	268, 000	307, 000
2-----	3. 46	3. 04	1, 335	311	4, 609	944	411	661	708	470	213	111, 000	16, 000
3-----	3. 59	3. 04	474	398	1, 700	1, 209	1, 076	2, 998	907	2, 932	269	2, 059, 000	33, 000
4-----	3. 50	3. 15	1, 436	370	5, 033	1, 164	783	166	211	166	211	258, 000	110, 000
5-----			0	0	0	0	0	0	0	0	0	0	0
6 ¹ -----	3. 55	3. 14	719	368	2, 557	1, 154	983	2, 359	277	2, 301	214	2, 697, 000	468, 000

¹ Weighted average of 1 through 5.

Key—All notation is as described in table 2 except—

COSTP—Annual government cost per primary worker participating in dollars.

COSTS—Annual government cost per secondary worker participating in dollars.

SUBP—Annual subsidy per primary worker participating in dollars.

SUBS—Annual subsidy per secondary worker participating in dollars.

Perhaps the most notable feature of the results on participants in tables 2 and 4 is the concentration of participation in category 3 families and the lack of category 5 participants. JOIN is very attractive for category 3 families because of the income guarantee which these families receive. Since nonlabor income for this group is about \$1,000, the average value of the income guarantee net of the 50 percent nonlabor income JOIN tax will be about \$2,800 per year. Primary and secondary worker hours tend to be small for category 3 families which means that the earnings tax does not push these families near the break-even level of income even if they have high wages. JOIN is unattractive to category 5 families because of the higher earnings tax which they face, 35 percent as opposed to 25 percent for other categories, and the lack of an earnings disregard. Given a public employment wage of \$3, the after-tax wage available to category 5 workers choosing to participate in JOIN is only \$1.95 per hour. This is generally below private market wages projected to be available to workers in 1976. Also, some category 5 individuals are members of extended families that are eligible for JOIN under categories 1 through 4. Hours and earnings for such workers appear in descriptions of secondary worker behavior under the category of the head of the extended family.

Changes in the circumstances of families that participate in JOIN and those that do not participate are given in tables 5 and 6. As can be seen, JOIN is nearly market-neutral in that it has little net effect on market-clearing wage rates. Because of this feature there is little net effect on the behavior or income of nonparticipant families. Table 6 indicates that, for both primary and secondary workers, there is a slight fall in market wages of nonparticipating families. But because workers in these families are on the backward-bending portion of their uncompensated labor supply curves, the decline in wages evokes an increase in hours which leaves earnings virtually unchanged.

Families that participate in JOIN show sharply higher earnings and hours of work after the program is implemented. Table 6 indicates that these increases in hours and earnings extend to both primary and secondary workers of family types 1 through 4. But the percentage gains in hours are particularly large for category 3. Given the shape of the underlying labor supply functions, and the design of JOIN, one would anticipate that increases in hours would be most pronounced for the lowest wage workers. These individuals tend to be on the portion of the labor supply curve which has the smallest positive slope and they are unlikely to earn enough to exhaust the value of their disregard from the JOIN earnings tax. The tendency of the income guarantee to discourage work effort on the part of category 3 families apparently did not outweigh the positive effect of the wage subsidy and public employment on work effort.

TABLE 5.—Postprogram less preprogram differences in predicted values for 1976 by JOIN category, nonparticipants

JOIN category	ΔW^p	ΔW^s	ΔH^p	ΔH^s	ΔE^p	ΔE^s	Non-PARTP	Non-PARTS
1-----	-\$0. 04	-\$0. 02	+5	+2	-\$4	+\$2	20, 712, 000	20, 673, 000
2-----	-. 05	-. 02	+3	+1	-8	+1	2, 445, 000	2, 540, 000
3-----	-. 06	-. 02	+6	-2	-9	-15	3, 133, 000	5, 158, 000
4-----	-. 04	-. 02	+6	+1	+5	0	24, 269, 000	24, 416, 000
5-----	-. 03	-. 03	+2	0	-10	-3	16, 964, 000	16, 964, 000
6 ¹ -----	-. 04	-. 01	+4	0	-3	-1	67, 524, 000	69, 753, 000

¹ Weighted average of 1 through 5.

Key:

ΔW^p — Postprogram private market wages of primary workers less preprogram wages.

ΔW^s — Postprogram private market wages of secondary workers less preprogram wages.

ΔH^p — Postprogram annual hours of primary workers less preprogram hours.

ΔH^s — Postprogram annual hours of secondary workers less preprogram hours.

ΔE^p — Postprogram annual earnings of primary workers less preprogram earnings.

ΔE^s — Postprogram annual earnings of secondary workers less preprogram earnings.

TABLE 6.—Postprogram less preprogram differences in predicted values for 1976 by JOIN category, program participants

JOIN category	ΔW^p	ΔW^s	ΔH^p	ΔH^s	ΔE^p	ΔE^s	PARTP	PARTS
1-----	+\$0. 34	+\$0. 67	+139	+145	+\$1, 002	+\$605	268, 000	307, 000
2-----	+. 46	+. 88	+64	+38	+805	+351	111, 000	16, 000
3-----	+. 28	+. 99	+115	+125	+509	+616	2, 059, 000	33, 000
4-----	+. 38	+. 67	+105	+151	+883	+621	258, 000	110, 000
5-----							0	0
6 ¹ -----	+. 33	+. 70	+112	+142	+603	+601	2, 697, 000	468, 000

¹ Weighted sum 1 through 5.

Key—All notation is identical to table 5 except—

PARTP—Number of primary workers participating.

PARTS—Number of secondary workers participating.

In interpreting the results presented above, limitations of the analysis should be recognized. We have assumed a minimum wage in private employment of \$2.10 per hour would be permitted in spite of legislation which mandates higher minimum wages by 1976. Of course workers receiving such a wage in private employment would actually get \$3.05 per hour including the wage subsidy. Second, in analyzing the choice of private versus public employment, we have ignored the element of job satisfaction and amenity. It may be that workers would accept a lower wage in public employment rather than work in an undesirable job in the private sector. Also, we have ignored any role of the employment services associated with JOIN in encouraging workers to accept positions in the private sector. Instead workers consistently choose the position which yields the highest earnings for given hours of work. Finally, we have not dealt with the existence of other taxes and subsidies which would persist, be modified, or be eliminated by the introduction of JOIN.

VI. SUMMARY AND CONCLUSIONS

In this paper we have analyzed the market effects and program costs of the high benefit version of the JOIN proposal. We first reviewed the basic financial structure of the program. Each family or individual falls into one out of five possible filing unit categories depending on family composition. Each filing unit is eligible for one wage subsidy or one public job. A worker receiving between \$2.10 and \$4 per hour is eligible for a wage subsidy equaling one-half the difference between \$4 and his or her wage rate. A worker earning less than \$2.10 per hour is ineligible for the wage subsidy but eligible for a special public job paying \$3 per hour. Single parent families with a child less than 14 years old are also eligible for an income guarantee. All filing units, however, are subject to a surtax based on total family earnings and total family nonemployment income.

Since the JOIN program affects both the wage rate and nonemployment income opportunities of participants, we next used the theory of family labor supply to analyze the consequent labor supply effects of the program on the different filing unit categories. The analysis focused on specifying how the several program components alter the budget opportunities confronting the family and reflecting these changes in the parameters which determine labor supply behavior. JOIN has been designed to incorporate some features which increase labor supply to the private sector and others which should have the opposite effect. While the wage subsidy and special public jobs would improve the wage opportunities for many JOIN recipients, the higher wage not only increases the return to added hours of work, inducing an increase in labor supply, but also allows workers to afford added leisure, inducing a decrease in labor supply. Moreover, the JOIN surtax provisions might also raise or lower work effort. The surtax on nonemployment income reduces the family's ability to afford leisure while the surtax on earnings causes a decline in the effective wage rate for some workers in JOIN filing units.

Given the labor supply effects of the JOIN program on those who are eligible to participate, a model of State labor markets was employed to determine the changes in wage rates and work effort on both

participants and nonparticipants brought about by the program through its effect on the market supply and demand for labor. Projecting the proposed program into 1976, we forecast that an average of 4 percent of families would have primary workers participating, and almost 1 percent of families would have secondary workers participating. We found, however, that participation would be dominated by single parent families eligible for the income guarantee, and that single individuals would be only occasional participants. The simulation indicated that hours supplied by participating families would tend to increase as a result of the implementation of JOIN. These increases would extend across both primary and secondary workers in all participating family types. However, wages would not fall significantly and nonparticipating families appear to be little affected by the introduction of JOIN. Therefore, we conclude that the increase in labor supply would tend to be absorbed by the public sector leaving the private sector relatively unaffected. Thus, it seems that the potential for JOIN to be market neutral could be realized so that the program could be introduced without causing large indirect effects on the nontarget population.

Part II. HISTORICAL AND THEORETICAL
PERSPECTIVES

PUBLIC EMPLOYMENT PROGRAMS: AN EVALUATIVE STUDY

By ALAN E. FECHTER*

I. INTRODUCTION

Contemporary American culture is undergoing an intense experience with nostalgia. The current wave of nostalgia also appears to be affecting legislators and policymakers charged with fashioning our manpower programs. Public employment programs, such as PWA and WPA, which did yeoman work in the thirties by providing employment opportunities to the large numbers of people who were unemployed as a result of the Great Depression, are being examined as possible vehicles for solving our current social and economic problems. The Commission on Technology, Automation, and Economic Progress recommended in 1966 that government be the "employer of last resort" for people who lacked skills to compete in normal labor markets. The Commission estimated over 5 million jobs could be filled in the public sector.¹ Similar recommendations have been put forth by the Urban Coalition and the Kerner Commission.²

One may argue that excessive reliance on the past indicates lack of creativity. The 1930's was a time of widespread and persistent unemployment. The 1970's is a time of reasonably full employment, with many unemployed persons experiencing only short durations of unemployment. Thus, what was good for the New Deal era may not be so good for this era. This study will examine this issue in some detail.

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¹ National Commission on Technology, Automation and Economic Progress, *Technology and the American Economy* (Washington, D.C.: Government Printing Office, 1966), pp. 35-37, 110.

² Roger H. Davidson, *The Politics of Comprehensive Manpower Legislation* (Baltimore: Johns Hopkins University Press, 1972), p. 31.

A BRIEF HISTORY

Current congressional action to establish public service employment programs dates back to 1965, when a Senate amendment to the Economic Opportunity Act established Operation Mainstream, a small-scale program which provided jobs on conservation projects for unemployed or underemployed workers. Since that time, there have been a series of proposals submitted to the Congress to establish a large-scale public employment program, culminating in 1971 with the passage of the Emergency Employment Act (EEA), a \$2 billion, 2-year program. The public employment program (PEP), funded under the provisions of this Act, was the largest public employment program undertaken since the thirties. Designed to provide approximately 160,000 temporary jobs in the public sector when overall employment rates rose above 4.5 percent, the program expired in 1973.

Interest in public employment did not wane with the expiration of the EEA. The Comprehensive Employment and Training Act (CETA), passed by the Congress and signed into law by the President in 1973, contains provisions for a public employment program on a smaller scale.³ Interest remains in creating a substantially larger program,⁴ and it is clear that public employment programs will continue to be a policy issue in the foreseeable future.

PLAN OF THIS STUDY

Rational discussion of this issue requires a clear description of the objectives of such programs and an assessment of how these programs will achieve those objectives. This paper provides such a description. Section II summarizes objectives and describes briefly past and expected future performance with respect to them. Section III discusses the conceptual issues and the empirical evidence relating to the overriding program objective—increasing net employment. Section IV assesses program impact for other specific program objectives such as the employment and earnings of particular target groups. Section V examines and evaluates alternative future policy directions for public employment programs based on the evidence described in sections III and IV.

I conclude that, while the evidence does not support the use of massive, long-term public employment programs for any of the policy objectives considered in this paper, it is ambiguous with respect to modest short-term programs designed either as countercyclical weapons or as a means of improving the long-term employment and earnings experience of certain disadvantaged groups. I therefore recommend experimentation with modest public employment programs to provide better evidence of their performance with respect to these objectives. Serious consideration should be given to alternative measures, such as increased utilization of unemployment insurance and welfare programs to counteract the adverse employment effects of business recessions.

³ At the time of this writing, Congress has appropriated \$600 million; \$350 million authorized under the act, and \$250 million from leftover funds under the Emergency Employment Act.

⁴ Such a program has been proposed by President Ford in the event that unemployment rates rise above 6 percent.

II. OBJECTIVES AND PERFORMANCE

Public employment programs have been recommended as vehicles for achieving a wide range of objectives. These objectives can be summarized conveniently in five categories:

- (1) To alleviate cyclical unemployment;
- (2) To alleviate structural unemployment;
- (3) To raise wage rates of low-skilled workers;
- (4) To improve the earnings potential (human capital) of low-skilled workers; and
- (5) To increase the output of State and local public services.

A. Public Employment and Cyclical Unemployment

Advocates of the first objective argue that public employment is an effective means of stemming the shortrun surge of unemployment that accompanies recessionary periods of the business cycle because it impacts quickly on employment. The alternative countercyclical weapons, monetary and fiscal policy, stimulate aggregate demand for goods and services which, in turn, results in an increased demand for factors of production and a consequent increase in employment. Proponents of public employment argue that the effect on employment of traditional fiscal and monetary policy occurs only after a considerable lag.⁵ This, they continue, is eliminated by the direct purchase of labor services through the public employment program. In short, public employment programs are more effective countercyclical programs because (1) they give more "bang for the buck," and (2) they produce this "bang" faster than alternative macroeconomic policy weapons.⁶

Countercyclical public employment programs are usually designed with a "trigger" unemployment rate, which releases program funds when that rate is exceeded for a specified period of time and which automatically turns off program funds when unemployment falls below that rate for a specified period of time. Examples of such programs include the Emergency Employment Act of 1971, which had a national trigger rate of 4.5 percent and a local trigger of 6 percent, and title II of the Comprehensive Employment and Training Act, which has a local trigger of 6.5 percent for 3 consecutive months.⁷

The key assumption made by proponents of public employment programs as a countercyclical device is that public employment funds do not displace local funds in providing a given amount of public services (that is, that there is a net increase in public expenditure at the local level. While the evidence indicates that this assumption is questionable, there is some evidence that, even with rates of displace-

⁵ The lag is assumed to exist because employers "hoard labor" (i.e., employed labor is underemployed) during recessions. Because of this, the initial increases in demand can be met with the existing stock of employed workers. Employment increases only after underemployment of the existing work force is eliminated.

⁶ U.S. Department of Labor, Office of the Assistant Secretary for Policy, Evaluation and Research, Office of Evaluation, "*An Impact Evaluation of the Public Employment Program*," by George E. Johnson and James D. Tomola, Technical Analysis Paper No. 17 (April 1974), pp. 21-24; Laurence S. Seidman, "A Proposal to Improve the Design of the Public Employment Program" (unpublished manuscript, University of California, Berkeley, January 1973), pp. 4-6, 31-41.

⁷ See also Seidman for a proposed countercyclical program that is linked with a permanent public employment program.

ment as high as 50 percent, public employment programs produce shortrun employment effects that are superior to both increases in other government expenditures and decreases in taxes.⁸ These results indicate that a temporary public employment program, coming into effect only when unemployment rose above some trigger level, could be a viable countercyclical policy.

The PEP program showed that substantial numbers of State and local government job slots could be created and filled rapidly.⁹ Thus, public employment programs may be able to impact on employment more rapidly than alternative macroeconomic policies. However, this type of program is not necessarily the most satisfactory way of dealing with the business cycle. Workers who are laid off in cyclically sensitive industries might prefer a longer duration of unemployment covered by unemployment insurance with larger unemployment insurance payments, to temporary jobs in the public sector. The important question of financing is not discussed here since I am interested only in the relative performance of public employment compared to alternative countercyclical programs. Financing is assumed to be the same for both public employment and other alternatives. Obviously, in a less than fully employed economy, the absolute effect on employment will be larger for both if they are financed through an increase in the Federal budget deficit.

B. Public Employment and Structural Unemployment

Advocates of public employment programs as a means of dealing with structural unemployment see these programs as an effective way of reducing the unemployment (and underemployment) of structurally unemployed workers¹⁰ in a noninflationary way. A program that is targeted on these workers would shift unemployed workers out of the private sector, reducing downward pressure on their private-sector wage rates, and would reduce their unemployment by providing them with public-sector jobs. Interest in these programs and other employment-creation programs as a vehicle for alleviating structural unemployment has increased as the unemployment rate at cyclical peaks has risen over time. This secular increase in the full employment rate of unemployment has frequently been linked with another phenomenon, an adverse shift in the Phillips curve which relates attainable rates of unemployment to alternative rates of inflation. Adverse shifting of the Phillips curve has meant that the rate of unemployment that can be attained before inflation rates become intolerably high has been rising. At this writing, this unemployment rate appears to be approximately 5.0-5.5 percent. The hope is that employment creation programs targeted only on the structurally unemployed can, at

⁸ U.S. Department of Labor, *An Impact Evaluation of the Public Employment Program*, p. 24.

⁹ The evidence shows that 100,000 persons were placed in PEP slots within the first 5 months of the program. See Sar Levitan and Robert Taggart, *Emergency Employment Act: The PEP Generation* (Salt Lake City: Olympus Publishing Co., 1974), p. 14.

¹⁰ Structurally unemployed workers are generally defined as workers who remain unemployed even at full employment levels of output because their skills do not match those required by available jobs. It also can be interpreted to include workers who are unemployed because of discrimination.

appropriate levels of economic activity, substitute for more general macroeconomic policies to further reduce unemployment without incurring undue costs in terms of inflation.¹¹

The obvious assumption is that reduction in the unemployment of the target group does not occur either at the cost of increased inflation or increased unemployment of other groups of workers. The latter cost would be incurred if there were perfect displacement; that is, if public employment funds simply substituted for State and local funds that would have been spent for the program anyway. Again, evidence presented in section III of this paper suggests that the displacement effect is substantial and that such a program would largely reallocate unemployment between targeted and untargeted workers. There are some, however, who argue that such a reallocation would be desirable because it could shift the Phillips curve in a more favorable direction; that is, it could permit lower rates of unemployment at given levels of inflation.¹²

There is empirical evidence to support the hypothesis that reducing differences in unemployment rates between groups of workers improves the position of the Phillips curve.¹³ Such evidence could justify a public service employment program that focuses on low wage workers experiencing higher than average rates of unemployment. However, a possible constraint on public employment programs aimed at reducing the unemployment of the structurally unemployed is the skill mix required to produce public services. Table 1 indicates that employees of State and local governments are more highly educated than workers in other industries or unemployed workers. Thus, attempting to utilize less educated workers in public service jobs could produce a decline in the quantity or a deterioration in the quality of public services. The outcome would depend on the degree to which less educated workers can effectively substitute for more educated workers.

¹¹ This strategy has been articulated by Fellner, among others. See William Fellner, *Employment Policy at the Crossroads: An Interim Look at the Pressures to be Resisted* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1972), pp. 22-28; Barry F. Bluestone, "Economic Theory, Economic Reality and the Fate of the Poor," *The Political Economy of Public Service Employment*, ed. H. L. Sheppard, B. Harrison, and W. J. Spring (Lexington, Mass.: D. C. Heath and Co., 1972), pp. 117-128.

¹² The theoretical basis for the Phillips curve analysis lies in the assumptions that: (1) labor markets are segmented; (2) there is little mobility among segments; and (3) the relationship between the rates of inflation and the rate of unemployment is nonlinear. Given these assumptions, it is hypothesized that minimizing a weighted dispersion of unemployment rates among groups of workers would minimize the rate of inflation for a given average unemployment rate. Based on this analysis, a public employment program that did nothing but redistribute unemployment so as to reduce the dispersion among compartments in unemployment rates would improve the trade-off between inflation and unemployment. For elaboration of these theories, see Holt et al. (1973b), especially pp. 66-69, and Archibald. A summary may be found in Philip J. Cook and Robert H. Frank, "The Inflationary Effects of Public Service Employment" (unpublished manuscript, University of California, Berkeley, 1971).

¹³ Charles C. Holt et al., "Manpower Policies to Reduce Inflation and Unemployment," *The Interaction of Manpower and General Economic Policies*, ed. Lloyd Ulman (Baltimore: Johns Hopkins University Press, 1973), pp. 51-83; G. C. Archibald, "The Structure of Excess Demand for Labor," *Microeconomic Foundations of Employment and Inflation Theory*, ed. E. S. Phelps (New York: W. W. Norton and Company, Inc., 1970), pp. 212-223.

TABLE 1.—Comparison of educational attainments of unemployed and State and local government workers, 1970

Years of school completed	Percent distribution		
	Unemployed workers	Government workers	
		All	Excluding teachers
Less than 12.....	42	18	24
12.....	40	28	39
13 to 15.....	12	16	19
16 or more.....	6	38	18
Total workers.....	100	100	100

Source: U.S. Department of Commerce, Bureau of the Census, 1970 *Census of Population, Industrial Characteristics*, table 3; *Government Workers*, table 5.

Many proponents of public employment programs for the disadvantaged have implied that these workers can substitute effectively for more skilled workers. They base their case on the assertion that hiring standards are unrealistically rigid for public employment, claiming that screening tests are culturally biased and educational requirements are arbitrarily set higher than necessary for adequate performance of the job.¹⁴ Unfortunately, knowledge of the production process in local government is extremely limited and we are unable to pass judgment on this issue at this time.

C. Public Employment and Wage Rates of Low-Skilled Labor

Advocates of public employment programs for low-wage workers argue that the impact of such a program will be to raise their wages in both the public and the private sector. Their reasoning is based on two assumptions: (1) that low-wage jobs in the public sector pay higher wages than comparable jobs in the private sector, and (2) that their private sector wages will rise because the shift in their supply from the private to the public sector will make them scarcer in the private sector. There is some weak evidence in support of the first assumption.¹⁵ Figure 1 illustrates the second assumption. The demand curve of low-

¹⁴ See, for example, Harry Kranz, "Government by All the People," *Good Government* (Fall 1972), 4-6; Bennett Harrison, "Public Employment and Urban Poverty" Urban Institute Working Paper No. 113-43, Washington, D.C., 1971, pp. 7-9, 38-49. The general belief is that the fault lies with administrative practices rather than civil service laws. Much of the evidence showing that screening standards are set too high is, unfortunately, anecdotal. A notable exception is the work of Ivar Berg, *Education and Jobs: The Great Training Robbery* (Boston: Beacon Press, 1971). Some of the more recent evaluations of public service employment programs have gathered evidence on the relative performance of the poor and the disadvantaged in public service jobs and have found that their supervisors rated them as productive as other, more educated, public employees.

¹⁵ See for example, David Lewin, "Aspects of Wage Determination in Local Government Employment," *Public Administration Review* 34 (March-April, 1974), 149-55. He uses Los Angeles data to show that local governments pay more relative to private employers for unskilled, semiskilled, and skilled craft workers, and less for professional, managerial, and executive workers. Unfortunately, he does not present any evidence on service workers, an occupational class that is a large potential user of unskilled workers.

skilled labor has shifted to the right in the public sector and has shifted to the left in the private sector. (These shifts are illustrated by the movement from D to D' in the government market and from S to S' in the private market.)

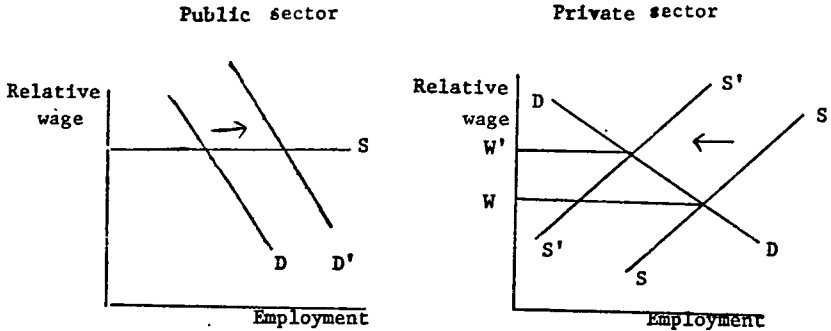


FIGURE 1.—Illustration of impact of public employment.

The supply shift also assumes that there is no substantial increase in the total workforce of low-skilled labor as a result of this program. Any increase in labor force participation or hours worked would tend to attenuate the private sector wage change. Existing evidence on the question is mixed.¹⁶

The analysis also assumes equilibrium in both markets. If there were any substantial amount of excess supply the program would cause employment changes but no wage changes.

Proponents of public employment as a means of raising wages of low-skilled workers ignore the indirect effects of this type of program on wages and employment of other workers. These indirect effects will be large if displacement of existing public workers is important. In the extreme, with perfect displacement, a public employment program may result in a redistribution of income away from other Government workers to low-skilled workers and/or State and local taxpayers. As noted earlier, the displacement effect appears to be fairly large. Thus, advocates of public employment who want to improve the lot of low-skilled workers at no expense to other workers may get what they bargained for, but at a higher price than they would like to have paid.

D. Public Employment and Human Capital of Low-Skilled Labor

Many proponents of public employment programs see them as a means of raising the lifetime earnings capacity of low-skilled or disadvantaged workers. Some base their arguments on the existence of

¹⁶ Robert W. Crandall et al., "An Econometric Model of the Low-Skill Labor Market," *Journal of Human Resources* (forthcoming). Crandall, et al. find a fairly inelastic supply schedule of low-skilled labor using State cross-section data for the year 1970. Similar findings are reported from the New Jersey income maintenance experiment. For a summary of these findings, see Albert E. Rees, "An Overview of Labor-Supply Results," *The Journal of Human Resources* IX (Spring 1974), 158-180.

a casual, or secondary, labor market that employs low-wage, low-skilled labor, and that has no connections to the more formal, or primary, labor market that employs high-wage, high-skill labor. They assume that public employment programs will provide low-skilled workers with work experience that will make it easier for them to find jobs in the primary labor market.¹⁷ Some base their analyses on public employment providing legitimate on-the-job training, which is of value in the primary labor market; others base their analyses on public employment as a credential, or union card, that demonstrates stable work habits and other worker characteristics that are assumed to be of value in the primary labor market.

Evidence on the success of public service employment programs with respect to this objective is mixed. A number of evaluations have shown that a very small proportion of program participants wind up in permanent jobs at higher wages in either the public or private sector. However, many of these studies have also noted that little or no resources were allocated to training and/or placement and followup services in the programs that were being evaluated.¹⁸ Thus, the poor performance may have been attributable to an inefficient allocation of program resources. Other studies have found that public service programs have some potential to be moderately effective in placing particular workers such as paroled or released convicts in permanent jobs.¹⁹

E. Public Employment and Output of Government Services

Advocates of public employment programs want to use the programs as a means of increasing government output. They argue, either implicitly or explicitly, that there are "shortages" of State and local public services and that public service employment programs will alleviate those shortages as well as create jobs.²⁰ The impact of public service employment programs on the output of government services will depend upon the validity of those assumed shortages. In principle, if there were no shortages, then the net impact of the program would be to reduce State and local taxes. There would also be some increases in output, but the size of these increases (which depends on the responsiveness of demand to income changes and the share of total income spent on State and local government services) is expected to be quite small on a priori grounds. Some estimate that a dollar of public service employment funds will produce roughly 18 cents of additional State and local expenditure.²¹

¹⁷ For example, see Bennett Harrison, "Public Employment and the Theory of the Dual Economy," *The Political Economy of Public Service Employment*.

¹⁸ See, for example, Levitan and Taggart on the PEP program, and Jay Turim, W. T. Towles, and T. Lim, *Evaluation of the PSC Program* (Bethesda: RMC, Inc., 1972). (PSC is Public Service Careers.)

¹⁹ For example, see Philip J. Cook, "The Effect of Legitimate Opportunities on the Probability of Parolee Recidivism," Institute of Industrial Relations, University of California, Berkeley, June 1971.

²⁰ For examples of this line of reasoning, see Harrison, "Public Employment and the Theory of the Dual Economy."

²¹ For example, see Edward M. Gramlich and Harvey Galper, "State and Local Fiscal Behavior and Federal Grant Policy," *Brookings Papers on Economic Activity* I (1973), 15-58.

Once again, the large displacement effect vitiates much of the program impact.

Moreover, even if there were no displacement effect, there is no evidence of a shortage of public goods.²² And, even if there were a shortage, it is not clear that public service employment programs would be the most efficient means of expanding government output.

F. Summary of Objectives and Performance

Based on the discussion developed above, program success in accomplishing three of the five objectives (reduced cyclical unemployment, reduced structural unemployment, and increased output of State and local public services) depends critically on the amount of displacement that might occur. Available evidence indicates that displacement is not a trivial phenomenon, particularly in the long run. I therefore do not enthusiastically endorse long-term public employment programs to alleviate structural unemployment or to increase output in the public sector. Countercyclical public employment programs, on the other hand, seem to offer some promise of success.

The wage-raising objective is difficult to evaluate without some notion of how to assess the indirect effects of the program. There is no doubt that wages can be raised by moving low-skill workers to the public sector; however, the objective may be achieved at some cost to skilled workers and consumers of public service. More evidence about the production process will be needed before these issues can be sorted out.

The objective of increasing worker skills and employability is also difficult to evaluate without more controlled utilization of program funds. There is evidence that public employment can help some groups of workers (exconvicts are an example). However, the lack of program success with disadvantaged workers cannot be interpreted as a program failure because of the way in which funds were used. In particular, few resources were allocated to the purchase of services deemed complementary to the utilization of unskilled workers in human capital-creating public service jobs (for example, training, placement, and followup services). Further evidence, derived from controlled experiments in which funds are apportioned properly, will be required before definitive conclusions about this objective will be possible.

III. NET PROGRAM IMPACT: THE ISSUE OF DISPLACEMENT

Most public service employment programs are administered through grants. The Federal Government provides appropriate State and local agencies with funds for hiring members of the relevant target group for a government job slot. The impact of these funds depends crucially on how effectively they are constrained. If the objective of the program is job creation for particular target groups, then the funds should be constrained so that all are applied to creating the relevant

²² State and local governments have been running large surpluses recently. For evidence describing the fiscal status of State and local governments, see David J. Ott et al., *Nixon, McGovern, and the Federal Budget* (Washington, D.C.: American Enterprise Institute for Public Policy Research, 1972).

new slots for the appropriate target groups. Indeed, the legislation for practically all public employment programs stipulates that the funds should be used for new slots. In the absence of effective constraints some fraction of the Federal funds will be used to purchase government services that would otherwise have been purchased with local funds.

The net impact of public employment programs depends crucially on this "displacement rate." A 100-percent displacement rate would mean that the program has no net impact on expenditures, wages, and employment; it simply shifts the burden of financing these services from State and local taxpayers to Federal taxpayers. A displacement rate of zero would mean that all of the program funds go to increasing expenditures, wages, and employment. If the objective of the program is to increase public service employment and output, then program effectiveness will vary inversely with this displacement rate. Existing evidence on the magnitude of this rate is presented below. An analytic framework that develops the factors determining the displacement rate appears in appendix A.

A. Displacement of Total State and Local Expenditures: The Evidence

Estimates of the displacement rate of public service employment funds on local government expenditure may be deduced by evaluating the effects of Federal grants. The proliferation of grant programs in the 1960's also resulted in a proliferation of literature dealing with the effects of Federal grants. This literature seemed to indicate that there was little, if any, displacement; in fact many of the studies suggested that an incremental grant dollar produced more than a dollar increment in total expenditure.²³ These results are not consistent with the analytic framework discussed in appendix A.

A more recent study produced findings that were more in accord with the analytic framework described in appendix A.²⁴ Its primary purpose was to evaluate the potential impact of grants on the budgetary behavior of State and local governments. Three types of grant programs are described: open-ended categorical grants, block grants,

²³ For a critical review of this literature, see Edward M. Gramlich, "The Effect of Federal Grants on State-local Expenditures: A Review of the Econometric Literature," National Tax Association, *Proceedings of the Sixty-second Annual Conference on Taxation, 1969* (1970), pp. 569-93.

²⁴ Gramlich and Galper. The study describes a model of State and local fiscal behavior based on maximization of a utility function subject to the budget constraint of decisionmakers at the State-local level. From this model the authors develop a consistent set of estimating equations for State and local expenditures, revenues, and the consequent budget surplus. The independent variables in these equations include Federal grants of various types, income, relative prices, previous stocks of financial assets and demographic variables to index the marginal utilities of expenditures.

The authors hypothesize that, if there are no restrictions, open-ended categorical grants will have the largest impact and lump-sum grants will have the smallest impact on expenditures. If, however, categorical grants are limited to incremental expenditures above some base amount, then closed-ended categorical grants will have the smallest impact. They test their model on quarterly time-series data for the entire United States for the years 1954-72 and on pooled cross-section data for 10 large urban governments over a 9 year interval, 1962-1970.

and closed-ended categorical grants. Categorical grants are usually program-specific and require some matching on the part of the State and local government. They are generally designed to supplement State and local effort. Block grants, on the other hand, are usually not program-specific, nor do they require matching.

While some public employment programs can be like lump-sum grants in that they can be used for any program, others can be more like closed-ended categorical programs in that they are restricted in their use and they produce changes in the relative prices of public services.²⁵ We, therefore, focus our attention on the Gramlich-Galper findings for both lump-sum and closed-ended categorical grants.

The time-series analysis on closed-ended categorical grants indicated that only 20 percent of every dollar of Federal grant money is used to displace State and local spending.²⁶ While small, this estimated displacement effect is larger than most other studies have found. The reasons offered for this relatively small displacement effect are: (1) effective maintenance-of-effort requirements in existing grant programs, and (2) the newness of many of these grant programs.

The pooled cross-section analysis of these grants produced a larger displacement effect of 42 to 46 percent of every grant dollar.²⁷ On the other hand, the analysis of lump-sum grants produced substantially larger estimated rates of displacement. The time-series analysis produced a displacement estimate of 57 percent. The cross-section analysis produced an estimate of 75 percent.

Since existing and proposed public employment programs are essentially lump sum grant programs, I conclude that their long-run displacement rates on government expenditure will be roughly 57 to 75 percent. In other words, local government will substitute anywhere from three-fifths to three-fourths of these present and proposed Federal funds for local funds that would have been spent even if there had been no public employment program.²⁸

In addition, based on the above evidence, I conclude that a public employment program that had the effect of altering relative input prices would have a long-run displacement rate ranging between 20 and 46 percent. Such a program would, on the basis of this evidence, be more effective than the lump-sum program.

²⁵ Public employment programs that do not alter relative input prices are analytically equivalent to lump-sum grants, and public employment programs that alter relative prices are analytically equivalent to closed-ended categorical programs in that they alter the price of labor-intensive public services relative to capital-intensive public services.

²⁶ This estimate assumes that the local government matches the Federal grant on a dollar for dollar basis.

²⁷ Part of the reason for the larger cross-section displacement effect may be the fact that the grant data were disaggregated into five broad programs: education, public safety, social services, urban support, and other.

²⁸ These estimates imply that the income elasticity of demand for public services is substantially in excess of unity (that is, a 1 percent increase in income will produce an increase in the quantity of public services demanded that is greater than 1 percent. The displacement rate is the complement of the net impact rate. The net impact rate is defined as the product of the income elasticity of demand for public services and the relative share of income going to public services. The relative share has been estimated to be 0.18 (see app. A). Thus, in order to derive estimates of net relative impact ranging between 0.25 and 0.43, the income elasticity would have to range between 1.4 and 2.4. This range of elasticities is consistent with the observed rising share of national income for State and local government expenditures.

*B. Displacement of State-Local Wage Bill Expenditures:
The Evidence*

Studies that have analyzed the consequences of providing Federal grant dollars to State and local governments have found that only a fraction of these dollars find their way into the employment budget. Gramlich, using quarterly observations for 1954-64, estimated that only 45 percent of incremental Federal grant dollars ultimately wind up in the State and local employment budget.²⁹ Ehrenberg, using a pooled cross-section of States for the years 1958-63 and 1965-69, estimated that 22 percent of incremental Federal dollars impacts on the employment budget.³⁰ Ashenfelter, using annual time-series data for the period 1929-65 estimated that 24 to 47 percent of incremental Federal grant dollars winds up in the employment budget.³¹ More recent studies place the wage bill impact at 6 to 9 percent.³² These studies estimate long-run effects. A recent evaluation of PEP estimated a short-run employment impact of 54 percent.³³

Given estimates of displacement rates of from 57 to 75 percent for lump sum grants on total government expenditure, it is difficult to accept the range of 55 to 78 percent estimated as the displacement effect of lump sum grants on the wage bill by the three cited studies by Gramlich, Ehrenberg, and Ashenfelter. The difficulty arises from the fact that the wage bill is only a fraction of the total budget. This fact would lead one to expect a net displacement effect on the wage bill that would be larger than that estimated for total expenditures³⁴ (see app. A).

For example, if one is willing to accept the estimates of displacement rates for total expenditure described in the preceding section, then one would also have to accept as reasonable the 91 to 94 percent displacement rates for the wage bill estimated in the more recent studies. But, these rates imply that the wage bill is something like 14 to 36 percent of the total budget. Depending on how one defines the

²⁹ Edward M. Gramlich, "State and Local Governments and their Budget Constraint," *International Economic Review* X (June 1969), 174.

³⁰ U.S. Department of Labor, Manpower Administration, *An Economic Analysis of the Demand for State and Local Government Employees*, by Ronald G. Ehrenberg, Report No. DLMA 91-17-71-26, p. 58.

³¹ O. Ashenfelter, "Demand and Supply Functions for State and Local Employment: Implications for Public Employment Programs" (unpublished manuscript), table 4 and p. 8.

³² U.S. Department of Labor, *An Impact Evaluation of the Public Employment Program*, p. 8.f.n; O. Ashenfelter and R. G. Ehrenberg, "The Demand for Labor in the Public Sector, *Labor in the Public and Non-profit Sectors*, ed. D. Hamermesh (Princeton: Princeton University Press, forthcoming).

³³ The study, not yet released by the Manpower Administration of the Department of Labor at the time this was written, was done by the National Planning Association. This estimate is an average for 12 demonstration areas based on 1967-72 experience and is based on an assumed proportionate growth in public employment for the demonstration areas and for 182 other governmental units that reported employment data for the entire period and that had at least one PEP employee. The average employment impact for the 12 areas was based on a distribution that had a large variance. I am indebted to Stan Markuson and Seymour Brandwein, both of the Manpower Administration, for allowing me to examine the NPA study.

³⁴ The ratio of the net impact on the wage bill to the net impact on total expenditure should be equal to the fraction of total expenditure represented by the wage bill.

budget, the wage bill share has been estimated as ranging from 42 to 54 percent.³⁵ If these figures are valid, then the rate of displacement should range from 68 to 90 percent, somewhat lower than the rates implied by the more recent studies, and somewhat higher than the rates implied by the three earlier studies.³⁶

In spite of these caveats, it is clear that the displacement effect on the wage bill is substantial—probably in excess of 60 percent. And it may be as high as 90 percent. Such high rates of displacement cast serious doubt on the efficiency of lump-sum public employment grant programs as means of creating jobs in the public sector.

C. Net Employment Effects: The Evidence

In order to derive the net employment effect of public employment funds one simply divides the estimate of the net increment to the wage bill by the wage rates of government employees. Estimates of net long-run employment effects were based on the estimates of net wage bill effects, discussed above, by assuming: (1) that the average annual wage of a State and local government employee is \$8,000; (2) that 10 to 40 percent of the funds of a lump-sum program would be incremental to the wage bill, and (3) that 25 to 50 percent of the funds of a wage-bill subsidy program that lowers the relative cost of labor would be incremental to the wage bill.³⁷ The modest long-run impact of the lump-sum program, typified by such past programs as PEP and by the current public employment program provided for under title II of CETA, is striking. One billion dollars is expected to create only 12,500 to 50,000 jobs in the long run, depending upon whether the net increment to the wage bill is closer to 10 or 40 percent. Alternative programs are expected to do better, but not dramatically so. A \$1 billion public employment program operated as a wage-bill subsidy program would create only 30,000 to 60,000 jobs, depending upon whether the net increment to the wage bill is closer to 25 or to 50 percent.

D. Summary

The evidence presented in this section indicates that the rate of displacement of public employment funds for both total expenditures and wage-bill expenditures by local government would be quite large for long-run, permanent-type programs operated as lump-sum grant

³⁵ U.S. Department of Labor, *An Impact Evaluation of the Public Employment Program*, p. 8 fn.. Johnson and Tomola estimate the share at 51 percent of adjusted personal income (i.e., personal income minus Federal taxes plus indirect State and local business taxes). If one estimates the share as a fraction of the current operating budget, it is 42 to 54 percent. While the latter estimate is probably biased because it excludes the rental value of capital equipment, I believe that, conceptually, it is the more appropriate figure.

³⁶ Let D_E equal the rate of displacement for total expenditure and D_w equal the rate of displacement for the wage bill. Define $I_E=100-D_E$ and $I_w=100-D_w$ as the net impact rates for total expenditure and the wage bill, respectively. Define α as the share of total expenditure constituted by the wage bill. The net impact rates can be related as follows: $I_w=\alpha I_E$. Suppose $I_E=25$ and $\alpha=0.5$ I_w would be estimated as 12.5 and D_w would equal 87.5.

³⁷ The range of estimated net increments was derived by multiplying the share of total cost that is represented by the wage bill (assumed to be equal to 0.5 or 0.6) by the estimate net increment of closed-ended categorical programs to total Government expenditures (assumed to be 50 to 80 percent).

programs, ranging from 55 to 75 percent for total expenditures, and from 60 to 90 percent for wage-bill expenditures. The rates would be somewhat lower if the programs were operated as wage-bill subsidy programs, ranging from 20 to 40 percent for total expenditure, and probably ranging from 50 to 70 percent for wage-bill expenditures. Because of their rather large rate of displacement, the net employment impact of these programs is expected to be quite small. A billion dollar lump-sum program is expected to produce no more than 50,000 jobs and a similar wage-bill subsidy program will produce no more than 63,000 jobs.

A number of caveats are necessary to these conclusions. First, the estimates are assumed to be long-run estimates applicable to permanent programs that have been in operation for some time. Short-run displacement effects are expected to be smaller, particularly if local administrators have not anticipated them. This suggests that, while long-run programs look somewhat dubious, short-run, countercyclical programs might do better.³⁸ One study suggests that the short-run employment effects of public employment programs even with rates of displacement of as high as 90 percent would exceed similar employment effects of an equivalent tax cut, but would be less than an equivalent Government purchase policy.³⁹

Second, the evidence cited above applies only to total budget and employment effects. Programs aimed at creating jobs for particular target groups, such as the disadvantaged, are likely to have smaller total employment effects because they focus on inputs whose costs constitute relatively smaller fractions of the budget. On the other hand, such programs will have a larger employment effect for unskilled workers because: (a) their wage rates are lower, resulting in a larger employment effect from any given net wage bill impact, and (b) there is likely to be some substitution of low-skill workers for other workers. Such interskill substitution, while important to consider in assessing potential employment impact of a public service employment program, is difficult to gauge without better knowledge of production relationships in the public sector. Further evidence will be required before more definitive conclusions will be possible.

IV. HUMAN CAPITAL EFFECTS AND EMPLOYMENT EFFECTS FOR SPECIFIC TARGET GROUPS

Some public employment program advocates perceive their plans as vehicles for employing specific target groups—particularly workers experiencing persistently high rates of unemployment or underemployment, such as the young or the old, or disadvantaged, low-skill workers. The former workers are desirable targets if one accepts the premise that a redistribution of unemployment away from high incidence groups will have salutary effects on the inflation-unemployment trade-off by shifting the Phillips curve so that we can have less of both. The latter workers are desirable targets if one accepts the premise that poverty, for a large number of people, is associated with the lack of human capital.

³⁸ U.S. Department of Labor, *An Impact Evaluation of the Public Employment Program*, pp. 11-13.

³⁹ *Ibid.*, p. 24.

In principle, even if public employment programs had large displacement effects, they could be considered effective in terms of the former workers if the displacement resulted in the desired redistribution of employment composition. Proper evaluation of these redistribution effects requires comparison of the employment distribution attributable to the program and the desired employment distribution.

Similarly, public employment programs can, in principle, increase the lifetime earnings potential of workers who are employed in them by providing training, either formal or on the job, or by providing them with a chance to establish work histories that will reduce their future job instability. Proper evaluation of these human capital effects requires measurement of the change in earnings directly attributable to participation in the program. Generally, this is accomplished by comparing earnings changes of program participants with earnings changes of some appropriate control group. This has proved to be a difficult task in the case of most manpower training programs.⁴⁰ It is even more difficult in the case of public employment programs.

Major reasons for this difficulty include: (1) the relatively small size of the various public employment programs that have been funded (PEP was an exception to this rule); and (2) the limited amount of experience we have had with all public employment programs (including PEP). In addition, even in those cases where studies have been possible, methodological problems have made it difficult to accept the findings at face value. Among the major methodological problems arising from these studies are: (1) difficulty in generating adequate controls for the effects on earnings of factors other than program participation; and (2) inability to trace the lifetime experience of control and experimental groups. The former problem arises largely in trying to control for such difficult to measure factors as ability and motivation.

Studies have been conducted on a number of these programs and in this section I shall describe what might be inferred about them from the available evidence. I shall concentrate on four programs: (1) the neighborhood youth corps (NYC); (2) the public service careers program (PSC); (3) operation mainstream (OM); and (4) the public employment program (PEP).

A. Neighborhood Youth Corps

The neighborhood youth corps came into being in 1964, when Congress passed the Economic Opportunity Act. Although it was not designated as the neighborhood youth corps by the act, it was established as a work-training program oriented to poor youth between the ages of 16 and 21. Its statement of purpose declared:

⁴⁰ For example, see U.S. Department of Labor, Office of the Assistant Secretary for Policy, Evaluation, and Research, Office of Evaluation, *Progress Report on the Development of Continuous Performance Information on the Impact of the Manpower Development and Training Act*, by O. Ashenfelter, Technical Analysis Paper No. 12A, Washington, D.C., 1973; U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy, *The Effectiveness of Manpower Training Programs: A Review of Research on the Impact on the Poor*, by Jon Goldstein, paper No. 3 (Washington, D.C.: Government Printing Office, 1972); Ernest W. Stromsdorfer, *Review and Synthesis of Cost-Effectiveness Studies of Vocational and Technical Education* (Columbus: The Centre for Vocational and Technical Education, 1972).

The purpose of this part is to provide useful work experience opportunities for unemployed young men and young women, through participation in State and community work-training programs, so their employability may be increased and their education resumed or continued and so that public agencies and private nonprofit organizations will be enabled to carry out programs which will permit or contribute to an undertaking or service in the public interest that would not otherwise be provided.

The program had three major components: (1) NYC in-school, designed to provide employment for students to reduce the number of youth who drop out of school; (2) NYC summer, designed to provide summer employment for youth; and (3) NYC out-of-school, designed to provide jobs for school dropouts. Since 1965, over 800,000 have participated in the in-school program; 2 million have participated in the summer program; and over 700,000 have participated in the out-of-school program. Although NYC has been eliminated by the newly enacted CETA, there is a considerable amount of political pressure to earmark title I and title II CETA funds for youth programs.

Its relatively large number of participants and relatively long duration has made NYC the subject of a number of evaluations.⁴¹

Indeed the state of the art for NYC evaluation has reached the point where even the evaluations are being evaluated! ⁴² The objectives of the program are a complex set of redistribution and allocation goals. One evaluation has aptly summarized these as follows: (1) to redistribute income to the poor; (2) to increase employment of youth; (3) to reduce juvenile crime; and (4) to increase the lifetime earnings of enrollees. The last objective can be accomplished by increasing either the amount of formal or on-the-job training the enrollee receives. The formal training effect can be observed through the program's impact on school enrollment; the latter can be observed through comparisons of pre- and post-enrollment earnings for enrollees and some appropriate control group. The findings of several major studies with respect to these variables is summarized below.

1. SCHOOL ENROLLMENT EFFECT

Somers and Stromsdorfer, in what was probably the most impressive study of NYC, found that participation in NYC had no significant effect on the probability of graduation from high school or on the number of years of school completed.⁴³ However, they also found that participation in NYC had a significant impact on the probability of

⁴¹ Gerald G. Somers and Ernest W. Stromsdorfer. *A Cost-Effectiveness Study of the In-School and Summer Neighborhood Youth Corps* (Madison: Industrial Relations Research Institute, 1970); Michael Borus, John P. Brennan, and Sidney Rosen. "A Benefit Cost Analysis of the Neighborhood Youth Corps, the Out-of-School Program in Indiana," *Journal of Human Resources* (spring 1970), 139-59; George F. Brown et al., *Analysis of the Neighborhood Youth Corps Program* (Arlington, Va.; Center for Naval Analyses, 1972); Gerald D. Robin. *An Assessment of the In-School Neighborhood Youth Corps Project in Cincinnati and Detroit with Special Reference to Summer-Only and Year-Round Enrollees* (Philadelphia: National Analysts, Inc., 1969).

⁴² U.S. Congress, Joint Economic Committee, *The Effectiveness of Manpower Training Programs*; U.S. Department of Labor, Office of the Assistant Secretary for Policy, Evaluation and Research, Office of Evaluation. *The Neighborhood Youth Corps: An Impact Evaluation*, by Robert S. Smith and Hugh H. Pitcher, Technical Analysis Paper No. 9, Washington, D.C., 1973.

⁴³ Somers and Stromsdorfer, table 39.

attending college and the probability of receiving post-high school training.⁴⁴ Since Somers and Stromsdorfer took elaborate precautions in attempting to assure a proper control group, we must conclude that their school enrollment and training findings, while unbiased, are mixed.

In addition to the global Somers-Stromsdorfer study, Robin studied the NYC impact on school participation in Cincinnati and Detroit. He found that the program did not reduce the dropout rate or increase the educational aspirations, studiousness, or scholastic achievement of NYC enrollees.

Finally, the Center for Naval Analysis (CNA) studied the impact of NYC on school enrollment using a system of simultaneous equations based on a model of activity choice. They employed the Somers-Stromsdorfer data base and essentially found no significant relationship between NYC enrollment and high school behavior, high school dropout rates, college enrollment, and post-high school vocational training. These findings, however, must be taken with a large grain of salt owing to some methodological problems in their study.⁴⁵

These studies suggest that the evidence supporting a significant impact on school enrollment is not overwhelming. The most general (and, in my judgment, the most credible) study produced some weak findings in support of the allegation that NYC participation raises post-high school investment in training (both college and vocational school). However, the other studies reviewed found no evidence of any impact on school enrollment.

2. LIFETIME EARNINGS EFFECT

Somers and Stromsdorfer found that participation in NYC significantly increased annual after-tax earnings by \$831. Blacks tended to benefit from participation in the program more than whites. White women did not benefit at all. A major factor responsible for this increase in earnings was the larger amount of time NYC participants spent in the labor force. At least \$400 of the \$831 increase in earnings can be attributed to the 2.3 month reduction in time spent out of the labor force by NYC participants.⁴⁶ This increase cannot reasonably be assumed to be part of a permanent differential in productivity attributable to their NYC experience. Thus, the amount of human capi-

⁴⁴ *Ibid.*, pp. 251-252. This finding was reported when a dummy (yes/no) variable was used to index NYC enrollment. When the more continuous variable of months enrolled in the program was employed, the impact on post-high school training was reduced to insignificance.

⁴⁵ For a detailed critique, see U.S. Department of Labor, *The Neighborhood Youth Corps*, p. 59, fn. 5.

⁴⁶ NYC participants earned, on average, \$4,519 (unweighted) over the total time (19 months) they were eligible to be in the labor force. If we deduct \$831 estimated to be attributable to NYC participation from the unweighted earnings, we can generate a crude estimate of what these participants would have earned had they not had NYC experience. This estimate, \$3,328, or \$175 per month, assuming they work each of the 19 months, can be used to generate a lower bound estimate of the increased earnings attributable to the increased time spent in the labor force by NYC participants. This estimate, \$400, is a lower bound because the control group for which these earnings apply did not work in each of the 19 months. Thus, their estimated monthly earnings would be higher than the \$175 attributed to them above.

tal created by NYC participation is probably overstated by the estimated \$831.⁴⁷ Alternative specification of their impact model produced earnings differentials that were not significantly different from zero.⁴⁸ This finding directly contradicts their earlier finding and has raised questions as to which conclusion is valid.⁴⁹

A more narrowly focused study produced estimates of the impact of NYC on earnings of participants that were diametrically opposite to those described above.⁵⁰ Each additional hour of training was associated with an additional 33 cents in annual earnings.

Finally, the CNA study discussed earlier also examined the impact of NYC on earnings and found no significant relationship. But, these findings must also be taken with a grain of salt because of methodological problems in the study.⁵¹

To summarize, the empirical investigations of the impact of NYC on lifetime earnings is mixed. While some studies indicate there is a significant impact, the lifetime impact may not be as large as these studies suggest. Moreover, some doubt is cast on these studies because alternative models formulated within the same studies produce contradictory findings.

B. Public Service Careers

The public service careers program was established in 1966 by an amendment to the Economic Opportunity Act. Its objective was to provide permanent public-sector jobs for the disadvantaged by removing personal and/or institutional barriers to their employment. The program provided funding to State and local governments and to Federal agencies to encourage them to undertake innovative projects designed to reduce such barriers as unduly stringent qualifications for hiring or promotion. The strategy was to identify, through demonstration projects, areas where these hiring and/or promotion standards could be lowered without any loss in productivity.

⁴⁷ Smith and Pitcher estimate that the 90 percent rate of return estimated by Somers and Stromsdorfer would be 20 percent lower if this earnings improvement were assumed to occur only once at the beginning of their working lives and was assumed to be zero thereafter. U.S. Department of Labor, *The Neighborhood Youth Corps*, p. 54.

⁴⁸ The earnings differential is no longer significant when participation is estimated in continuous monthly units, rather than as a discrete yes/no participation dummy variable.

⁴⁹ Goldstein speculates that the results of the continuous variable model reflect differences in ability that are not indexed in the dummy variable model. An alternative explanation may be attributed to methodological shortcomings in their use of the continuous variable. In particular, because nonparticipants were assigned a value of zero in the continuous participation variable, the distribution of that variable was not normal. Therefore, its regression coefficient might have been biased toward zero because of the unusual amount of weight given to the nonparticipants. An alternative procedure that also has the property of analytic neatness would be to estimate the continuous variable model only for those who participated in the NYC program. This would produce estimates of the impact on earnings of NYC participants of an incremental month in the program. U.S. Congress, Joint Economic Committee, *The Effectiveness of Manpower Training Programs*, p. 45; U.S. Department of Labor, *The Neighborhood Youth Corps*, pp. 54-58.

⁵⁰ Borus et al., studied the out-of-school program in five cities in Indiana. The dummy variable model produced insignificant effects, whereas the continuous variable model produced significant effects.

⁵¹ U.S. Department of Labor, *Neighborhood Youth Corps*, p. 59, fn. 5.

The program had four components, each concentrating on a different government sector or program: State and local government, grant in aid programs, human service programs, and Federal Government. Funding was at a modest \$50 million per year.

Unfortunately, the evidence available on the impact of the PSC program is scant and what little there is turns out to be extremely weak. A study funded by the Department of Labor to evaluate the impact of 39 projects produced rather pessimistic findings.

In principle, the direct human-capital effect of the PSC program would be manifested by the creation of extra jobs for the disadvantaged—that is, jobs which are not taken away from non-disadvantaged employees—or by more rapid advancement of existing disadvantaged public employees. In addition, the PSC program might have indirect effects on the lifetime earnings of disadvantaged workers by providing a work history that reduces the future number of spells of unemployment and the average duration of these spells.

The issue of incremental jobs and displacement was discussed earlier. Evidence was presented that a substantial proportion of public service employment jobs would not be new.⁵² The PSC evaluation supports this evidence:

In many cases, projects have used PSC funds to continue the efforts of their sponsors to employ from minority or disadvantaged populations. * * * Some projects have not been engaged in any new activities that represent significant departures from ongoing activity.⁵³

Moreover, this evaluation finds institutional barriers unchanged in a substantial number of projects evaluated. Thus, the PSC program seems to have had only limited success in meeting its lowest order objective. The reluctance of public administrators to alter institutional rules to improve hiring and promotion experience of disadvantaged workers is consistent with the assumption that public administrators are currently allocating their resources efficiently, and any change in this allocation will increase costs. If this assumption is valid, at least to a first approximation, then the PSC program can never be successful in reducing institutional barriers unless it resorts to coercion or bribery. In the case of coercion, the result will be an increase in the cost to the local taxpayer. In the case of bribery, the result will be an increase in the cost to the Federal taxpayer.

In light of the existing evidence of the impact of PSC on human capital, I must conclude that the program had virtually little direct impact. The only possible effect the program could have had on lifetime earnings is through its potential effects on lifetime work histories, though I could find no information that would help shed light on this effect.

C. Operation Mainstream

Operation mainstream was one of the first modern public employment programs authorized by Congress. Funded under the provisions of the Economic Opportunity Act, this program consisted of work projects and other activities for community beautification and service. Its objective was to provide employment to poor, chronically unemployed adults. The program focused on elderly workers and concen-

⁵² See *supra*, section III.

⁵³ Turim et al., p. 11.

trated its activity largely in rural areas. Like PSC, operation mainstream has been eliminated as a national manpower program and has been replaced by the manpower revenue sharing program, which allows State and local governments the option of continuing the mainstream program or dropping it in favor of expenditure on alternative manpower programs.

A comprehensive evaluation of operation mainstream programs was undertaken for the Manpower Administration in 1971.⁵⁴ National in scope and covering each type of operation mainstream program,⁵⁵ the evaluation was based on a sample of 53 projects constituting roughly 13 percent of all projects. The analysis was a retrospective before-after assessment of the program's impact on the sample communities. While 10 "companion communities" were also included in the sample, they were not used as a control group.

The programs were evaluated in terms of their effects on enrollees and on the communities in which they operated. The impact on incomes, on placement into permanent employment, health, skills, and attitudes was examined for enrollees. The impact on services provided was assessed for communities. No attempt was made to estimate displacement effects or to control for other factors that might have had an impact on enrollees and their communities.

Objectives were defined as providing supplemental income and work activity to persons, particularly older workers, who were unable to compete successfully in the labor market and who were also unable to participate in other manpower programs. While in the program, enrollees were to be engaged in work activity that resulted in the betterment of the community through the provision of services or tangible work projects that would not otherwise have been attempted. The evaluators interpreted congressional objectives to include a focus on rural areas and small communities. They note that some Operation Mainstream programs also aim to provide training and placement on unsubsidized jobs to enrollees, but they claim that such alternative aims divert the program from its basic objective.

Thus, the program is interpreted to be an income transfer program which provides work activity to persons who want to work, but are unable to find work. A relevant question, then, is whether Operation Mainstream was a more efficient mechanism for transferring income than alternative mechanisms. While it does not say so explicitly, the study seems to imply that Operation Mainstream was superior to alternative transfer mechanisms because it also provided some other benefits to enrollees and some services to the community that would otherwise not have been available. These other benefits included improved health, new skills, and improved outlook on life. The services included the output of enrollee activity on the various projects to which they were assigned.⁵⁶

⁵⁴ Dale W. Berry et al., *National Evaluation of Operation Mainstream: A Public Service Program* (Albuquerque: Kinschner Associates, Inc., 1971).

⁵⁵ Operation mainstream consisted of three major components: The green thumb-green light program, senior community services projects, regionally administered programs.

⁵⁶ These included beautification and conservation activities, participation in community action programs to serve the interests of older people, and provision of service to the poor and the old.

They found that the program did serve the target group specified by Congress: the old, the uneducated, and the long-term unemployed (table 2). On the job, enrollees were rated by their employers as the equal of other employees. However, while Operation Mainstream was found to be successful in providing work activity and income to its enrollees, its record in placing enrollees in permanent, unsubsidized jobs was poor—less than 20 percent in most projects. Moreover, the improvement in income was attributable purely to the public job placement. Those enrollees who worked earned an hourly wage of \$1.74 prior to enrollment and \$1.71 while enrolled. Thus, the income improvement could hardly be attributed to increased wage rates. Additional evidence to support the attribution of improved income largely to program enrollment is that 68 percent of the enrollees were looking for work at the time of enrollment.

TABLE 2.—*Selected characteristics of enrollees in Operation Mainstream program*

Mean age (years)-----	50
Mean education (years)-----	8.5
Duration of unemployment (months)-----	25
Unemployed 4 or more months (percent)-----	52

Source: Berry et al., phase IV, app. E.

Since very few of its enrollees wind up in unsubsidized employment, Operation Mainstream must be considered as a job-redistribution program rather than a human capital-creation program. This may be a very sensible program strategy since the rate of return to investment in human capital could not be expected to be very high, given the relatively advanced age of its target population.

Judging from the findings of the evaluation discussed above, Operation Mainstream seems to have been successful in providing employment for its target group. However, there is no way of judging from the evidence presented how much of this employment arose from the displacement of other workers who were not members of the target group. Thus, it is not possible to assess how much of the employment represents a net increment to total employment. To the extent that the employment is a product of displacement, the employment impact of Operation Mainstream must be interpreted as a redistribution of income. Since this is not an undesirable goal, the program must be evaluated in light of how well it performs relative to alternative programs designed to achieve the same end. The findings of this evaluation indicate that the impact of Operation Mainstream on the health and attitude of enrollees constitute benefits that might not be attained in other income redistribution programs. These additional benefits would make Operation Mainstream a more viable contender in the competition among alternative programs to redistribute income.

D. The Public Employment Program

The public employment program (PEP) was the first large-scale public service employment program since the 1930's. Funded at an annual level of approximately \$1 billion under the provision of the Emergency Employment Act of 1971 (EEA), the program was designed to provide roughly 160,000 temporary jobs in the public sector.

when overall unemployment rates exceeded 4.5 percent. The Emergency Employment Act expired in 1973. A number of bills were introduced in Congress to renew the act, but most are languishing in committee, having been overtaken by events, notably the passage in early 1974 of the Comprehensive Employment and Training Act.

The political turmoil surrounding the development and passage of the EEA produced a great deal of compromise on the part of its sponsors. As a result, the wording of the act had a something-for-everybody flavor. This produced a considerable amount of ambiguity in interpreting the intent of the act and made evaluation quite difficult. The stated purpose of EEA was:

To provide unemployed and underemployed persons with transitional employment in jobs providing needed public services during times of high unemployment and, where feasible, related training and manpower services to enable such persons to move to employment or training not supported by this program.

Thus, the primary objective was job placement and unemployed and underemployed persons were equally important to place. The Department of Labor, however, distributed PEP funds regionally according to the regional distribution of the unemployed. The underemployed—that is, persons who are out of the labor force for lack of job opportunities (discouraged workers), persons who are involuntarily working part time, and persons who are working, but at wages that keep them and their families below some commonly accepted measure of the poverty line—were not explicitly considered in allocating PEP funds.

The “transitional” nature of PEP jobs meant that workers were not expected to stay on them long. The hope was that PEP employees would ultimately transfer to permanent jobs. Regulations promulgated by the Department of Labor required recipients of PEP funds to try to place 50 percent of their PEP employees onto regular payrolls, but no incentive was offered these recipients to do so.

Finally, the act authorized a small amount of funds to be used for objectives other than job placement: civil service reform, restructuring of the public labor market, and preparation of PEP employees for permanent jobs.

In addition to the multitude of objectives discussed above, Congress identified a variety of target groups for particular attention, including veterans, the young, the old, the poor, migrants, aero-space and other defense related workers, et cetera. This plethora of special groups created problems in evaluating program impact. For instance, veterans and defense-related workers are generally neither poor nor migrants. Thus, giving them priority in the allocation of the fixed number of PEP slots would effectively reduce participation of disadvantaged workers.

The act was also vague about who should administer the funds and how they should be distributed. Units of all three levels of government, subdivisions of these units, and tribes on Indian reservations were all eligible to be program agents under section 5 of the act. Any area that was of “sufficient size and scope to sustain a public service employment program” was eligible to receive funds under section 6 of the act, which authorized funds to areas of substantial (6 percent or more) unemployment. The Secretary of Labor was given discretion in allocating the remaining funds. In the first year of the act, \$600 million was distributed under section 5, \$250 million under section 6, and \$150 million was left with the Secretary of Labor.

The conflict of objectives and the disparate target groups specified in the EEA legislation made it difficult, if not impossible, to assess its achievements. Nonetheless, several brave analysts waded into the swampy area of PEP evaluation. Levitan and Taggart undertook an evaluation of EEA based on reports submitted to them by observers in the field. The National Urban Coalition published an evaluation of EEA in 1972 based on Department of Labor data and information gathered from a survey undertaken by local Urban Coalition offices. Two PEP demonstrations, high impact and welfare, were evaluated for the Manpower Administration by the National Planning Association and the Auerbach Corporation.

Because program objectives were not clearly stated, most of these "evaluations" might be more accurately described as descriptions and prescriptions; i.e., they do not assess program performance in comparison to some program objective; rather, they criticize the lack of appropriate program objectives. Both Levitan and Taggart and the National Urban Coalition devote substantial amounts of their work to describing the process of implementation and program impacts, and to suggesting ways and means of making the act work "better".

Levitan and Taggart conclude: ⁵⁷

What has been learned, however, is that unless program agents are operating under strictly enforced guidelines, they are likely to go about business as usual—hiring the most qualified workers for the most vital jobs. If a large scale program is to be implemented * * * more attention will have to be paid to these guidelines. The legislation should specify more exactly who is to be served; and it should provide incentives for job redesign, civil service reform, extensive training and use of funds for the purchase of supplies, if these are desired. In other words, Congress must specify the type of public employment program it has in mind, rather than passing open-ended legislation which has something for everyone.

The National Urban Coalition states: ⁵⁸

* * * there was little excuse for the unclear goals, inadequate funds and unrealistic time frames that hampered the implementation of the EEA from its inception. Sensible planning in the operation of a public service employment program as part of a total economic policy designed to reduce inflationary pressures and stimulate employment of the structurally unemployed, rather than to remove the frictionally unemployed from the labor market, should be the goal of all future expansions in EEA or other public service employment programs.

Implicit in these statements are policy judgments. In particular, both sets of evaluators feel that more emphasis should be given to placement of the "disadvantaged" and the hard-core unemployed.

The findings of the evaluations of high impact and welfare demonstrations funded by the Manpower Administration have not yet been released. But it is hard to imagine how they will differ from those of Levitan and Taggart and the National Urban Coalition.

Table 3 contains a Labor Department summary of PEP employment and costs roughly 18 months after its inception. Approximately 130 thousand slots were funded at a direct cost of \$1.23 billion. Those who filled these slots experienced a slight loss in wage rates. Average hourly wages fell 4 cents from the pre-PEP level of \$2.69. Thus, the benefits

⁵⁷ U.S. Congress, Senate Committee on Labor and Public Welfare, Subcommittee on Employment Manpower and Poverty, *The Emergency Employment Act: An Interim Assessment*, by Sar Levitan and Robert Taggart (Washington, D.C.: Government Printing Office, 1972), p. 72.

⁵⁸ The National Urban Coalition, *The Public Employment Program: An Evaluation* (Washington, D.C.: The National Urban Coalition, 1972), p. 72.

of PEP were purely in employment terms and, as noted above, these slots were not necessarily net additions to employment.

In contrast, the National Planning Association (NPA) study of PEP in high impact demonstration areas found that there were substantial earnings effects for PEP participants, with increases ranging from 20 to 200 percent. The estimated increases were derived from a comparison of the 12 months of pre-PEP earnings experience to the 13 months of earnings experience after entering PEP. The findings are thus dominated by the participants' PEP experience. The study states that it cannot conclude that there are any long-range earnings effects because: (1) the limited post-PEP data indicated sharp earnings drops; (2) no controls were used in evaluating the short-term experience. Thus, the NPA study does not refute the hypothesis that the earnings effect was largely attributable to the employment effect.

TABLE 3.—*Characteristics of PEP employees*

[Cumulative as of February 1973]

Characteristics	Percent	Characteristics	Percent
Age:		Previously employed by government agent.....	19
18 or less.....	20	Weeks unemployed: ¹	
19 to 21.....	19	Less than 5 weeks.....	31
22 to 44.....	53	5 to 14.....	25
45 to 54.....	5	15 or more.....	44
55 to 64.....	2	Occupational group:	
65 and over.....	1	Professional.....	4
Sex:		Teacher.....	2
Male.....	71	Other.....	94
Female.....	29	Employing governmental unit: ¹	
Group:		State.....	16
White.....	59	County.....	26
Black.....	23	City.....	42
American Indians.....	2	Tribal Council.....	1
Oriental.....	2	Other.....	15
Spanish American.....	14	Average pre-PEP hourly wage (\$2.69):	
Military service status:		Under \$1.60.....	7
Special and Vietnam-era veterans.....	29	\$1.60 to \$1.99.....	21
Other veterans.....	8	\$2.00 to \$2.99.....	39
Nonveterans.....	63	\$3.00 to \$3.99.....	20
Disadvantaged.....	41	\$4.00 to \$4.99.....	7
Public assistance recipients.....	11	\$5.00 and over.....	5
Handicapped.....	4	Average PEP hourly wage (\$2.65):	
Education:		Under \$1.60.....	0
Less than 12th.....	34	\$1.60 to \$1.99.....	27
12th.....	40	\$2.00 to \$2.99.....	42
13th to 15th.....	17	\$3.00 to \$3.99.....	23
16th and more.....	9	\$4.00 to \$4.99.....	6
		\$5.00 and over.....	2

¹ Data are cumulative as of September 1972.

NOTE.—

Number employed (in thousands).....	134
Program cost (in billions).....	\$1.228

Levitan and Taggart concluded:⁵⁹

At the outset, the level of PEP jobs represented net additions to the total number of public employment opportunities.

However, they note that this initial impact declined as the program continued.

⁵⁹ Levitan and Taggart, *The Emergency Employment Act: The PEP Generation*, p. 17.

PEP provided little money for the purchase of training and other supportive services. This constraint limited the degree to which PEP funds were used to place disadvantaged workers. Most program agents chose the path of least resistance and hired more skilled workers. This explains why almost two-thirds of the PEP slots were filled by those who had completed at least 12 years of formal schooling. An alternative explanation is that program agents gave priority to veterans. Thirty-seven percent of the slots were filled by veterans, whereas only 7 percent of the unemployed were veterans. This suggests that program agents at the local level took this target group more seriously than many of the others designated in the EEA.

In contrast, while only 11 percent of PEP employees were welfare recipients, 44 percent were persons who had been previously unemployed for 15 weeks or longer, and 41 percent were persons who could be classified as "disadvantaged". Since only 30 percent of the Nation's unemployed were out of work for 15 weeks or more, one can conclude that many local program agents gave priority to the hardcore unemployed.

In those cases where program agents made a sincere effort to place disadvantaged workers into job slots, they found that they had to make substantial use of the resources of other manpower programs in order to accomplish their objectives. Even the many program agents who chose to hire more highly skilled workers with their PEP funds were constrained by their inability to purchase the necessary complementary capital and other materials.

There is a consensus in these studies that training funds were inadequate, the target for transitions to permanent jobs unreasonable, and efforts to reform civil service virtually nil. These findings were presented in conjunction with statements that the program is not doing enough to help the disadvantaged. Roughly 7 percent of the funds were earmarked for training; roughly 13 percent of the expenditure was available for nonwage payments. The studies found that little effort was given to building a training component into the program or to linking up with training components in other manpower programs. Most of the funds were spent on on-the-job-training. No doubt, the transitory nature of the section 5 money was a major factor in this. However, the studies argued, even if the training effort had been made, the funds would have been insufficient for preparing disadvantaged workers for transition to permanent public service jobs. Moreover, the studies concluded, the 50-percent target rate of transition to permanent jobs set by the Department of Labor was unrealistic. One study estimated that a 25-percent rate, based on expected employment growth and turnover, would have been more realistic.⁶⁰ Finally, all of the studies noted that, while civil service regulations had been bent to accommodate PEP employees in certain instances, no real effort was devoted to changing these regulations to eliminate artificial hiring and promotion barriers.

The performance of PEP left much to be desired. Starting with the legacy of an act that had something for everyone, PEP objectives were specified in terms that essentially allowed local administrators considerable leeway and gave analysts little basis for intelligent evaluation.

⁶⁰ This estimate was provided to the author by John Huss of the Auerbach Corp.

Nonetheless, analysts found that the program's employment objectives were implemented rapidly and efficiently with little or no substitution occurring initially between local and PEP funds. The finding was based mainly on judgmental evidence or crude attempts to standardize for other factors influencing public employment. The evidence presented in section III of this paper suggests that the long-run employment effects will be considerably smaller.

Priority was given to those who were relatively easy to place in public service jobs. In part, this may have been the result of the relative lack of funds for such complementary resources as job training and job redesign. While focusing on relatively skilled workers, PEP also employed relatively large numbers of disadvantaged and long-term unemployed.

The studies reviewed also found PEP to be wanting in the areas of provision of employment-related services, transition to permanent jobs, and civil service reforms.

V. CONCLUSIONS AND SOME THOUGHTS ABOUT FUTURE DIRECTIONS

Public employment programs have been advocated as a means of attaining a number of significant policy objectives. These objectives were summarized as follows:

- (1) Reduce cyclical unemployment;
- (2) Reduce structural unemployment;
- (3) Raise wage rates of low-skilled workers;
- (4) Improve earnings potential (human capital) of low-skilled workers; and
- (5) Increase output of State and local public services.

The program impact on three of these five objectives (i.e., the unemployment objectives and the public service output objective) depends critically on the extent to which Federal funds displace State and local funds in providing State and local public services. A review of the evidence on this type of displacement indicates that 60 to 90 percent of public employment program funds would merely displace State and local funds in the long run. The short-run displacement effect is in the range of 40 to 50 percent. The implication of this finding is that public employment programs buy considerably fewer jobs than the nominal number of slots they fund.

In addition, the evidence related to program impact on upgrading wage rates and human capital of specific target groups was mixed. Programs such as neighborhood youth corps, operation mainstream, public service careers, and the public employment program were successful as income transfer programs for participants, raising their earnings by providing them with jobs and in some cases by paying them higher wage rates than they had in their preprogram experiences. However, there was little evidence that these earnings improvements lasted beyond participation in the program. In the case of Neighborhood Youth Corps, there was no conclusive evidence that the program increased the amount of schooling of participants. In the case of Public Service Careers, there was no evidence that the program was able to permanently lower institutional barriers. And, in the case of PEP, there was no evidence of any substantial transfer to permanent employment on the part of program participants. In

fairness to these programs, it should be noted that the quest for evidence was hampered by the relatively small size of some of these programs (for example, Public Service Careers), the limited amount of data on postprogram experience—for example, PEP—and the particular constraints that were placed on the apportionment of program funds. Thus, the lack of evidence cannot necessarily be construed as an inability of these programs to accomplish these objectives.

In light of this evidence, it is difficult to be an enthusiastic supporter of large-scale, permanent programs of public employment funded through Federal grants. Permanent programs tend to have effects that are predominantly redistributive in nature. One can endorse these types of programs only if one is interested in the type of income and/or employment redistribution they generate.

One can be somewhat more enthusiastic in support of countercyclical public employment programs, triggered when unemployment rates rise above some critical level, since displacement is somewhat smaller. However, alternative countercyclical measures, such as the unemployment insurance program, are already automatically available. If Congress wishes to do more, it can expand coverage—through longer duration and wider coverage—as a means of alleviating the financial hardships resulting from unemployment. In addition, other income maintenance programs, like the supplemental security income and the aid to families with dependent children programs, can be modified to assist cyclically unemployed workers who are not covered by either the existing or an expanded unemployment insurance program. Further comparisons of the impact and the cost of the unemployment insurance program will be necessary before meaningful conclusions can be drawn about the proper mix of these programs as countercyclical instruments.

Evidence on the wage rate and lifetime earnings impact of public employment programs for specific target groups is inconclusive and difficult to evaluate. Further expenditure for public employment programs with these objectives ought to be channeled into controlled experiments in which sufficient program funds are allocated to investment in training or reduction of employment barriers.

A mixed bag of conclusions and policy recommendations about public employment programs emerges from these findings. The program impacts are considerably different from what program advocates make them out to be, but the actual effects are not necessarily undesirable ones. Under the circumstances, a policymaker might find it desirable to be prudent, spending resources to define goals and objectives more clearly and to compare benefits and costs of public employment programs with benefits and costs of competitive programs designed to meet the same objectives.

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APPENDIX A

A FRAMEWORK FOR ANALYZING THE DISPLACEMENT EFFECT

The factors to be considered in assessing the displacement effect depend in part on the criteria for allocating and constraining the funds. In principle, they can be administered so as to alter relative costs of employing workers in the public sector or they can be administered so that relative worker costs are unchanged. Examples of the former procedure are programs that tie funds to employment or the wage bill, or programs that award funds only if particular groups of workers are hired. Examples of the latter procedure are programs that tie funds to the national or relative rate and level of unemployment. The former

procedure can be treated analytically as if it were an employment subsidy program for target workers; the latter procedure can be treated analytically as if it were a lump-sum grant program that augments the budget of the local agency.¹ In practice, most public employment programs have opted for the latter procedure.

The analysis below is based on the assumption of no constraints on the utilization of funds. It is also essentially a long-run analysis. Short-run displacement rates are expected to be smaller than long-run rates because administrators are more likely to engage in displacement if they have time to anticipate the funds.

Displacement rates can be calculated for total expenditures for public services (the government wage bill), total employment expenditures for public services (the government employment of particular target groups. For all of these cases, it is useful to view the process as reflecting: (a) government employment, or government employment of particular target groups. For all of these cases, it is useful to view the process as reflecting: (a) community desires about how much it wants to spend for public vs. private goods and for different types of public goods, and (b) local administrators' efforts to meet community demands as efficiently as possible. Using this framework, the factors affecting the rate of impact of lump-sum grants on the objectives described above are summarized in table A-1. The rate of impact of lump-sum grants (which is the complement of the displacement rate)² for all expenditures and employment categories depends on the income sensitivity of demand for public services (frequently referred to by economists as the "income elasticity") and the share of income that is allocated to the public sector. The income sensitivity reflects the effect of the grant on the demand for public services through the additional resources it provides to the community. The share of income allocated to the public sector reflects the relative value of public services. The two factors operate multiplicatively on expenditures. Thus, if a one percent change in income results in a one percent change in the quantity of public services demanded, and the share of income allocated to public services is .18,³ the rate of impact on government expenditure cannot be expected to be very high.

TABLE A-1.—Factors affecting the rate of impact of unconstrained lump-sum grants on various types of Government expenditure and Government employment¹

Type of expenditure or employment	Relevant factors
Total Government expenditures-----	1. Income elasticity of demand for public services. 2. Share of income allocated to public sector.
Employment expenditures-----	1 and 2 above plus 3. Employment expenditures as a fraction of total expenditure.
Employment-----	1, 2, and 3 above plus 4. Wage rate of public employees.

¹ The rate is measured as the incremental change in the objective variable per dollar change in the grant.

Given that labor costs are only a fraction of total government expenditures, the rate of impact on employment expenditure can, a fortiori, be expected to be still smaller. Thus, there are strong a priori grounds for expecting unconstrained lump-sum funds to have large long-run displacement rates for both total expenditures and employment expenditures. Given the rate of impact on employment expenditures, the employment impact can be derived by dividing this rate by the appropriate wage rate.

Additional factors must also be considered in assessing the rate of impact of grants that alter the relative cost of inputs. A grant program that lowers the relative cost of labor will also alter the relative price of public services, causing some substitution of labor-intensive for capital-intensive services. The amount of substitution will depend on how sensitive public service demand for labor is to changes in wage rates relative to other input prices. However, the effect of this type of grant program on the mix of private vs. public services would be

¹ I am grateful to George Johnson who first made me aware of the distinction.

² Define the displacement rate as d . Then the rate of impact, i , can be defined as $i = 1.0 - d$. Thus, if d equals 0.2, i will be equal to 0.8.

³ U.S. Department of Labor, *An Impact Evaluation of the Public Employment Program*, p. 8.

essentially similar to that of the lump-sum grant. On the other hand, this type of grant program may produce larger rates of impact on employment expenditures and employment. These larger rates of impact will occur because of the substitution of labor-intensive for capital-intensive public services and because of substitution of labor for capital inputs within particular public service programs. The magnitude of these impacts will depend on the price elasticities of demand for public service and the elasticity of substitution between capital and labor for given programs. The former elasticity will determine the change arising from between-program substitution; the latter elasticity will determine the change arising from within-program substitution.⁴ This suggests that grants that lower the relative cost of labor would be more efficient in achieving a given employment objective—for either aggregate public employment or for employment of any particular target groups.

⁴In more rigorous terms, assuming a perfectly elastic labor supply curve, the difference can be estimated from the traditional formula of derived demand for a factor of production:

$$\pi f = \alpha \eta_p + (1 - \alpha) \sigma.$$

where η_f is the price elasticity of the factor input (in this case labor), α is the share that factor represents of total costs, η_p is the elasticity of demand for the product (in this case, Government services) and σ is the elasticity of substitution between labor and capital.

THE WPA: PUBLIC EMPLOYMENT EXPERIENCE IN THE NEW DEAL

By RICHARD E. HEGNER*

Today, more people seem to remember Works Progress Administration (WPA) for its public works legacy—everything from parks to post office murals to paved roads—than for the employment it provided in depression years. This is unfortunate, for the program represents the Nation's only extensive public employment prior to the Emergency Employment Act of 1971, and has some important lessons for any present-day attempts at reducing the unemployment rate through provision of jobs in the public sector.

It is easy for policymakers to dismiss the current relevance of an employment program which lived its short life during a period when the labor market was looser than at any other time in American history; by comparison, the present unemployment rate seems low indeed. At its peak, WPA provided 3.3 million jobs and reduced the unemployment rate by over one-third. (Its predecessor agency, CWA—the Civil Works Administration—performed the near miracle of creating from scratch over 4 million jobs in the course of 2 months.) Public job generation of such proportions is not to be dismissed lightly for the lessons it can teach us today. Nor are the administrative problems which WPA encountered in everything from determining eligibility to setting wage rates without some relevance for those who advocate public employment today.

HISTORICAL SETTING

The Roosevelt administration's first venture into Federal "work relief" (as public employment was called in the thirties) came as an incidental part of the Federal Emergency Relief Administration (FERA) program, begun in May 1933. But the New Deal did not really gear up a full-scale public employment program until November 1933, when the CWA (Civil Works Administration) was established. Like FERA, CWA work relief consisted mainly of construction projects.

The projects were not very carefully planned; emphasis was more on quantity than quality of employment. In this respect, CWA differed rather radically from PWA—the Public Works Administration—not to be confused with WPA. PWA's main emphasis under Harold Ickes was on "beautifying the national estate." The only criterion for PWA employment was unemployment; there was no attempt

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to employ only the needy. PWA projects were mainly long-term construction on a large scale; the program was more a "pump-priming" investment program than a pure public employment program. On the other hand, CWA under Harry Hopkins, was more a work relief program; fully half of its workers were drawn from the relief rolls. But CWA was never popular with the conservative business community, and in an effort to pacify them, President Roosevelt abandoned the program in the spring of 1934, less than half a year after it commenced. For the next year, work relief continued on a reduced scale under FERA's Emergency Work Relief program, which was similar to CWA in practically everything but scope and political visibility.

The Roosevelt administration produced another full-scale work relief program in May 1935—the Works Progress Administration (WPA, later called Works Projects Administration), which became the primary vehicle for work relief in the country until its discontinuation in February 1943. This program will be the major focus of this paper.

The CCC—Civilian Conservation Corps—and the NYA—National Youth Administration—ran concurrently with the other New Deal work relief programs; however, since both were restricted to teenagers and those in their early twenties, and provided far fewer jobs than the adult work relief programs, they are not discussed here.

WPA AS WORK AND RELIEF

Several major themes or trends run through the history of WPA. First of all, as any public employment program focusing on the poor must, WPA suffered from the inevitable conflict of its basic goals. Howard sums up the problem nicely:

When the WPA program has been attacked as inefficient, it has been defended on the ground that it was a relief program. When critics from the opposite camp have urged that wages be graduated in accordance with workers' needs, that tests of need be more strictly applied, or that other devices be adopted to make it more strictly a relief measure, these have frequently been opposed as being incompatible with a work program.¹

As a result, WPA was a hybrid from the outset.

As time passed and it was found necessary to ration the small number of jobs which the program could provide during a time of very serious unemployment, WPA became less a work program and more a relief program. In its first year, the program's aim was to provide at least 3.5 million jobs, which it very nearly accomplished. But the unemployed numbered nearly 10 million at the time. If we look at the ratio of WPA employment to the gross number of unemployed if there were no WPA, we find that the ratio reached its high point in October 1936, with 39.1 percent of the unemployed in WPA work. Moreover, over the course of the thirties, the average annual ratio declined:²

¹ Donald S. Howard, *The WPA and Federal Relief Policy* (New York: Russell Sage Foundation, 1943), p. 246.

² U.S. National Planning Board, *Security, Work, and Relief Policies* (Washington, D.C.: Government Printing Office, 1942), p. 236.

Year:	Percent	Year—Continued	Percent
1936 -----	33.5	1939 -----	26.5
1937 -----	28	1940 -----	23.5
1938 -----	27		

Thus, from an equity standpoint, it was inevitable the WPA should become more a relief than a work program as scarce jobs were allocated mainly on the basis of relative need.

POLITICAL CONSTRAINTS ON PROGRAM SIZE AND ADEQUACY

But WPA suffered from an identity crisis of larger proportions. It led a hand-to-mouth existence at the pleasure of a largely hostile Congress, which remained basically opposed to public employment programs. From the beginning, it was questionable whether Congress would support public employment/work relief on more than a short-term, limited, emergency basis. Each time the unemployment rate declined, congressional caution forced a sharp cutback in the number of those employed by WPA; as the unemployment rate rose again, increases in WPA employment generally lagged behind that rise considerably (see figure 1). As a program perhaps more at odds with the laissez-faire tradition of American Government than any other New Deal program except the National Recovery Administration (NRA), WPA was a bitter pill for Congress to swallow. And as time passed, Congress tried to purge itself of that pill.

Wild fluctuations in the level of WPA employment ensued. In March 1936, there were 2.9 million WPA workers; by September 1937, only 1.5 million were employed under WPA. Then with the onset of the 1938 recession, WPA rose to its zenith of 3.3 million—but fell sharply in 1939 when Congress stipulated that anyone who had been employed by WPA for over 18 months should be dropped from employment for at least 30 days; in the course of July and August 1939, 775,000 were dropped.³

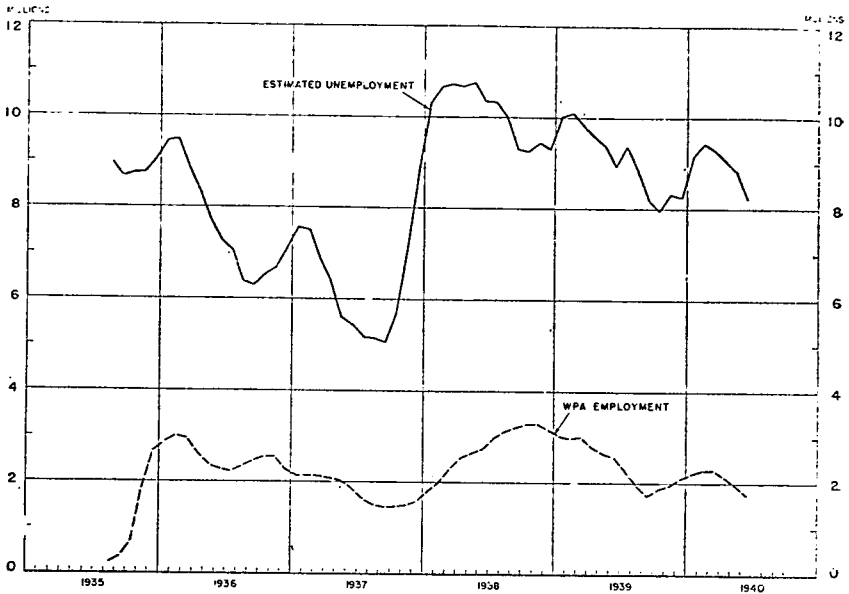
Throughout the program, there was a high turnover rate: From June through November 1938, an average of 200,000 left WPA each month.⁴ Further indication of this high turnover is given by the fact that through June 1940, it is estimated that 7.8 million different individuals were employed on WPA for some 13 million man-months of employment.⁵ We can well imagine what sense of insecurity the average WPA worker must have derived from such fluctuations.

³ Frances F. Piven and Richard A. Cloward, *Regulating the Poor* (New York: Pantheon Books, 1971), p. 113.

⁴ U.S. Works Projects Administration, *Federal Work, Security, and Relief Programs*, by Arthur E. Burns and Edward A. Williams, Research Monograph XXIV (Washington, D.C.: Government Printing Office, 1941), p. 64.

⁵ U.S. National Resources Planning Board, "Security, Work, and Relief Policies," p. 341.

FIGURE 1.—Estimated unemployment and WPA employment, 1936-40.



Source: U.S. National Resources Planning Board, *Security, Work, and Relief Policies* (Washington, D.C.: Government Printing Office, 1942), p. 235.

It is remarkable indeed that Congress felt obliged to take measures to get people off WPA and into private employment under such circumstances; surely those employed on WPA would have preferred a private job with some stability and lower pay (if necessary) to this roller-coaster ride of WPA employment. But private employment was so unstable at the time that WPA looked quite steady by comparison. Although congressional displeasure is not entirely to blame for the unsteadiness of WPA employment, it is with good reason that many who have studied the WPA experience conclude that long-term congressional commitment—perhaps through 5-year appropriations automatically renewed each year—is of prime importance, if some of the major objectives of a public employment program are not to be rendered futile.

PROJECT CHARACTERISTICS AND ADMINISTRATION

Turning to the character of the projects themselves, we find that through the end of 1940, fully 79 percent of WPA funds were spent on various types of construction. Of this, highways and roads accounted for almost 40 percent.⁶

⁶ Burns and Williams, *op. cit.*, p. 58.

This predominance of construction in general and highway construction in particular is readily understood when we remember that WPA projects were assembled as fast as possible with concentration on providing a large number of jobs—a procedure basically at odds with more careful tailoring of projects to fit the available skills of the WPA labor force. Most construction jobs demanded little more of a worker than physical strength. Outside of the 79 percent of WPA workers employed in construction, nearly 17 percent held white-collar jobs of one sort or another. Included in the residual 4 percent were employees of the Federal writers project and the Federal theater project, basically small-scale operations remembered mainly for their uniqueness. In order to include sufficient numbers of women in the WPA work force—and their participation was largely limited to female heads of households to prevent competition with male breadwinners—the WPA took special pains to develop sewing and canning projects.

It should be noted that one of the features of WPA projects which enabled the program to develop and run such a large number of jobs was basic laxity in administration. Workers were not guaranteed a job every day. Everything from materials shortages to inclement weather to shortages of basic skills could shut a project down for an indefinite period of time and leave the workers with no source of income. Better planning could help avoid such shortcomings in the future, though there is definitely a tradeoff between providing a large number of jobs in the short run and providing stability of public employment in the long run. This dilemma might be overcome by vesting in the Department of Labor (or in the Office of Emergency Preparedness) the continuing responsibility for planning and periodically revising a national public employment program to be implemented when Congress and the President deem necessary.

WPA projects were operated on a “force-account” basis, which meant that the WPA itself paid all wages. No private contracts were ever let, since it was believed that they could work only very imperfectly in a program that was both work *and* relief. After all, it was reasoned, private businessmen were used to providing work, not relief; they would find it extremely difficult to balance both features of WPA employment. (It is questionable whether the Government itself succeeded.)

All projects had to have public agencies as sponsors. This usually meant State or local governments, though some Federal agencies other than WPA sponsored WPA projects. Each State was allotted a certain quota of jobs by WPA in Washington. The allotment process was extremely informal—and, some would contend, extremely political—but the two basic criteria were the unemployment rate within the State and the State population. The sponsors submitted project proposals to Washington in an arrangement similar to the “workable program” proviso of urban renewal. They agreed to carry to completion any project which WPA might be forced to cease funding.

Prior to January 1, 1940, there were no specific requirements as to the amount a sponsor had to contribute in cash or in kind to support the project. After that date, a requirement was imposed that 25 percent of the costs of all WPA projects within a given State had to be met by the sponsors; at the discretion of the States, poorer municipalities might contribute less than richer ones. For some time, this policy re-

sulted in a denial of jobs to workers in areas where sponsors were unable to meet the requirement—including upstate New York, Pennsylvania, Ohio, Missouri, and most of the South. Since Congress in 1938 prohibited WPA from spending more than a certain amount of Federal money per worker on nonlabor costs (tools, materials, etc.), the sponsors' contributions came to be more and more in kind rather than in cash. In fiscal 1940, for instance, sponsors' contributions met only 6 percent of all WPA personnel costs but 73 percent of costs of materials and 85 percent of the costs of equipment rentals.⁷

Further project restrictions imposed by Congress included two of basic importance. First, projects were not to compete with private industry or to work so as to prevent the employment or reemployment of workers in the private sector. This rule was supported by both management and organized labor. Second, projects were not to involve work normally performed by State and local governments; this was to prevent sponsors from using WPA to carry on their normal public services and perhaps thereby cut the wages or hours or regular public sector employees. Obviously, this requirement was largely unenforceable. State and local governments naturally had cut back on many of their public services during the Depression; if they were to satisfy yet another WPA requirement—namely, that projects be of high community value and social usefulness—they inevitably had to use WPA to resume some vital services which had been cut back during the revenue crunch of the Depression. One final requirement was that projects had to be undertaken on public property and not rebound to the benefit of private interests.

Contrary to what one might expect the evidence indicates that WPA was of greater benefit to the unemployed in rural areas than in urban areas. Howard presents statistics showing that no fewer than 82 percent of those unemployed in rural farm areas had either WPA or CCC-NYA employment, with the corresponding figures for urban areas and rural nonfarm areas 36 and 64 percent, respectively. (This may reflect, however, the larger numbers of unemployed off the farm.)⁸

ELIGIBILITY REQUIREMENTS

In determining eligibility for WPA, State and local relief agencies were given primary responsibility. Through August 1939, the non-Federal welfare bureaucracy was responsible for both referral and certification of need to WPA in Washington; after that date, formal responsibility for certification shifted to Washington, though in fact the State and local agencies retained most of the discretion in determining eligibility. The WPA retained responsibility only for assignment to jobs of those referred to it. Supposedly, Washington could overrule the lower jurisdictions on their judgments of need, but this seldom occurred in practice. Thus, determination of eligibility remained largely in local hands; local prejudices, especially racial prejudices, inevitably entered the process.

Federal guidelines stated that WPA employment was limited to those 18 years of age or older. Generally, no more than one member of

⁷ Howard, *op. cit.*, p. 146.

⁸ *Ibid.*, p. 555.

a family could receive WPA employment. Furthermore, Washington prescribed that 95 percent of those employed by WPA had to be judged eligible for relief at the local level. This figure was not set at 100 percent, since some skilled personnel who could not always qualify for relief had to be attracted into the program in such positions as foreman, tradesman such as electricians and plumbers, administrators, and engineers. Even the percent leeway did not always guarantee sufficient availability of skilled labor; indeed, some projects were held up by this requirement.

The head of the family had to use his or her WPA earnings to support his or her family. Younger family members might take NYA or CCC employment without jeopardizing their family's eligibility for one WPA employee, but they had to contribute 40 to 60 percent of their earnings to their family's support.

Policy on eligibility for other welfare programs concurrent with WPA employment varied considerably by State and locality. In general, WPA employees could supplement their WPA earnings with other relief payments if WPA income was inadequate for their support—as it almost invariably was, especially for large families. But there were periodic attempts—especially in the later thirties—to get those who qualified for old-age assistance or aid to dependent children benefits off WPA and into other programs. Unemployment compensation benefits had to be exhausted before WPA eligibility could be established.

WPA never had anything as advanced as a benefit-loss rate; instead, the program was characterized by a "notch" set at a certain income level by State or local welfare agencies. One could supplement one's family income up to this point without any reduction in WPA earnings; but above the point, one lost WPA eligibility entirely. Initially, once one showed sufficient need to qualify for WPA, there was no subsequent reinvestigation of need. In 1939, however, provision was made for recurrent checking into need, primarily by requiring WPA workers to file quarterly statements of their outside earnings. It was not sufficient that WPA workers establish their need by demonstrating eligibility for relief; in addition, they had to prove their relative need, that is, that they were among the neediest eligibles. In general, this meant that people had to become total paupers before qualifying for WPA, that they had to divest themselves of most of their nonpersonal assets and exhaust any outside income before meeting State and local eligibility requirements. It also generally meant that single persons were discriminated against as relatively less needy; those with dependents, especially a large number of dependents, were usually declared the neediest.

DISCRIMINATION BY SEX, AGE, AND RACE

Since WPA normally limited eligibility to "economic heads" of families, a very low percentage of women were employed in the program. In addition, finding jobs for a female labor force that was much less skilled than today's was a limiting factor on female employment under WPA. Obviously, too, women could not usually qualify for the heavy construction work which was WPA's forte. So sewing and canning jobs were generally all that were created for women, at least until the prewar defense preparation campaign tightened the labor

market considerably. The percentage of women employed by WPA ranged from 12.1 percent of WPA workers in December 1935 to 19.2 percent in June 1941. The sexist bias in WPA employment (if it can correctly be characterized as such) also appears to have resulted in part from the conscious attempt to avoid attracting people into the labor force who had never before participated in it.

There was no maximum age limit, though workers had to be physically fit to the extent that their employment would not be detrimental to their own or their coworkers' safety. Howard presents evidence that there was probably some informal bias in favor of older workers, especially in the work assignment process at the Federal level.⁹ And generally, when cutbacks were made, the younger workers were the first to be laid off.¹⁰ As mentioned above, some problems arose with workers eligible for old-age welfare assistance and social security, since one of the purported purposes of the Social Security Act was to get older workers out of the labor force to open up jobs for younger workers. Veterans' preference became increasingly evident as WPA grew older, and in part accounted for the higher age of WPA workers compared to the labor force as a whole.

Veterans' widows and wives (when their husbands were disabled) were also given special preference. Aliens were discriminated against, being declared totally ineligible in 1939 by Congress. And Congress included a provision against WPA employment of Communists, Nazi Bundists, and those advocating the overthrow of the Government.

Despite provisions against discrimination in WPA hiring on the basis of "race, creed or color," complaints against racial bias were frequent, particularly in the South. And given the primacy of local and State agencies in determining need, there was relatively little that Washington could do to correct this situation. Project approval by the Federal Government was apparently never used as an avenue to assure nondiscrimination.

THE "EMPLOYABILITY" CRITERION AND JOB PERFORMANCE

Next to need and "relative need," "employability" was the most important criterion for WPA eligibility. Though in practice an extremely elusive, ambiguous term, employability generally depended as much on the nature of available work as on the capacity of the worker. Howard writes: "An unemployed watchmaker may be considered unemployable if the only available work is ditch digging; an unskilled manual laborer, if the only work to be had requires a high degree of skill."¹¹

In many States, to be eligible for WPA, workers had to show promise of being able to qualify for private employment. Recent employment was a criterion in other States. Furthermore, as previously mentioned, a worker's physical condition and age could not endanger himself or his coworkers. Usually, however, physical examinations were not given; the relief agency merely inspected the prospective employee visually to satisfy requirements of physical capacity.

⁹ *Ibid.*, p. 276.

¹⁰ *Ibid.*, p. 274.

¹¹ *Ibid.*, p. 449.

Employability often also included proximity to a work project, since transportation to projects was not provided and generally could not be met out of WPA earnings. Relatively little relocation resulted from WPA, and, both a Federal rule and State welfare residency requirements worked against migration to receive WPA employment. A few work camps were set up during the middle years of the program, but they never operated on a very large scale. Provision for training under WPA was virtually nonexistent.

To maintain WPA's similarity to private employment, performance on the job was intended to be a criterion for continuation of employment, but it is doubtful that this requirement was ever very strictly enforced. This informal policy of nondismissal resulted primarily from the sponsors' realization that the worker would have to fall back on the meager resources of State and local relief programs if he was declared ineligible for WPA for any reason. Moreover, most objective assessments rate WPA high (albeit from impressionistic evidence) on work efficiency, considering its intentional labor-intensity and the other relief characteristics of the program.

FURTHER POLITICAL CONSTRAINTS

As time passed, Congress manifested a growing concern that WPA might become permanent employment for many workers once the job market opened up again. This concern culminated in 1939 in legislation requiring that anyone who had been on WPA for 18 months or longer should be dropped from employment immediately for a minimum of 30 days. This requirement rested on a presumption of a rapidly tightening labor market, which was not the case at the time. The result was considerable suffering for those suddenly cast back into unemployment. Generally, these workers had to undergo a reinvestigation of need before returning to WPA, and their reemployment was by no means automatic at the close of 30 days.

This 18-month rotation provision also arose in part because of complaints from the business community in certain areas of labor shortages caused by WPA. Labor shortage was, of course, a relative concept; a labor shortage might have resulted as much from private sector jobs being offered at very low wages or under extremely poor working conditions. The following is probably a reasonable assessment of the validity of the labor shortage complaints:

It cannot be argued seriously that in most parts of the country the living conditions of recipients of public aid [including WPA] have been in general so relatively attractive as to tempt individuals to prefer socially provided income to that obtained through employment in private production. On the other hand, although the reserve of unemployed workers not employed on work projects, coupled with the backlog of labor on the farms, has been more than adequate to meet such increases in the total demand for labor as have hitherto occurred, it is undeniable that there have been localized shortages.¹²

Labor shortages were prevented in part by a regulation from the beginning of WPA that prospective workers had to file with the local employment service and to accept private employment offered, provided it was generally as suitable to their condition as WPA. In some instances, this requirement resulted in workers being forced to accept

¹² U.S. National Planning Board, *Security, Work, and Relief Policies*, p. 348.

employment in the private sector that was only temporary in nature or that paid even less than WPA. Despite guarantees of immediate resumption of WPA employment upon termination of private employment—guarantees that were observed mainly in the breach—workers were naturally reluctant to accept private employment that promised to be even less stable than WPA with all the fluctuations stemming from congressional ambivalence.

WPA WAGE POLICY

The adequacy of WPA benefits remained questionable throughout the program. Trying to keep its work aspect undefiled, WPA paid wages without respect to family size or individual need. It was also claimed (in tones reminiscent of the recent proponents of demogrant plans), that payment of the same basic wage to all workers in a given class would eliminate the need for pantry snooping by caseworkers. The earlier practice under FERA of setting wages and hours for each individual worker on the basis of family budgetary deficiency was abandoned by CWA and WPA. Thus, WPA wages were particularly inadequate for larger families; special allowance was generally made by the local relief agencies for supplementation of their income by allowing employment of other family members and/or receipt of welfare benefits in addition to WPA.

WPA wages were computed on the principle of a security wage—a fixed monthly payment of an amount set for different workers on the basis of three classifications: type of work (professional and technical, skilled, semiskilled, or unskilled); region of work (four and later three regions); and residence in a county which was urban or rural. Originally, this ranged from \$19 per month for the unskilled worker in the rural South to \$94 a month for professional and technical workers in the urban North. Harry Hopkins confessed that the wage scale was computed less on the basis of cost of living than on standard of living. The initial intention was to set the security wage higher than general relief and public assistance payments to encourage people to turn from direct relief to work relief, but lower than wages in the private sector to encourage workers to turn first to private employment.

The stress was laid on monthly rather than hourly rates for several reasons. Much controversy with private employers and organized labor might be avoided by emphasizing monthly rates which provided reasonably adequate support instead of haggling over hourly rates. Moreover, full-time employment might be easier to guarantee with monthly rates than by paying prevailing hourly rates, especially given the overall limitations on appropriations imposed by a relatively ambivalent Congress.

Yet, organized labor feared that payment of less than prevailing wages would create an irresistible downward pressure on the wages paid those of their number who remained employed; and in 1936, Congress yielded to pressure from labor by providing for payment of the locally prevailing wage. This prevailing hourly rate was to be determined by a local board composed (in the best New Deal tradition) of representatives of labor and business. However, the WPA in Washington continued to base its wage policy on the same old monthly rate schedules drawn up in accord with the security wage principle. That

is to say, the same security wage rates prevailed as before, but the new prevailing wage rate was divided into the monthly rate to determine the number of hours that a worker in a particular class could work.

As was to be expected, chaos resulted as different classes of workers worked different numbers of hours—per day, per week, and per month. Even on the same project, those receiving higher hourly wages worked shorter hours than those receiving lower hourly wages—though no one could work longer than 8 hours per day or 40 hours per week. In 1939, this chaotic policy was abandoned and return to the original policy was mandated, with all workers working a uniform 130 hours per month—or as close to that number as the vagaries of the project and the program would allow.

Initially, the security wage was to be paid to workers without deduction for time lost through no fault of their own. That is, if inclement weather or materials shortages halted work, workers received their wage nonetheless.

In this sense, their wages were closer to a guaranteed monthly income or salary. However, they received no payment for time lost due to sickness, though provision was made for them to make up lost time by working extra hours. But beginning in 1936, workers were not paid for time lost through no fault of their own, and actual earnings began to dip below scheduled monthly rates for most workers. Here the work side of the program came to dominate the relief side in the form of guaranteed monthly payments. Howard notes how the concept of security wage became increasingly meaningless: "Though the alleged security wage gradually vanished into thin air, the low rates of pay, which the administration had sought to make more palatable by garnishing with promises of steady income, continued."¹³ Some provision was made for making up time lost through no fault, but it never turned out that workers were able to make up all time lost. Recall, too, the predominance of construction work among WPA projects and its seasonal nature; though some attempt was made to carry on construction through the winters, when most private work stopped, inclement weather made this an extremely shaky proposition. In the unlikely event of overtime, no extra pay was given, but later on, hours of work were cut back to eliminate the overtime surplus.

SKILL PRESERVATION AND MORALE

Among WPA's stated goals were preservation of skills and employability plus sustenance of worker morale. The sketchy evidence on the accomplishment of these goals is not very encouraging.

Preservation of skills depends mainly on matching the worker up with a job which suits his skill level. However, throughout the WPA experience, from two-thirds to three-quarters of WPA workers worked in the unskilled category.

This was part of the price paid for emphasizing quantity over quality of employment. WPA was especially poor at matching factory workers, miners, farmers, and skilled and semiskilled labor in general with jobs that would utilize their skills. It was more successful with those employed in the building trades and other construction work as well as professional, technical, and general white-collar workers.

¹³ Howard, *op. cit.*, p. 171.

This inability to match workers' skills and jobs stemmed partly from the prohibitions against competition with private employment, against benefiting private interests, and against providing what would normally be provided by State and local governments.

The maintenance of work habits and employee morale depended in no small measure on the degree to which WPA approximated the conditions of private employment; that is, the degree to which it was more a work program than a relief program. However, we have already seen how, with the passage of time, the relief aspects of the program came to dominate the work aspects. In order to qualify for WPA to begin with, a worker had to undergo a period of unemployment while exhausting unemployment benefits and undergo pauperization to qualify for relief—hardly morale-building experiences. The high turnover rate cited earlier combined with the payment of a security wage lower than the prevailing wage could not help but produce demoralization. Furthermore, the prevailing public image of WPA remained for a long time that of shovel leaning, leaf raking, and digging holes and filling them up again. Some evidence exists that having been employed by WPA stigmatized a worker against future employment in the private sector.¹⁴ Some contend that making provision for collective bargaining, guaranteeing the right to organize, establishing a grievance procedure, and giving workmen's compensation benefits would further WPA's approximation to real work. But no strikes were allowed.

The grievance mechanism functioned poorly, and the workmen's compensation was largely inadequate. Limiting the amount of non-labor expenditures—which through June 30, 1941, constituted only 26.8 percent of the total costs of WPA—meant using outmoded labor-intensive methods which could hardly have encouraged workers.

Howard summarizes the situation:

It seems fair to say that the value of WPA employment to workers has been severely limited by the increasingly stringent limitations imposed by Congress upon (a) the kinds and number of people who could be given employment; (b) the kinds of work that could be undertaken; (c) conditions of employment; and, (d) the quantities of materials, supplies, and equipment that could be used.¹⁵

In the end we come back to the dilemma posed by a program which is both work and relief; the more a public employment program emphasizes one aspect, the more the other aspect suffers.

CONCLUSION: THE LESSONS OF WPA

Naturally, the WPA experience is heavily colored by influences specific to the thirties which are no longer present today, including the extremely high unemployment rates of the Depression, a Congress which had not yet committed itself to the goal of full employment, relatively unsophisticated planning procedures, and lack of precedent in public employment. Nevertheless, WPA has some important general lessons for any who would attempt to assemble a massive public employment effort today.

¹⁴ *Ibid.*, p. 258; U.S. National Planning Board, *Security, Work and Relief Policies*, p. 250.

¹⁵ Howard, *op. cit.*, p. 842.

First, insofar as possible, a public employment program must supplement current employment yet not compete with it. The demand for this delicate balance is likely to be made by business, organized labor, and civil service employees. Congress must pay heed to this demand if public employment is not to affect the current employment situation adversely. The desideratum is an overall increase in the level of employment—not an increase in employment for one part of the labor force at the expense of another. Public employment wages should be set high enough not to drag down the wages of those already employed, yet low enough not to cause a labor shortage for private employers. Wages should be high enough to attract people from non-work-related welfare programs, yet low enough to encourage them to seek private employment where possible. As far as possible, public employment should be specifically that employment in the public sector which does not compete with private production of a good or service. At the same time, it should avoid competition with those currently employed in the provision of public goods and services. There are political constraints which must be observed in the design of any public employment program.

Second, a choice has to be made between quantity and quality of public employment. If public employment is viewed as an emergency program to employ as many people as possible as quickly as possible, some sacrifice must be made in the long-term quality of public employment, including such things as matching skills to jobs, stability of employment, and social utility of the jobs provided. At the extreme, if we wanted to give as many as possible an income linked to a job, we could have them dig holes and refill them; there is little administrative overhead or planning expense involved in such a program. But to the extent that we want something more than just a job with income, we may have to sacrifice some of the quantity of jobs to job quality. A partial solution to this dilemma is the suggestion made above—vesting responsibility for planning and periodically revising a contingency national public employment program in some Federal agency.

Third, public employment programs are inevitably somewhat contradictory insofar as they are both work and relief, employment and welfare. Here as in so many other social programs, when we try to satisfy one of these purposes, the other suffers. We cannot fully satisfy both simultaneously. So some hard choices have to be made. Should our wage scale be based strictly on need, or are we going to make some attempt to compensate for skill? Should we reward good performance and penalize poor performance, or is performance irrelevant if the program's purpose is to provide income to the impoverished? Should we favor labor-intensive projects that provide a great deal of employment, or should we emphasize more technologically sophisticated, capital-intensive work that yields greater efficiency and provides more challenging employment? These are only a few of the questions which the dual nature of any public employment program raises. Perhaps they are insoluble, and the wisest counsel is merely not to expect the simultaneous fulfillment of the goals of providing worthwhile employment and providing adequate income.

Fourth, if this is really to be an employment program rather than merely another manpower training program, some criteria of employability must be established. In other words, we must take the unem-

ployed as they are and attempt to create jobs to suit their skills. Special provisions will have to be made for certain elements of the unemployed population, including women, those in remote nonurban areas, the aged and the middle-aged, teenagers, white-collar workers, and other groups. Some people are simply unemployable as they are; it is questionable whether it is within the province of a public employment program to enhance their employability. Logically, that would seem to be the role of manpower programs, which could, if necessary, be linked to public employment.

Finally, we must make a decision about our commitment to the ideal expressed in the Employment Act of 1946. If we are truly committed to full employment and to providing every American with "useful work opportunities," public employment seems an important vehicle for attaining that ideal, particularly in times of high unemployment. But if our commitment to supplement private employment through public employment is to fulfill its promise, it must be through public employment on more than an ad hoc emergency basis. Perhaps the major flaw of WPA was that Congress remained ambivalent in its commitment to providing public employment. We need a long-term commitment and long-term funding if public employment is to be more than just emergency relief; otherwise we can save the money spent on administrative overhead by simply distributing money to the unemployed through increased public assistance payments and unemployed insurance benefits. Successful public employment is more than just an income maintenance strategy; it can produce worthwhile public goods and services and boost the morale and maintain the skills of the unemployed. Insofar as WPA failed, it was because congressional conservatism forced the relief side of the program to predominate over the work side of the program; for success, work and relief must remain in balance in a public employment problem.

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THE INDIRECT MARKET EFFECTS OF WAGE SUBSIDY AND PUBLIC EMPLOYMENT PROGRAMS

By PETER MIESZKOWSKI*

SUMMARY

Work subsidy plans have attracted considerable attention in recent years as viable income supplement program alternatives. Although wage subsidy¹ and public employment plans are popular approaches because of their work-encouraging features, the overall desirability of work subsidy plans relative to pure income support plans is a highly controversial matter. A good part of the controversy has to do with the potential impact of the various kinds of support programs on the behavior of workers and firms. Those favoring work subsidy programs argue that pure income support programs will cause recipients to reduce their work hours and thereby increase the Government cost of reducing poverty. Critics of wage subsidy plans charge that program benefits will go primarily to employers in the form of reduced wage costs instead of to workers.

This paper offers a careful theoretical examination of the wage and profit effects of work subsidy programs. Of primary interest is the impact of such programs on the wage employers pay for subsidized workers, on the total wages subsidized workers receive, on the wage unsubsidized workers receive, and on the profits firms reap. A variety of economic models along with some numerical estimates are used to assess the likely effects of wage subsidy and public employment programs.

The conclusions drawn from this paper's analysis are:

(1) The benefits resulting from a wage subsidy program are likely to go almost entirely to workers. It is unlikely that a wage subsidy program would make it possible for firms to reduce their wage payments.

(2) Some decline may occur in the wages employers pay low-wage workers if a wage subsidy program rather than a negative income tax is enacted. A negative income tax makes cash payments related to income need and family size.

(3) A wage subsidy which helps low-skill workers may have a negative effect on the wage rate of semiskilled workers. However, the size of such a negative effect is likely to be small. Wages of high-skill workers and the return to capital may increase as a result of the subsidy.

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¹ In a wage subsidy plan, the Government pays a low-wage worker some percentage of the difference between his wage and a Government-set target wage. If the percentage is 50, and the target wage is \$3, a worker earning \$2 an hour would receive an hourly subsidy of 50¢.

(4) A wage subsidy paid to low-wage, nonunion workers is unlikely to reduce the wages of high-wage, union workers despite the fact that the two kinds of workers are employed by competing firms. Although the differential in wages received by union and nonunion workers would probably narrow, the differential wage cost to union and nonunion firms would remain the same. A highly likely result is that a wage subsidy to low-wage workers could raise the market wage paid to high-wage, union workers.

(5) A public employment program concentrating on low-wage, low-skill workers could cause a reduction in the market wage of skilled and semiskilled workers. This result is plausible if governments hiring added low-skill workers can use them as partial substitutes for semiskilled and skilled workers. The release of semiskilled and skilled workers onto the private market may lower the overall wage paid to these workers.

The most important program impact is on the labor supply of workers eligible for subsidized wages. If a wage subsidy program did not increase the work time of such subsidized workers, then the analysis of market effects need go no further. The benefits of the program would go entirely to the workers or to unsubsidized workers. Thus, firms would not lose or gain profits from the introduction of a wage subsidy. Evidence from a variety of labor supply studies indicates that a moderate level wage subsidy program would not in fact cause a significant change in the amount of labor subsidized workers supply. It is this line of reasoning that supports conclusion (1).

Wage subsidy programs may influence market wage rates if they do stimulate additions to the work force or increases in average hours worked, thereby pushing wages downward. Such increases in work effort are likely if the wage subsidy substitutes for a cash program based on income need alone. How large the reduction in market wages is depends on a variety of factors in addition to the increased labor supplied by subsidized workers. The decline in the market wage is largest if unsubsidized workers do not decrease their work time, if firms have great difficulty substituting workers for machines, and if savings and investments are insensitive to changes in interest rates. Using reasonable estimates of these parameters, one finds that a wage subsidy that increases labor supply of subsidized workers by as much as 30 percent would likely cause a 5 percent reduction in wage rates. The true effect of substituting a wage subsidy for a need-related cash program would be considerably smaller since the induced increase in labor supply would likely be less than 30 percent.

Wage subsidies that encourage added work on the part of subsidized workers could also influence the wages of different groups of unsubsidized workers. In general, those workers most interchangeable with subsidized workers would suffer the largest wage reductions relative to those affecting subsidized workers. On the other hand, workers who are needed as complements to subsidized workers would gain wage increases. The size of such effects on wages is likely to be small not only because subsidized workers are not likely to increase their work hours significantly, but also because a reduction in wages paid by employers may cause them to increase output and their overall demand for workers.

The analysis of wage subsidy effects on unsubsidized union workers is similar to that covering effects on different skill groups. To the extent that subsidized nonunion workers do not increase their work time, nonunion firms could not reduce the wages they pay. Any reduction that did occur would have only a partial impact on union wages because the wage reduction would cause the substitution of labor for capital and would increase the demand for labor in all industries.

The impact of a public employment program on market wages depends on the reaction of workers as well as the reaction of firms. A large increase in Government hiring of low-skill, low-wage workers would mean a rise in the private market wage paid to these workers. The wage increase would be higher the smaller the induced increase in labor supply and the more limited the possibilities for firms to substitute machines for workers. Wage changes for workers at other skill levels also depend on these two factors. In addition, the Government's secondary response to the added hiring of low-skill workers is also relevant. To the extent that the Government can substitute low-skill for high-skill workers without heavy losses in production and to the extent that there is a desire to limit the induced increase in the Government's share of total output, the Government's employment of semiskilled and skilled workers may decline. As these displaced workers add to the supply of such workers in the private market, their private market wage rates may fall. Thus, a Government attempt to shift toward hiring low-skill workers may reduce overall wage differences between workers at different skill levels.

1. INTRODUCTION

Wage subsidy and public employment programs are becoming increasingly attractive to a wide segment of the public. The appeal of these work-conditioned income supplements is based on the work ethic and on the reluctance of many taxpayers to provide unrestricted income transfers to able-bodied persons. During the last several years a number of economists have proposed wage-rate subsidies as part of an antipoverty strategy.² More recently, the Senate Finance Committee reported out a bill that would have replaced much of the current welfare system with a combination wage-subsidy/guaranteed public employment program.³

² Richard Muth, "The Evaluation of Selected Present and Potential Poverty Programs," Institute for Defense Analysis, study S-244, Washington, D.C., 1966; also Muth, project leader, "Federal Poverty Programs," Institute for Defense Analysis, report R-116, Washington, D.C., 1966; J. Kesselman, "Guaranteeing Incomes or Wages," (Cambridge, Mass., 1968), condensed as: "Guaranteeing Wages: A Modest Proposal," *Commonwealth*, LXXXIX, 700-703; see also J. Kesselman, "A Comprehensive Approach to Income Maintenance: SWIFT," *Journal of Public Economics*, II, part I (February 1973), 59-88; and R. J. Zechauser and P. Schuck, "An Alternative to the Nixon Income Maintenance Plan: A Solution to the Problem of Work Incentives," *Public Interest*, XIX (spring 1970), 120-130.

³ U.S. Congress, Senate, Committee on Finance, *Social Security and Welfare Reform: Summary of the Principal Provisions of H.R. 1 as Determined by the Committee on Finance*, 92d Congress, 2d session, 1972.

Work-conditioned plans have been offered as a major welfare reform alternative to the negative income tax. One basic difficulty with the negative income tax is its imposition of a highly implicit tax rate on earnings. By subjecting recipient earnings to benefit-loss rates of 50 percent or more, the negative income tax may distort the work-leisure choice of the working poor. As a result, some members of the low-income population may be better off under a wage subsidy program than under an income guarantee program with the same budget costs. The wage subsidy may encourage persons to work added hours and gain more income but less leisure than they would have if offered an income guarantee and an implicit tax on earnings.⁴

This paper addresses questions concerning the market effects of work-conditioned programs. Would wage subsidies lead employers to lower their wages so that program benefits accrue to employers rather than to low income workers? Would wage subsidies undermine the wage position of organized labor in the unorganized sector of the economy? Would wage subsidies stimulate an increase in the supply of unskilled labor, thereby improving the wage position of skilled workers but possibly worsening the wage position of semiskilled workers? The market effects of public employment programs are also of considerable interest. As public employment programs draw in workers previously employed in the private sector, to what extent would wages of unskilled workers remaining in the private sector rise? Would increased hiring of unskilled workers for public jobs substitute for the services of skilled public employees? If so, what effect would such displacements have on the wages of skilled workers employed in the private sector?

Answering these questions certainly does not provide a complete assessment of work-conditioned plans. But the market effects of these programs are important criteria by which to judge their efficiency. In light of the political and economic appeal of work-conditioned programs, improved understanding of their market effects is particularly important.

This paper uses a number of theoretical models of the economy to assess the market effects of work subsidy programs. The following section considers how a wage subsidy program would influence wages and profits in a single-industry model of the economy. In this model there are three classes of workers that are perfect substitutes for each other at some fixed ratio. Estimates appear on the possible quantitative effects on wages and profits of substituting a wage subsidy for a negative income tax. Section 3 examines a model in which firms have difficulty substituting between different classes of workers. The fourth section considers a union fear that subsidizing low-wage workers could worsen the competitive position of union workers. Using a two-sector economic model, we analyze how a wage subsidy applied to a low-wage non-unionized sector of the economy would affect wages in that sector and in the high-wage unionized sector. The final section assesses the market effects of a public employment program by drawing on the results of earlier sections.

⁴R. J. Zeckhauser, "Optimal Mechanisms for Income Transfer," *American Economic Review*, LXI, 324-34.

2. THE EFFECTS OF WAGE SUBSIDIES IN A SINGLE-INDUSTRY MODEL OF THE ECONOMY

This section uses two major assumptions in order to derive the market effects of a wage subsidy. First, all commodities are aggregated into one quantity, income (Y). Income is produced with capital (K), and labor (L). Second, workers of varying skill levels are perfect substitutes for each other in the production process. That is, there is a constant ratio that determines the number of unskilled workers necessary to replace a given number of skilled workers while maintaining a constant production level. Assuming A, B, and C type workers earning \$1, 2, and \$3 per hour, respectively, three type A workers are exactly equivalent to one type C worker. Under this assumption, the wage structure is fixed. For example, a 50 percent fall in worker A's wage will mean a comparable 50 percent fall in wages of types B and C workers. The wage of one type of worker, the efficiency wage, is the benchmark against which to assess wage changes to other types of labor. The assumption of perfect substitutability between different types of labor greatly simplifies the analysis by allowing one to treat labor as a "homogeneous" input and to measure labor input in efficiency units.

The direct impact of a wage subsidy would be to reduce wage differences among workers. Consider a wage subsidy program under which the government would pay workers half the difference between the "standard" wage of \$3 per hour and the worker's actual wage. As table 1 shows, the worker originally earning \$1 per hour would receive a \$1 per hour subsidy and a worker originally earning \$1.50 per hour would receive a \$0.75 per hour subsidy. Thus, the direct effect of the wage subsidy would be to reduce wage differences up to \$3 per hour by 50 percent.

TABLE 1.—*Presubsidy and postsubsidy hourly wages under a wage subsidy plan*

	Subsidy under a standard rate of \$3 and a subsidy rate of 50 percent	Total hourly wages
Wage rate before subsidy:		
\$1.00-----	\$1. 00	\$2. 00
\$1.50-----	. 75	2. 25
\$2.00-----	. 50	2. 50
\$2.50-----	. 25	2. 75
\$3.00-----	0	3. 00
\$4.00-----	0	4. 00

Although the direct effects are easy to determine, they take no account of worker and employer responses to the wage subsidy. Yet these responses may be of considerable importance. The way workers and firms react to the subsidy program would determine how much of the benefits go to unskilled workers, how much to skilled workers, and how much to employers. For example, consider two polar cases. Suppose that the increased total wage, including the wage subsidy, available to low-productivity workers has no effect on the number of such workers available or on the average amount of time each works.

In this case, the full subsidy would go to the workers. Alternatively, suppose that because of the wage subsidy added workers seek employment and/or current workers seek to work longer hours. Further, suppose that the number of unskilled workers employers hire varies only slightly with changes in the wage rate. Then, employers would absorb the added workers only if their wage payments decline significantly. In this case, workers might gain little from the wage subsidy. The Government subsidy could be largely offset by the decline in the wage employers pay.

Knowing that the wage subsidy could go mostly to workers or could go mostly to employers is not particularly helpful. To investigate the likely effects requires the use of economic theory and some estimates of probable behavioral responses by workers and employers. The first step is to derive the theoretical effects of a wage subsidy. For simplicity, we distinguish between two types of labor: group A, the group which receives the wage subsidy, and group B, the more productive, higher-income group which remains unsubsidized.

The percentage change in the supply of labor effort by group A, $\frac{dL_A}{L_A}$, is equal to

$$\frac{dL_A}{L_A} = l_A \frac{(dw+s)}{w} \quad \begin{array}{l} dw < 0; s > 0 \\ dw+s = \text{net wage change} \end{array} \quad (1)$$

where l_A is the elasticity of labor with respect to wages for group A, w is the efficiency wage rate, and s is the hourly subsidy paid to group A, expressed as per unit subsidy. Similarly the percentage change in the labor supply of group B is

$$\frac{dL_B}{L_B} = l_B \left(\frac{dw}{w} \right) \quad (2)$$

The percentage change in the overall supply of labor can be shown to be equal to

$$\frac{dL}{L} = [l_A a + l_B (1-a)] \frac{dw}{w} + \frac{l_A s a}{w} \quad (3)$$

where

$$a = \frac{L_A}{L_A + L_B}$$

In order to maintain equilibrium in the labor market the change in the supply of labor must be equal to the change in the demand for labor.

It is possible to derive the following relation for changes in wages and profits in terms of changes in factor proportions⁵

$$\begin{aligned} \frac{dw}{w} &= -\frac{f_K}{J} \left(\frac{dK}{K} - \frac{dL}{L} \right) \\ \frac{dr}{r} &= \frac{f_L}{J} \left(\frac{dK}{K} - \frac{dL}{L} \right) \end{aligned} \quad (4)$$

⁵ A. A. Amano, "Neoclassical Biased Technical Progress and a Neoclassical Theory of Economic Growth," *Quarterly Journal of Economics*, LXXVIII (February 1964), and P. A. Diamond, "Disembodied Technical Change in a One Sector Model," *International Economics Review*, VI (May 1965) have independently derived these relationships.

where f_K and f_L are the shares of capital and labor respectively and J is the elasticity of substitution between labor and capital. The presumptive sign of this parameter is negative so that an increase (decrease) in the amount of labor relative to capital will decrease (increase) the real wage.

Assume that the supply of capital is positively related to the rate of return on capital, r , so that the change in the supply of capital is given by the relation

$$\frac{dK}{K} = l_K \frac{dr}{r} \quad (6)$$

where l_K is the elasticity in the supply of capital with respect to changes in the return on capital.

Solving for dw/w we obtain

$$\frac{dw}{w} = - \left(\frac{l_A a}{l_A a + l_B (1-a) - \frac{J}{f_K} + \frac{f_L}{f_K} l_K} \right) \frac{s}{w} \quad (7)$$

Equation (7) determines the changes in the wage rate employers pay as a result of the wage subsidy. In turn, this change determines the change in the worker's total wage inclusive of the subsidy. If expression (7) is positive or only slightly negative, the implication is that workers receive the full amount of the subsidy without offsetting reductions in the wages paid by employers. Similarly, if expression (7) were a large negative number, then the reduction in wages paid by employers might substantially offset the worker's subsidy payment, leaving him no better off.

As equation (7) shows, the impact of the wage subsidy depends on the following economic forces: The labor supply response to wage changes by subsidized and by unsubsidized workers, the ease with which firms can substitute workers for machines, and the savings and investment response to changes in the interest rate. As noted above, the change in wages would be zero if the wage subsidy did not attract more subsidized labor either through longer hours or through more workers, that is, if l_A equals zero. On the other hand, the subsidy may simply reduce market wages and leave subsidized workers with no increased income if unsubsidized workers do not change their work and work-seeking patterns (l_B equals zero) and if substitution possibilities between workers and capital are poor (J equals zero).

Looking at the factors in equation (7) singly, one finds that the decline in the market wage is largest if subsidized workers respond to the wage subsidy by seeking significantly more work hours, if unsubsidized workers do not decrease their work effort in response to lower wages, if firms are unable to substitute workers for machines, and if savings and investment are insensitive to changes in the interest rate. Although these results make sense, they are general and not particularly useful for policy. To assess the probable quantitative effects of the wage subsidy requires reliable estimates of the parameters in equation (7) such as l_A and J .

Fortunately, a large amount of empirical work has recently been done on the supply response of labor with respect to changes in wages. The effect of a wage change on labor supply can be divided into an

income effect and a substitution effect. Viewing the decision to work as a choice between commodities and leisure, an increase in the wage rate increases the cost of leisure in terms of commodities and the substitution effect induces the consumer (worker) to substitute commodities for leisure. On the other hand, higher wages increase income and this rise in welfare is expected to increase the consumption of leisure. Hence the income and substitution effects are of opposite signs and may largely offset each other.

In fact, a variety of studies on labor supply⁶ indicate that for male workers the income effect dominates the substitution effect so that as wage rates increase, male workers tend to work less.⁷ A typical estimate is that a 1-percent rise in wages will lead to a 0.2-percent fall in work effort by males.

The picture is somewhat different for female workers. Beginning with the work of Mincer, evidence has accumulated that women will work more with increases in their wage rate but will work less with increases in other household (husband's) income. The work of Ashenfelter and Hechman suggests a wage elasticity of labor supply for women workers that is as high as +1. The other estimates of this parameter are somewhat lower, yet it is quite probable that l_w , for female workers, is equal to 0.5 or more.⁸

Even with a moderately high supply response for women and other secondary workers it is difficult, on the basis of existing empirical evidence, to argue that labor supply is quite responsive to change in wages. In fact, l_w , for labor as a whole, may be negative, and if it is positive, it is probably no greater than +.2. This fact implies that the labor supply effects of a wage subsidy plan which is added to existing income maintenance programs to cover workers not covered by existing welfare programs would be quite modest. As the effects on labor supply would probably be small, the indirect market effects of the wage subsidy program would be unimportant, possibly negligible.

This consideration notwithstanding there are two principal reasons for presenting some sample calculations on the secondary effects of a wage subsidy plan. First, actual labor response in such a system may be larger than that implied by the empirical research. Second, the relevant program comparison might be between a wage subsidy plan and a general income maintenance system of the negative income tax type. The change in labor supply arising from a changeover from one type of income maintenance system to another type may be much more significant than from the introduction of a wage subsidy program to cover persons not covered by welfare.

⁶ G. Cain and H. Watts, ed. *Income Maintenance and Labor Supply: Econometric Studies* (Chicago: Markham Press, 1973). All of the quantitative evidence discussed here appears in this book.

⁷ The wage elasticity, l_w , is given the relation $l_w = l_w^* + l_v k$ where l_w^* is the income-compensated wage elasticity of supply of labor (the substitution effect expressed as an elasticity) l_v is the income elasticity and k is the proportion of total income a person receives in the form of wage income. For simplicity we shall assume $k=1$. A typical estimate of l_w^* for male workers is +0.3 and a typical estimate for l_v is -0.5, so $l_w = -0.2$.

⁸ For a review of this evidence consult the articles by Irwin Garfinkel and by Cain and Watts in U.S. Congress, Joint Economic Committee, Subcommittee on Fiscal Policy, *How Income Supplements can Affect Work Behavior*, Paper No. 13 (Washington, D.C., Government Printing Office, 1974).

The market effects of a wage subsidy may be considerably different from those of a negative income tax of equal budget cost. One important reason is the difference in filing units. A negative income tax plan generally uses the family as filing unit while many wage subsidy plans use the individual worker as filing unit. As a result, single individuals would gain significantly at the expense of families with children if a wage subsidy replaced a negative income tax.⁹ For example, consider plans each with budget costs of \$13 billion in 1966. Such a sum would have financed a wage subsidy plan paying half the difference between \$2 per hour and the worker's wage or a negative income tax with an income guarantee of \$2,400 a year for a family of four and an offsetting benefit-loss rate of 50 percent. A low-income family of four with a single worker earning \$2,400 per year by working 1,600 hours per year at \$1.50 per hour would have received \$1,200 per year under the negative income tax but only \$400 per year under the wage subsidy program. In contrast, a single individual with the same work record would have received \$400 under the wage subsidy and nothing under the negative income tax.

Although one might expect that work reductions would be larger under a negative income tax than under a wage subsidy program, logic alone does not provide a reliable basis for prediction. One interesting case is those families who would receive equal payments from the two programs at their original level of work hours. For example, consider a family of three whose family head worked 2,000 hours per year at \$1.50 per hour to earn the family's only private income. This family would receive \$500 under a negative income tax with a \$2,000 guarantee and a 50-percent benefit-loss rate and \$500 under a wage subsidy paying a per hour subsidy of one-half the difference between \$2 and the worker's wage. In terms of allowing the family to afford increased leisure, the two programs would have the same effect.

But the "price" of leisure (that is, income lost by not working) is \$1.75 per hour under the wage subsidy program as compared to \$.75 per hour under the negative income tax. The effect of this higher price would be to encourage longer work hours under the wage subsidy program. If families eligible for equal benefits work longer under the wage subsidy, one might conclude that the wage subsidy would necessarily mean a larger labor supply than a negative income tax of equal cost. But, in fact, the result may go the other way. The negative income tax may exert its largest income effects on groups such as male heads of families, whose labor supply does not vary a great deal; while those with the largest increases in income under a wage subsidy, such as single individuals, may show substantial variations in work effort.

One attempt to answer the empirical question indicated that the negative income tax would cause a larger work reduction than a wage subsidy of equal budget cost. Samuel Rea simulated the effects various wage subsidies and negative income taxes (NIT) would have had in 1966 on all families and individuals with at least one person over 24 and in the labor force at some time during 1966. Comparing a negative

⁹ It is possible, of course, to vary net wage subsidy benefits by family status and family size. For an example, see the JOIN plan presented by Robert I. Lerman in this volume.

income tax with a \$2,400 guarantee and a 50-percent tax rate with a wage subsidy paying half the difference between \$2 and the worker's wage, Rea calculated that the nearly 10 million NIT filing units would have shown average decline in work hours of 12 percent while the 12.4 million wage subsidy units would have reduced their hours worked an average of only 1.7 percent. The fact that one would predict a larger supply of labor under a wage subsidy than under a negative income tax suggests that indirect market effects could also differ.

In order to analyze the effects of these changes on market wages we shall develop a numerical representation of the model developed above. The numbers are based on the 1967 Survey of Economic Opportunity.

TABLE 2.—*Wages and work hours of low- and high-wage workers in 1966*¹

	Group A ²	Group B
Number of persons (million)-----	32.4	42.7
Average annual hours per person (hours)-----	1,337	1,951
Average hourly compensation-----	\$1.38	\$3.94
Average annual compensation per person-----	\$1,845	\$7,686
Total person-hours (billion)-----	43.32	83.31
Total compensation (billion)-----	\$59.6	\$328.5

¹ Total compensation for the year 1966 as calculated from the survey data amounts to about \$388,000,000. This figure is far short of the \$470,000,000,000 compensation of employees reported in the national accounts. About \$45,000,000,000 of this figure are supplements to wages and salaries. We are not in a position to reconcile these 2 sets of figures. We note, however, that persons over 65 and under 16 are excluded from the Survey of Economic Opportunity and that there is some presumption of underreporting of wage income in the survey at low levels of income. Actually for our purposes it is the distribution of wage income between 2 broad categories which is important, not the total amount. Thus to the extent that underreporting is independent of wage level our results are unaffected by the underreporting.

² Group which originally receives a wage subsidy for a standard wage rate of \$2.

Workers have been divided into two broad groups, A and B. Group A consists of low-wage, low-productivity workers who make less than \$2 an hour and whose mean wage rate is about \$1.40; group B is the more productive group which remains unsubsidized. A wage subsidy plan paying half the difference between \$2 and the worker's wage would have provided an average subsidy of \$0.30 an hour. Assuming workers in the two groups to be perfectly interchangeable for one another at the constant rate of transformation $3.94/1.38 = 2.85$ workers of type A for one worker of group B, we choose labor units so that the original wage rate for group A is equal to \$1 per hour. If the average hourly wage for group A is \$1.40, each hour of group A's labor equals 14/10 labor units. It follows that group A originally provided 59.6 billions labor units while group B provided 328.5 billions labor units. Consequently, a , the proportion of total labor provided by group A is $59.6/388.1 = 0.153$. This parameter is important and will vary for various programs under consideration. For example, if we consider the effects of changing from an income guarantee program with a basic allowance of \$2,400 and a benefit-loss rate of 50 percent to a wage subsidy program, families with incomes at least up to \$4,800 would have been affected by the change in programs. If we allow for multiple-worker families such a policy change could have affected the work effort of workers who make considerably more than \$2 an hour. In fact

up to 40 percent of the labor force might have been influenced by rather modest income guarantee programs.

To examine the change in wages resulting from a wage subsidy plan, we use expression (7) repeated here for convenience.

$$\frac{dw}{w} = - \left(\frac{l_A a}{l_A a + l_B(1-a) - \frac{J}{f_K} + \frac{f_L}{f_K} l_K} \right) \frac{s}{w} \quad (7)$$

The numerator of this expression

$$l_A a \frac{s}{w}$$

is the percentage change in the supply of labor of type A, times the share of type A labor,

$$\frac{dL_A}{L_A} \cdot a,$$

resulting from the introduction of the subsidy. This effect will be referred to as the primary effect of the policy, which occurs before any change in the market wage rate w .

Labor supply might also adjust as a result of wage rate adjustments. The terms associated with these secondary adjustments, $l_A a + l_B(1-a)$ appear in the denominator of expression (7). The empirical evidence suggests that income and substitution effects of a wage change are approximately equal or possibly that the income effect dominates the substitution effect ($l_A < 0$ and $l_B < 0$). However, in order to simplify the analysis, we assume that the secondary adjustments of labor supply changes resulting from wage rate changes are zero, ($l_A = l_B = 0$). Now if $l_A = 0$, it follows that the numerator of (7) is also zero if the introduction of a subsidy program is considered in isolation. However, as discussed above, the partial or complete substitution of one form of income maintenance system for another or a change in policy which would require certain family heads to work might have substantial primary effect on the overall supply of work effort even when the secondary wage rate effects are zero.

Rather than trying to develop an elaborate analysis which would contain sufficient program detail to allow for a positive primary effect and negligible secondary effect we shall instead simplify matters by taking the primary effect to be of some positive value and assuming that the secondary effects are zero. Thus, expression (7) simplifies to

$$\frac{dw}{w} = \frac{- \left(\frac{dL_A}{L_A} \right) a}{-\frac{J}{f_K} + \frac{f_L}{f_K} l_K} \quad (7')$$

This relation allows us to calculate the change in the wage rate resulting from a policy change which leads to a change, dL_A , in the supply of labor by the group A, which is directly affected by the change.

Given 0.30 as the value of capital's share in total output, f_K , the percentage change in the market wage rate, depends essentially on four other parameters:

$$\frac{dL_A}{L_A},$$

the change in the supply of labor resulting from the policy change; a , the proportion of the affected group in the total labor supply; J , the elasticity of substitution between labor and capital; and l_K , elasticity of the supply of capital. For expositional simplification, it is assumed initially that the supply of capital is fixed, that is, $l_K=0$.

Since the numerous studies on the elasticity of substitution are quite inconclusive,¹⁰ we present results for three values of J , -0.3 , -0.5 , and -1 . The value of -1 corresponds to the Cobb-Douglas production function, -0.3 , is the lower bound of the estimate of the elasticity of substitution obtained for aggregate time-series studies, and -0.5 is an intermediate value. The values of

$$\frac{dL_A}{L_A}$$

and a depend on the policy changes under consideration; a is likely to vary between 0.20 and 0.40 while

$$\frac{dL_A}{L_A}$$

will be taken to be anything from zero to 0.30.

If the upper bound for

$$\frac{dL_A}{L_A}$$

is taken to be 0.30 (30 percent change in labor supply by the group affected by the policy change), the values $a=0.40$ and $J=-0.30$ imply a 12 percent change in the wage rate. On the other hand, if only 20 percent of the labor force is affected by policy change and $J=-1$, the wage rate will change by only 2.4 percent, even when the primary change in labor supply is 30 percent.

Given this wide range of possibilities, a compromise estimate of dw/w is 5 to 6 percent. This change may not appear dramatic. It means that the average hourly wage rate for group A described in table II will fall from \$1.38 to \$1.31 an hour while the hourly wage rate for group B will fall from \$3.94 to \$3.74 an hour. However, through the 1960's the average annual increase in real wages averaged about 1.6 percent so that a 5 percent decrease in real wages will represent 3 years of growth in real income. Also the fall in wages represents a significant

¹⁰ Marc Nerlove, "Recent Empirical Studies of the CES and Related Production Function," in *The Theory and Empirical Analysis of Production*, ed. Murray Brown, Studies in Income and Wealth, XXXI (New York: Columbia University Press for the National Bureau of Economic Research, 1967).

transfer of income from labor to capital. The total wage bill in table II is \$388.1 billion, while capital income (assuming $f=0.3$) is \$166.3 billion. Consequently a 5 percent decrease in real wages will increase profits by \$19.4 billion. This represents an 11.7 percent increase in profits.

This significant change in profits will occur only if there is significant change in the supply of labor. As established above, such a change will occur only if the policy change causes income and substitution effects that reinforce each other in increasing or decreasing labor supply. One such policy might be the changeover from a general income guarantee program to a general wage subsidy program. Most policy changes will produce less dramatic effects on the supply of labor than this change in policy. A wage subsidy program which applies primarily to the working poor will have, given existing empirical information, negligible effects on labor supply and the level of wages.

The recent proposal of the Senate Finance Committee is unlikely to have significant effects on overall labor supply. Under the proposals of the Finance Committee bill AFDC cash transfers would be continued only in single-parent families in which the parent has a child under age 6 or is ill or incapacitated, attending school full time or residing in a geographically remote region. About 60 percent of the current AFDC population of 3 million families fall into this category. For the remaining 1.2 million families with an employable head a number of options would be provided. The Work Administration (WA) created by the bill could place the participant in a job paying more than \$2 an hour.

Alternatively the participant, if placed in a job paying less than the national minimum wage, will be subsidized by three-fourths of the difference between his wage rate and the minimum wage, recently raised to \$2 an hour. As about 600,000 AFDC families are male-headed, the maximum number of adults affected by the change will be 1.8 million. This assumes that there are two adults in each male-headed household and that both members would have worked. On the assumptions that each new labor-force member would have worked 2,000 hours a year, would have been paid \$2 an hour, and ignoring possible net increases in public employment, this would have represented an increase of 7.2 billion efficiency units of labor, a

$$\frac{7.2}{388.1} = 1.9\%$$

increase in labor supply. Applying formula (7'), this will result in a 1.9 percent fall in wages if the elasticity of substitution is $=0.3$ and a 0.58 percent decrease when $J=1$. Hence, although these assumptions unquestionably exaggerate the labor supply effects of the Senate Finance Committee proposals, a 1 percent fall in real wages would not be out of the question but a 0.5 percent decrease seems equally likely. The increase in labor supply will result in an increase in real profits in excess of \$1.5 billion. Consequently, a case can be made for financing a substantial part of any program which leads to an increase in the labor supply through additional profit taxation.

To this point we have assumed that the supply of savings (capital) is insensitive to changes in the rate of return on capital. From relation (7'), it follows that the larger the value of l_K , the smaller will be the changes in real wages. Colin Wright has estimated the interest rate elasticity of savings to be about $+0.30$.¹¹ Taking this to be the response in the supply of savings we see that the importance of the addition of the savings effect depends on the size of the elasticity of substitution, J . For the Cobb-Douglas case, $J = -1$, where $f_K = 0.3$ and $f_L = 0.7$. The denominator of (7') is equal to 3.3 when $l_K = 0$ and to 4.0 when l_K is taken to be equal to 0.3.

Assuming other parameters consistent with dw/w of 6 percent, the addition of the savings effect will decrease this estimate by about one-quarter to 4.4 percent. In general, the more responsive is the supply of capital to changes in the rate of interest the smaller will be the effects of labor supply changes on the wage rate.¹²

3. A MODEL WITH THREE TYPES OF LABOR

One of the more restrictive assumptions made in the previous section is that the wage structure is fixed for labor of varying skills and that different types of labor are perfect substitutes for one another at a fixed rate of transformation. Consequently, if the supply of unskilled labor is increased, the wage rate of different types of labor is decreased in the same proportion. The assumption eliminates possible changes in the wage structure and the possibility that some types of labor will gain as the result of an increase in a particular type of labor while labor of different skill will lose.

In a two-factor model, where the two inputs are labor and capital, an increase in the supply of labor relative to capital will increase the total return to capital. In a three-factor model it is not at all clear whether the return to both "complementary" factors will increase as the result of an increase in the supply of one of the three factors. The reason for the ambiguity is that there are two effects associated with an increase in the supply of one of the factors, an output or complementary effect and a factor substitution effect.

Consider a case where the three factors are unskilled labor, L_u , semiskilled labor, L_{sem} , and skilled labor, L_s . An increase in L_u will increase output and this increase will give rise to an increase in the

¹¹ Colin Wright, "Saving and the Rate of Interest," in *Taxation of Income from Capital*, ed. A. C. Harberger and M. J. Bailey (Washington, D.C.: Brookings Institution, 1969).

¹² The results presented above are the impact of short-run effects of labor supply change. Martin Feldstein, in an unpublished paper, has shown that in long-run analysis when the economy is compared in two alternative steady-state equilibria, a change in the supply of labor will have no lasting effect on the wage rate or the return to capital. Consequently, the longer the planning horizon of policy makers the less important are the indirect effects of wage-subsidy policies, even when labor supply is elastic. Feldstein's result applies only in the very long run, say 50-75 years. His basic intuitive explanation for the longrun independence between the labor supply and factor prices is that the wage rate and rate of return in the longrun equilibrium of a growing economy depends *not* on the absolute size of the labor force but only on its rate of growth. A change in the labor supply in effect only alters the size of the labor force and therefore does not affect factor prices in the long run. See Feldstein, "Tax Incidence in a Growing Economy with Variable Factor Supply," Discussion Paper Number 263, Harvard Institute of Economic Research, Cambridge, 1972. This paper is forthcoming in the *Quarterly Journal of Economics*, (November 1974).

demand for L_{semi} and L_s . However, the increase in the supply of L_u will decrease the unskilled wage rate and so will put downward pressure on the return to factors for which unskilled labor is highly substitutable. In our example, we assume skilled labor—professionals, managers, and so forth—and capital are complements, and for this reason capital is not explicitly introduced.¹³

The expectation is that an increase in the supply of unskilled labor will increase the wage of skilled labor. The ambiguous question is whether the wage rate of semiskilled labor increases or decreases.¹⁴ If unskilled and semiskilled labor are highly substitutable for one another, the return to semiskilled labor will decrease; if the factor substitution effect is moderate, it is possible that the output effect will dominate and the wage rate for semiskilled labor will rise.

To analyze these possibilities, we present the following one-sector model.

$$L_u = f(W_u, W_{\text{semi}}, W_s, X) \quad (1)$$

$$L_{\text{semi}} = g(W_u, W_{\text{semi}}, W_s, X) \quad (2)$$

$$PX = W_u L_u + W_{\text{semi}} L_{\text{semi}} + W_s L_s \quad (3)$$

Relations 1 and 2 are general demand functions for unskilled and semiskilled labor respectively. They are both written in terms of the three wage rates and the level of output X . There are only two independent factor demand relations. The third relation which closes the system is a total revenue function which expresses the price of X as a function of factor prices.

Differentiating this system with respect to a change in the supply of unskilled labor we obtain

$$\frac{dL_u}{L_u} = f_u a_{uu} dW_u + f_{\text{semi}} a_{u \text{semi}} dW_{\text{semi}} + f_s a_{us} dW_s + \frac{dX}{X} \quad (1')$$

$$0 = f_u a_{\text{semi}u} dW_u + f_{\text{semi}} a_{\text{semi} \text{semi}} dW_{\text{semi}} + f_s a_{\text{semi}s} dW_s + \frac{dX}{X} \quad (2')$$

$$0 = f_u dW_u + f_{\text{semi}} dW_{\text{semi}} + f_s dW_s \quad (3')$$

where $f_u, f_{\text{semi}}, f_s$ are the shares of unskilled, semiskilled, and skilled labor respectively. The a_{ij} 's are the partial elasticities of substitution between factor i and factor j .

R. D. G. Allen showed that $a_{ii} < 0$ and that

$$f_i a_{ii} + f_{\text{semi}} a_{i \text{semi}} + f_s a_{is} = 0 \text{ for } i = u, \text{ semi}, s.$$

In the numerical experiments we have conducted we took $f_u = f_{\text{semi}} = 0.25$ and $f_s = 0.5$ and assumed that the supply of unskilled labor

¹³ There is some empirical evidence that the partial elasticity of substitution between skilled labor and capital is negative. See E. R. Berndt and L. R. Christensen, "The Internal Structure of Functional Relationships: Separability, Substitution, and Aggregation," SSRJ Workshop Series No. 7218, Madison, Wis., 1972.

¹⁴ This point generalizes to a many factor model where some proportion of the factors gain as a result of a change in the supply of one of the factors and the remaining factors lose.

increased by 10 percent, $dL_u/L_u=0.10$, so to a first order approximation

$$\frac{dX}{X}=0.025.$$

As expected dW_u was negative throughout, dW_s was positive, and dW_{sem1} was positive or negative depending on the values of the partial elasticities of substitution. Two representative changes in wages are: for $i \neq j$ $a_{ij}=1$, $dW_u=-0.075$, $dW_{sem1}=0.025$ and $dW_s=0.025$; and for $a_{u_{sem1}}=5$, $a_{us}=1$ and $a_{sem1s}=1$, $dW_u=-0.04$, $dW_{sem1}=-0.008$ and $dW_s=0.025$. For the Cobb-Douglas case, a 10-percent increase in the supply of unskilled labor results in a 7.5-percent decrease in the real wage of unskilled labor and results in a 2.5-percent increase in the real wages of both semiskilled and skilled labor. In the second case the partial elasticity of substitution between unskilled and semiskilled labor is increased to 5, other things remaining unchanged, the fall in W_u , the unskilled wage rate, is nearly halved, the wage rate for semiskilled labor falls slightly by less than 1 percent, and the skilled wage rate increases by 2.5 percent.

These partial numerical results confirm the earlier qualitative discussion. They demonstrate that the workers who have most to fear from an increase in unskilled labor are those groups of labor most directly competitive with the factor which expands in supply. Thus, if wage subsidy programs would increase the supply of the least skilled members of the work force, it would be the second group of least skilled workers that will have the most to lose from this change. Fortunately, the output effect would cushion the fall in their wages so that any reduction in semiskilled wages would be small. Note that in the second numerical example the wage rate for semiskilled labor fell by less than 1 percent. However, there is a distinct need to cushion the indirect redistribution. At the very least, skilled workers and capital should bear the financing cost of the wage subsidy.

4. REDISTRIBUTIVE EFFECTS IN A TWO-SECTOR UNIONIZED ECONOMY

Union workers might well oppose a wage subsidy program on grounds that it would enhance the competitive position of low-wage nonunion firms and thereby weaken union bargaining power. Whether such union fears would be justified depends on the impact of a wage subsidy on different industries and different firms within the economy. This section examines the likely consequences of a wage subsidy for union and nonunion workers in two ways. The first approach is a two-sector model in which one sector hires only union workers and the other hires only nonunion workers. The second allows for union and nonunion firms within the same industry.

Various authors have established the fact that unions are able to increase their members' wages relative to wages of nonunion workers partly by controlling the supply of workers to specific firms, industries, and occupations.¹⁵ One element of union power comes from the existence of a segmented labor market, whereby a strict division occurs between heavily unionized and other industries. Consider a simple model of an economy in which industries are either completely

¹⁵ H. Gregg Lewis, *Unionism and Relative Wages in the United States* (Chicago: University of Chicago Press, 1963).

union or nonunion. Assume there are two broad sectors, a unionized manufacturing industry (Y) and a nonunionized service industry (X). Suppose that unionization adds a fixed markup (m) on labor in industry Y so that a fixed wage differential exists between union and nonunion labor. Johnson and Mieszkowski¹⁶ have analyzed the effects of this markup on the base wage. The concern here is to determine whether the payment of a wage subsidy to the low-skill nonunion members will decrease the real wage of union members.

Throughout the analysis we assume that the aggregate supply of labor would not change in response to the introduction of a wage subsidy. We also assume that laborers always would prefer to work at the higher real wage prevailing in the union sector. Finally, we assume that the union wage rate would continue to exceed the non-union wage rate after the subsidy is introduced, and that unionized labor would not cross over to the nonunionized sector.

Unions might or might not increase their wage demands in response to a narrowing of the union-nonunion wage differential. Consider first the case where unions do not react to the wage subsidy. For this case, as long as firms in both industries are paying workers the value of their marginal products, the real wage of unionized workers would not be affected by the wage subsidy paid directly to the nonunionized workers of lowest skill. Of course, the relative position of union workers would fall as the result of the subsidy, but the base wage would not be affected since the supply of labor to both the union and nonunionized industry would remain constant and the factor prices firms use to make factor proportion decisions also would remain constant.

If producers are subsidized to hire low-paid nonunion labor, the total wage rate in the nonunion sector would increase by the amount of the subsidy without affecting the real wage in the union sector. Suppose that before the imposition of the subsidy the union labor wage was $w_0 + m$ and nonunion labor wage was w_0 . In the original equilibrium, both types of labor would have been paid the value of their marginal product. If employers are now paid a subsidy, s , to hire nonunion labor and the union wage remains unchanged at $w_0 + m$, the nonunion wage rate will rise by the amount s . The supplies of labor to the two sectors will remain unchanged as long as the union wage rate continues to exceed the nonunion wage rate. Also, by assumption the overall supply of labor remains fixed. The net cost of labor to producers in the nonunion sector will remain unchanged at w_0 , but because of the subsidy they will bid up the total wage rate in the unorganized sector to $w_0 + s$.

In the second case, union labor resists the narrowing of union-nonunion wages and insists on maintenance of the markup, m . Here the "base" wage rate would change and there are good reasons for believing that it will actually increase.

The analysis of this case is virtually identical to A. C. Harberger's investigation of the corporate tax incidence¹⁷ and to the Johnson-

¹⁶ Harry G. Johnson and Peter Mieszkowski, "The Effects of Unionization on the Distribution of Income: A General Equilibrium Approach," *Quarterly Journal of Economics*, LIV (November, 1970).

¹⁷ A. C. Harberger, "The Incidence of the Corporation Income Tax," *Journal of Political Economy*, LXX (June, 1962), 215-240.

Mieszkowski analysis of the distributive effects of trade unions. For a constant union markup, m , it is possible to ignore the existence of the union-nonunion differential and to simply analyze the effect on the wage of a wage subsidy in the nonunion industry. For the two-factor, two-commodity case where the overall supplies of labor and capital are fixed, the payment of the subsidy to producers in X will have two basic effects.¹⁸ One of these effects is that producers will substitute labor for capital in X as the cost of labor is decreased by the subsidy and the output of X will increase as its price will fall. As the demand for labor in X increases, labor will shift from Y to X . Although the factor substitution effect will always work in labor's favor by increasing the demand for labor relative to capital, the effect of the change in the composition of output is ambiguous and depends on the relative factor intensities of the two industries. If the expanding industry X is labor (capital) intensive relative to Y , the output effect will be favorable (unfavorable) to labor. Consider as a reference point the level of output, commodity Y , which prevailed before the imposition of the subsidy. Due to the wage subsidy in X the capital-labor ratio has fallen in X and has risen in Y . The increase in the capital-labor ratio in Y means that union labor is better off in terms of both commodities as the price of Y in terms of X is increased. Hence, if the composition of output is held fixed and m is constant, both union and nonunion labor are made better off as a result of the subsidy. However, production cannot remain at its original level as the price of X has fallen relative to Y , and X will expand while Y will contract. If X is labor intensive, an expansion in the output of X will result in an increase in the capital to labor ratio in both industries and so the real wages of both union and nonunion labor will be even higher than they were at the original reference point where the output of Y was taken as fixed. On the other hand, if X is capital intensive the change in output composition will weaken labor's gain resulting from the factor substitution effect. It is even possible that labor is made worse off as a result of the wage subsidy.

Consequently, although the results of the analysis are ambiguous, a strong presumption is that the favorable factor-substitution effect will help cause wages of both union and nonunion labor to rise as a result of the wage subsidy to nonunion labor.¹⁹ The formal analysis of this case appears in appendix A. The conclusion is that only in special circumstances would union labor lose as a result of the partial wage subsidy which applies to the low-wage, nonunion sector. Organized labor can maintain its income differential vis-a-vis unorganized labor without seriously compromising the objectives of the wage

¹⁸ The assumption that the subsidy is paid to the producer in no way limits the generality of the analysis. The direct payment of the subsidy to workers in X increases the wage there, and will be followed by an increase in wage demands in Y . This in turn will release labor from Y and will decrease wage costs in X .

¹⁹ In this exercise we are ignoring the union-nonunion wage differential. If a subsidy is paid in nonunion industries labor may not voluntarily shift out of the higher paying union sector and so the basic effect of the wage subsidy will be to increase the nonunion wage. However, as the overall size of the union sector will shrink as a result of the decrease in the price of nonunion labor, so labor may have to accept lower paying nonunion jobs in order to remain employed. So, to this extent this shift occurs some labor will lose as the result of the subsidy.

subsidy program. In the context of the two-factor model, both organized and unorganized labor can be expected to gain as a result of the wage subsidy. The subsidy, by increasing the demand for labor in one of the two industries, tends to increase the real wages paid to all labor. Only if the factor-substitution effect is very small and the factor-intensity effect is unfavorable to labor will the subsidy lead to a general decrease in the real wage.

The result that a partial wage subsidy is likely to enhance the real income position of both unionized and nonunionized workers is quite provocative and is to some extent counterintuitive. Consequently, it is important to restate the basis for this result in commonsense terms and to indicate the limitations of this argument. In so doing, we extend the analysis to cover industries with union and nonunion firms.

Commonsense suggests that nonsubsidized workers compete with subsidized workers since both groups produce commodities which are substitutes in demand. Consider a particular industry, such as a textile industry, that is composed of unionized firms and low-paying unorganized enterprises. A wage subsidy which benefits the unorganized low-pay firms would appear to provide subsidized firms with a competitive edge and apparently would result in a decrease in sales and employment in the unionized parts of the textile industry.

Although in certain circumstances a wage subsidy paid to firms in the unorganized sector would lower wages and prices, the advantage there would be partial and temporary if wage rates are competitively determined in the unorganized sector. In other words, if firms pay their workers the value of their marginal product, competition for workers' services would increase the real wage in the unorganized sector by the amount of subsidy. It would be the employees and not the employers who benefit from the subsidy.

The argument that wage subsidies will promote sweat shops and retard union organization depends on the existence of labor market imperfections which allows firms individually or collectively to set wages in an arbitrary fashion, and to take advantage of wage subsidies by decreasing their wage payments to their employees.

Although a wage subsidy would probably weaken the incentive to join or to form unions in partially unionized industries and the union-nonunion wage differential would probably narrow in such an industry, it does not follow that a wage subsidy would affect the competitive position of unionized firms relative to nonunionized firms. A subsidy paid directly to the worker merely would increase his real wage by the amount of the subsidy. A subsidy paid to producers would have the same effect as long as there was competitive bidding for labor. Unless unions increase their wage demands as a result of the narrowing of the union-nonunion differential, a wage subsidy would not change the relative labor costs of unionized and nonunionized firms.

In the formal analysis in appendix A we emphasize the distinction between unionized labor by considering two broad sectors X and Y . Among the industries in the nonorganized sector, X , are agriculture, services, and retail trade. The organized sector, Y , includes manufacturing, construction, and utilities. The commodities produced by these two broad industry groups, although somewhat competitive with each other, are far from perfect substitutes in consumption.

Since substitution in demand for the two broad commodity groups is moderate, the favorable effects of the wage subsidy in industry *X* are almost certain. The subsidy for the use of labor in industry *X* increases the demand for labor in that industry relative to the use of capital. So the favorable factor-substitution effect resulting from the wage subsidy in *X* would come at the expense of capital. Labor in the organized industry *Y* indirectly would benefit from this favorable substitution of labor for capital in industry *X* as labor would become scarcer in the economy as a whole. Further, the capital that would be released from industry *X*, as a result of the substitution of labor for capital in the unorganized sector, would have to be absorbed in the unionized sector, thereby increasing the real wage in that sector.

5. THE INDIRECT EFFECTS OF PUBLIC EMPLOYMENT

There are a number of possible justifications for the expansion of public employment. One reason is to provide sheltered employment for workers of low productivity. Another is to add to overall employment by providing qualified persons with jobs they would not obtain because of deficient effective demand in the economy.

In this study we disregard the possibility of Keynesian unemployment and the indirect effects of public employment in that situation. However, it is important to recognize that in the presence of Keynesian-type unemployment, other means of stimulating effective demand are available as feasible alternatives to public employment. One advantage of public employment over general tax cuts or monetary expansion is in combating unusually high unemployment in some parts of a country at a time when labor markets in other parts of the Nation are moderately tight. Of course, the basic indirect effects of a general nationwide expansion of public employment would be the familiar Keynesian multiplier effects. In the regional context, it is necessary to calculate the indirect effects of increases in public employment in a particular region on employment in other regions.

Apart from these general remarks, we restrict ourselves to situations where all resources are fully employed except for the possibility that minimum wage laws and/or other market imperfections prevent some low-productivity workers from finding jobs. We assume in effect that in the absence of market imperfections there would be no involuntary unemployment. In this situation, public employment might be used to induce persons who are presently on welfare to accept employment in the public sector. Or public employment may involve paying workers wages that are higher than the value of their marginal contribution to output. The latter is the sheltered employment aspect of public employment and is analogous to a general wage subsidy designed to raise the wage of low-productivity workers.

The principal indirect effect of an expansion of public employment is the change in the wage rate. Under certain circumstances the analysis of this effect is virtually the same as the analysis of the effects of wage subsidies presented above in this study. Assume that workers of varying skills are substitutes for one another at some fixed rate of transformation and that the division of total product between private consumption and public expenditure is made on the basis of resource endowments and preferences rather than on the

basis of public employment considerations. Then a substitution of a public employment program for a direct income transfer (welfare) system is virtually equivalent to the substitution of a wage subsidy program for a welfare system. The increase in labor supply brought about by the public employment programs represents additional resources available to society. If the new workers are all put to work in the public sector, other labor might be released from public employment unless it is the collective decision to allocate the complete increment in resources to public consumption. Consequently, it is immaterial for the final allocation of resources between private and public production and for equilibrium factor prices that the persons who are added to the labor force are all employed in the public sector. If we assume that the total stock of capital is fixed and is efficiently allocated between private and public production, the analysis of the indirect effects of public employment merges with the analysis of wage subsidies presented above.

Nevertheless, it is possible that the net increase in public employment could equal the increase of the labor force. In this case, additional public capital might be accumulated or the decrease in labor productivity in the public sector will be larger than for the case where the marginal products of capital in the private and public sectors are maintained at equality.

A more complicated situation arises if different types of labor are not perfect substitutes for one another at some fixed rate of transformation and have to be treated as separate inputs. In this case, the wage structure will change since the effect of public employment is to increase the demand for unskilled labor. This effect will be further strengthened if the wage and employment conditions of public employment are sufficiently improved so that unskilled workers leave employment in the private sector and seek jobs in the public sector.

To analyze these effects more precisely we shall disregard the inputs of capital and use two-factor production functions defined in skilled and unskilled labor. The objectives will be to develop a few simple relationships which will provide some information on the decrease in the wages of skilled workers resulting from an increase in the public employment of unskilled workers.

The adjustment process is as follows: Initially, there is an increase in the overall supply of labor brought about by an increase in public employment. The labor force increases either through a change in income maintenance procedures which forces welfare recipients to accept public service jobs or because sheltered employment is provided at real wage rates above the workers' real productivity.

The new members of the labor force, who are all unskilled, work in the public sector. The increase in the output of the public sector resulting from this increase in employment is

$$dY_2 = W_{u2} dL_{2u} \quad (1)$$

where:

dY_2 is the change in the output of the public sector

W_{u2} is the marginal product of unskilled workers in the public sector

dL_{2u} is the change in the number of unskilled workers employed in the public sector

The increase in total potential income resulting from the increase in labor supply is

$$dY = W_{u2} dL_{2u} \quad (2)$$

unless society chooses to spend all of its additional income on the public goods. The increase in the demand for public goods and services will be

$$ndY \quad (3)$$

where n is society's marginal propensity to spend on the public good.

Consequently, unless n is equal to unity, skilled workers will be released from the public sector and will have to be absorbed in the private sector. From equations 1, 2, and 3 we can derive the relationship between the increase in the employment of unskilled labor in the public sector and the decrease in the employment of skilled workers to be

$$(1-n)W_{u2}dL_{2u} + W_{s2}dL_{2s} = 0 \quad (4)$$

where $W_{s2}dL_{2s}$ are the marginal product of and change in the input of skilled labor in the public sector respectively. Assuming that the wage rates of the two groups are approximately equal to their respective marginal productivities, relation 4, after appropriate manipulation, can be rewritten as

$$(1-n)g_u \frac{dL_{2u}}{L_{2u}} + g_s \frac{dL_{2s}}{L_{2s}} = 0 \quad (4')$$

where g_u, g_s are the shares of unskilled and skilled labor in the production of the public good respectively.

The additional relationships required to analyze the effects of public employment on wage structure were presented earlier in a different context and are repeated for convenience. They are:

$$\frac{dW_s}{W_s} = -\frac{f_u}{J} \left(\frac{dL_{1u}}{L_{1u}} - \frac{dL_{1s}}{L_{1s}} \right) \quad (5)$$

$$\frac{dW_u}{W_u} = \frac{f_s}{J} \left(\frac{dL_{1u}}{L_{1u}} - \frac{dL_{1s}}{L_{1s}} \right) \quad (6)$$

where W_u, W_s are the unskilled and skilled wage rate respectively, f_u, f_s are the shares of unskilled and skilled labor in the private sector respectively, L_{1u}, L_{1s} are the numbers of unskilled and skilled workers in the private sector respectively, and J is the elasticity of substitution in the private sector. The presumptive sign of J is negative. If we ignore the effects of changes in relative wages on factor proportions in the public sector, it is a straightforward matter to calculate the effects of change in public employment on relative wages.

Imagine a policy change in the field of income maintenance which leads to a 4-percent increase in the employment of unskilled workers in the public sector, that is

$$\frac{dL_{2u}}{L_{2u}} = 0.04$$

For simplicity we shall assume that $g_u = g_s = f_s = 0.5$; that is, the shares of unskilled labor in both sectors is equal to one-half. If we take the marginal propensity to spend on public goods to be equal to 0.25, a 4-percent increase in the employment of unskilled workers in the public sector will lead to a 3-percent decrease in the employment of skilled workers there. If the private sector is roughly three times as large as the public sector, then absorption of these skilled workers in the private sector will represent a 1-percent increase in employment of skilled workers there. Taking the elasticity of substitution as -0.5 and $f_s = 0.5$, the wage rate of skilled workers will fall by 1 percent. For the Cobb-Douglas ($J=1$) technology, the fall in wages of skilled workers will be only 0.5 percent.

Consequently, given the above assumptions about the parameters, it would appear that for every percentage point change in the employment of unskilled labor in the public sector due to an overall increase in the supply of labor, the wage rate of skilled labor will fall by 0.12 to 0.25 percent. So the percentage change in unskilled labor is from four to eight times greater than the percentage change in the skilled wage.

This fall in the skilled-worker wage relative to the unskilled-worker wage would be accentuated if unskilled workers previously employed in the private sector present themselves for employment in the public sector as a result of an increase in the availability of public service jobs. From equation 5 it follows that if $f_u = J = 0.5$, the impact effect of a 1-percent outflow of unskilled workers from the private to public sector will be a decrease in the skilled wage rate of about 1 percent. The secondary effects will be roughly of the same magnitude as skilled workers will be released from the public sector and will have to be absorbed in the private sector, further depressing the skilled wage rate.

It appears, therefore, that the magnitude of the secondary effects associated with increases in public employment depends partly on whether unskilled workers employed in the private sector cross over and seek employment in the public sector. This decrease in the supply of unskilled labor to the private sector and the release of skilled labor from the public sector both would decrease the wage rate for skilled labor.

The possibility of minimizing the effect of expanded public employment on the skilled wage rate at first glance seems to depend on the success of segmenting the private and public labor markets and preventing labor crossing over from the private sector to the public sector. However, the "crossover" may be minimized, without the selection of specific types of workers for specific industries, if workers previously unemployed or underemployed can be employed in the private sector. For example, if 50,000 public service jobs are created and all taken by people previously employed in the private sector, this will create 50,000 vacancies in the private sector. Also the rising wage rate for unskilled labor in the private sector will moderate the "crossover" from the private to the public sector and will attract those previous unemployed to employment. There is, of course, the possibility that those most in need of jobs cannot meet skill and discipline requirements of private industries. In this case public employment would have given priority to those workers whose productivity is below the socially acceptable minimum wage. At the same

time, unless the private sector does not hire labor that is unable to meet minimum skill requirements, the public employment agency can increase the wage rate and the employment of those previously unemployed in the private sector by increasing the real wage in the public sector for unskilled labor. Unskilled labor will be attracted to the public sector, creating employment possibilities for unskilled workers in the private sector and increasing the supply of skilled labor there. Thus, as long as the public sector stands ready to act as the employer of last resort, it can increase the prevailing real wage (adjusted for labor efficiency) of unskilled labor. Of course, the higher the real wage set by the public sector relative to the productivity of the labor hired the greater will be implicit subsidy paid to unskilled labor.

For the model used in this section where skilled and unskilled labor are distinct inputs in the production technology of the private sector, the higher real wage paid to unskilled labor will lower the real wage of skilled labor (apart from the payment of higher taxes required to finance the increase in public employment). The decrease in the real wage of skilled labor depends in large measure on the possibility of substituting unskilled for skilled labor in the public sector. This substitution increases the ratio of skilled to unskilled labor in the private sector. In conclusion, the indirect effects of expanded public employment, working through factor prices, are socially desirable as they strengthen the market position of the weakest members of society at the expense of those who can best afford modest decreases in their real incomes.

6. CONCLUDING REMARKS

In this paper I have developed a number of simple models which are designed to capture the important indirect effects of wage subsidies and public employment programs. The central question is: are changes in the supply of unskilled workers that result from work subsidy programs likely to produce a significant indirect effect on real wages and wage structure? The tentative answer is that indirect effects will be quite modest and that the programs under consideration are unlikely to lead to a significant decrease in market-determined real wages or to a large change in the relative wage of skilled and unskilled labor. The argument that wage subsidies are likely to accrue primarily to employers and to owners of capital simply does not stand up to careful analysis. At the same time, it was demonstrated in section 2 that the indirect benefits to capital arising from an increase in the supply of labor are proportionately quite large and for this reason a case can be made for financing wage subsidy programs through taxes on capital.

However, in putting forth these principal conclusions I wish to repeat two major qualifications. The first is that for some values of the demand and supply parameters the indirect effects could be quite large, and, second, the analysis is quite aggregative. By dealing with averages and central tendencies, the analysis downplays the possibility that certain narrowly defined groups would be affected significantly by either wage subsidy or public employment programs. Section 3 presented an example of effects on specific subgroups by distinguishing between three types of labor.

In closing, it should be emphasized that the indirect effects analyzed in the paper arise only if policy changes influence labor supply. If the induced change in labor supply is small, the indirect effects of wage subsidy and public employment programs will be inconsequential. The direct increases in wages and employment will constitute the full program effect.

APPENDIX A

THE WAGE SUBSIDY IMPACT ON UNION AND NONUNION INDUSTRIES

To formalize the analysis appearing in section 3 of the paper, we now present an algebraic formulation of the model. Except for the specialized demand function this is the same model developed by Harberger to analyze the incidence of the corporate income tax. The model consists of a demand function, a supply function that relates the output of one of the two industries to changes in the factor inputs in that industry, a factor-demand function for each of the two industries that relates factor proportions to relative factor prices, and two price equations that relate commodity prices to factor prices. We differentiate this system of equations with respect to a subsidy to labor in industry X and solve for the change in the base wage rate, P_L , paid to workers in the union and nonunion industries. The cost of labor to producers in the nonunion industry is $p_L - s$, where s is the subsidy per unit. The wage rate in the union sector is $p_L + m$, where m is the union markup. Care should be taken in interpreting the magnitude of s . Only low-wage workers in X would receive the subsidy. The 25-cent hourly subsidy for about 10 percent of the workers in X represents a much smaller subsidy for the overall labor input than if all nonunion members received the subsidy. Formally, the precise treatment of this problem requires a distinction between different grades of labor, some of which are subsidized, others which are not. To avoid this complication, we perform the analysis as if all nonunion labor is subsidized. The qualitative aspects of the analysis should not be affected by this assumption.

The differential of the base wage rate with respect to the subsidy s , is given by the relation ¹

$$dp_L = \frac{-\left(\frac{L_x(1-c)}{X} \left(\frac{K_x}{K_y} - \frac{L_x}{L_y}\right) - \frac{S_x}{p_{L_x}} \left(\frac{L_x f_k + f_L K_x}{L_y K_y}\right)\right) s}{\left(\frac{c(L_x + L_y)}{X} - \frac{L_x}{X}\right) \left(\frac{K_x}{K_y} - \frac{L_x}{L_y}\right) - \frac{S_x}{p_{L_x}} \left(\frac{L_x f_k + f_L K_x}{L_y K_y}\right) - \frac{S_y}{p_{L_y}}} \quad (1)$$

where L_x and L_y are the original amounts of labor employed in industries X and Y , respectively; K_x and K_y are the original amounts of capital; X is the original amount of X produced; f_k and f_L are the original share of capital and labor, respectively, in the unionized industry; p_{L_x} and p_{L_y} are the original prices of labor in industry X and Y , respectively; S_x and S_y are the elasticities of substitution between labor and capital in industries X and Y , respectively, the presumptive signs of which are negative; and c is the proportion of money income spent on X (that is, if N is the total value of income measured in terms of the numeraire, $p_x X = cN$).

This change in the wage rate, or price of labor, is relative to the return on capital, p_K . In the derivation of (8), the return to capital is taken as the numeraire so that $dp_K = 0$. While the sign of dp_L does not indicate what happens to wages relative to the price of the two commodities X and Y , the change in the prices of these two commodities p_x and p_y can be readily calculated:

$$\begin{aligned} dp_x &= f_L(dp_L - s) \\ dp_y &= g_L(dp_L) \end{aligned}$$

¹ This relation is based on the following general equilibrium system: a demand function for X which assumed that expenditures on X are a constant proportion of income; a supply relation (production function) for X ; a factor demand relation for each industry where factor proportion in each industry are a function of relative factor prices; two price relations that express p_x and p_y as a function of factor prices, and a overall factor endowment relation for each industry. Also by convention the return to capital is taken as the numeraire. For a detailed exposition and solution of this model see A. C. Harberger, *op. cit.*

As f_L and g_L , the shares of labor in industries X and Y respectively, are both less than one, an increase in p_L implies that the wage rate will increase in terms of both X and Y .

It follows very simply from (1) that if X is labor intensive,

$$\left(\frac{K_x}{K_y} - \frac{L_x}{L_y}\right) < 0$$

or if the two industries are of the same factor intensity, dp_L will be positive.² Consider the case where the factor intensities are the same

$$\frac{K_x}{K_y} - \frac{L_x}{L_y} = 0.$$

Here expression (1) reduces to

$$dp_L = \frac{-\frac{S_x}{p_{L_x}} \left(\frac{L_x}{L_y} f_k + f_L \frac{K_x}{K_y} \right) s}{-\frac{S_x}{p_{L_x}} \left(\frac{L_x}{L_y} f_k + f_L \frac{K_x}{K_y} \right) - \frac{S_y}{p_{L_y}}}.$$

As the presumptive signs of S_x and S_y are negative, it immediately follows that dp_L is positive. Even if X is capital intensive, the subsidy will increase the wage rate unless the elasticity of substitution in the subsidized industry is quite small.

Consider the case where the two sectors are originally the same size, $c=0.5$, and $f_K=0.4$ and $g_K=0.2$. Hence $K_x/K_y=40/20$, $L_x/L_y=60/80$ and $X=100$.³ Substituting these values in the numerator of (1), we obtain

$$dp_L = [-.3(2-.75) - S_x(.75 \times .4 + .6 \times 2)]s.$$

This expression will be positive as long as $|S_x| > 0.25$. Given the existing estimates of the elasticity of substitution, it is likely that this inequality will be satisfied.

² The term

$$\left(\frac{c(L_x + L_y)}{X} - \frac{L_x}{X} \right) \left(\frac{K_x}{K_y} - \frac{L_x}{L_y} \right)$$

which represents the "demand effect" of a change in factor prices, is more difficult to interpret. As the size of this term is ambiguous, the sign of the denominator is ambiguous, making possible a number of paradoxical results. For example, when S_x and S_y are small relative to the demand terms in the numerator and denominator, dp_L/Xds may be negative (positive) when X is labor (capital) intensive, implying that the output of X will increase, not decrease, when a wage subsidy is paid to labor in X . To have produced this result, the original equilibrium must have been unstable, and we exclude it from further consideration.

³ These numbers are roughly representative of the U.S. economy for the years 1953-59. See Johnson and Mieszkowski, page 551.

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