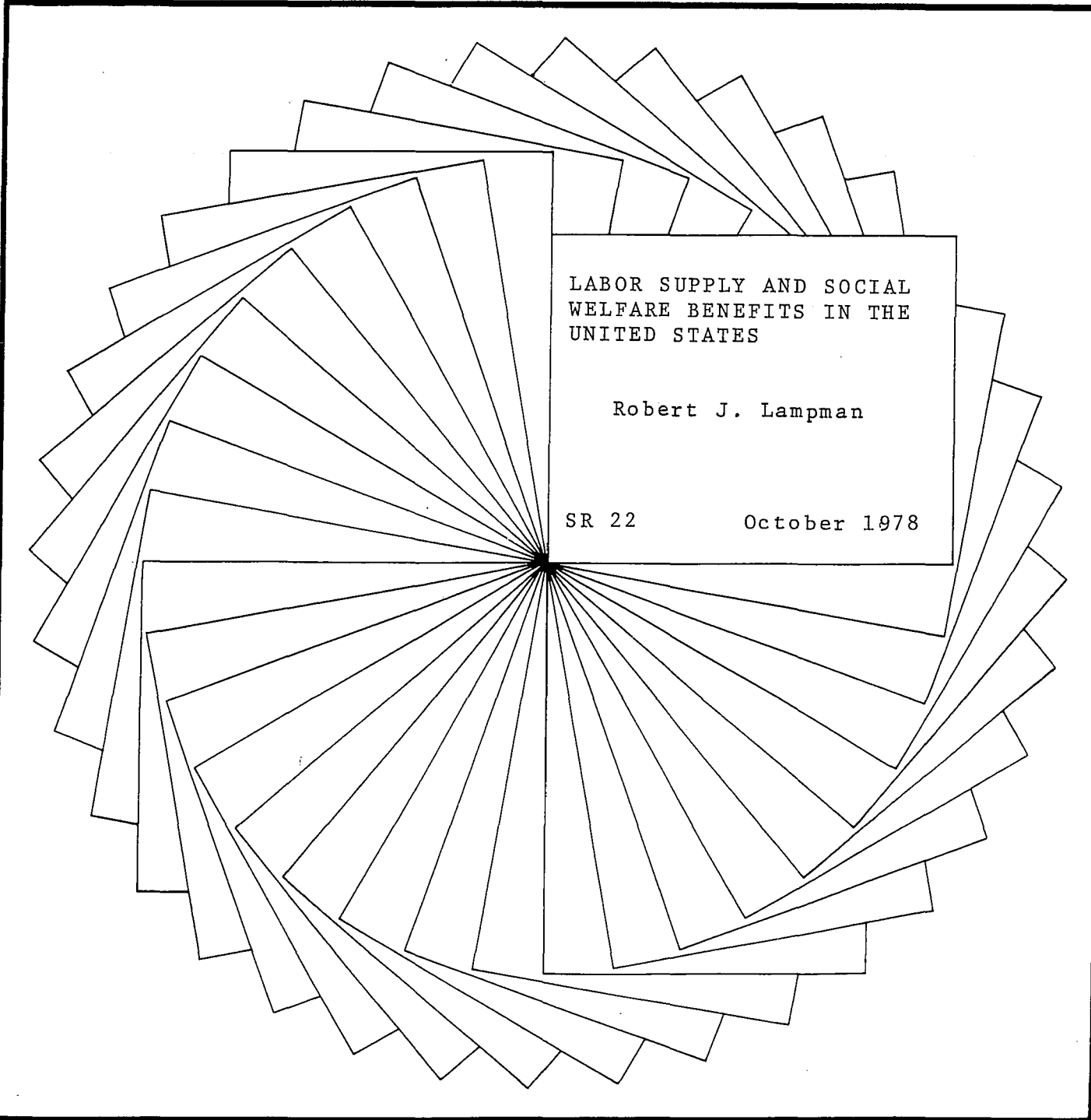


University of Wisconsin-Madison

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LABOR SUPPLY AND SOCIAL  
WELFARE BENEFITS IN THE  
UNITED STATES

Robert J. Lampman

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## ABSTRACT

Social welfare benefits, including cash and in-kind public payments for income maintenance, health care, education, and welfare services amounted to 9% of gross national product (GNP) in 1950 and 21% in 1976. Would the current labor supply be larger than it actually is if that increase in social welfare spending had not occurred and, if so, by how much?

In an effort to isolate the contribution social welfare expenditures may have made to a reduction in labor supply, we look first to partial equilibrium theory and second to correlations by empirical researchers. Following the lead of theorists, we divide the social welfare system into two elements: (1) the lump-sum grants and the guarantees in income- or earnings-conditioned grants, all of which add to the **nonlabor income** of beneficiaries; and (2) the taxes that go to finance the benefits and the benefit-reduction rates, both of which combine to reduce net wage rates. Further, we note that the greater part of social welfare benefits are directed to aged and disabled persons and to female heads of families.

Theory tells us that the substantial increase in **nonlabor income** should have induced a withdrawal or hold-down of labor supply but it cannot tell us the direction of the effect of the net wage rate reduction. Empirical studies based on fragmentary data suggest that the extra non-labor income may well have depressed the 1976 labor supply. The effect of the net wage rate reduction would appear to be in the same direction

## 1. INTRODUCTION

Since the end of World War II, public programs benefits for income maintenance and health care, education, and certain other goods and services, have risen from an amount equal to 9% of gross national product (GNP) to 21% of a much expanded GNP (see Table 1). Over the same time period, organized private wealth benefits, most notably pension and health insurance benefits, have moved in a parallel fashion, amounting to about 4% of GNP in 1976.

These benefits all augment the income of recipients even though only about half of them are paid out as money. Some of the nonmoney items are vouchers that can be used only to purchase particular things, as in the case of food stamps, and others take the form of a governmentally provided service, such as schooling. There is at least a strong likelihood that if these goods and services were not subsidized or provided by governments or employers, then people would try to buy some quantity of each of them out of their earnings. In other words, these publicly financed noncash benefits are substitutes for private goods. By definition, the list of benefits leaves out what are called "pure public" or "nonrivalrous" goods, that is, items which yield nonexcludable, direct benefits to all people. Examples of such goods are national defense and law and order. The line between goods and services that should and should not be counted as social welfare benefits is a rather shaky one.

These money and nonmoney benefits come to households as either a subsidy to the wage rate or as nonlabor income. That is, the recipient does not get them as a market return for labor in the current period.

Table 1

## Public Expenditures for Social Welfare Purposes, 1950 and 1976

Type of Expenditure	1950	1960	1970	1976
	(billions of dollars)			
Total <sup>a</sup>	23.5	52.3	145.9	331.4
Income Maintenance (cash)	9.8	26.3	60.8	156.7
Health	3.1	6.4	25.4	58.8
Education	9.4	18.0	51.9	91.8
Welfare and Other Services <sup>b</sup>	1.3	1.6	7.8	24.1

## Expenditures as Percentage of Gross National Product

Total	8.8	10.5	15.2	20.6
Income Maintenance (cash)	3.6	5.3	6.3	9.7
Health	1.2	1.3	2.7	3.6
Education	3.5	3.7	5.4	5.7
Welfare and Other Services	.5	.3	.8	1.5

<sup>a</sup>In addition, private funds are expended for these purposes. In 1976, such private expenditures amounted to \$117.9 billion, or 7% of GNP. Of this amount \$60 billion, or 3.6 percent of GNP, were private pension and employer-sponsored health insurance benefits.

<sup>b</sup>Includes food stamps, surplus food for the needy and for institutions, child nutrition, institutional care, child welfare services, economic opportunity and manpower programs, veterans' welfare services, vocational rehabilitation, and housing.

Source: Social Security Bulletin, January 1977, Table 10, p. 17.

Households do pay for them, however, via taxes, or, in the case of private benefits, via employer contributions. It is at least arguable that the existence of such benefits may reduce work effort at two points, one where the beneficiary receives the nonlabor income, and the other where the worker suffers a wage loss because of the tax or contribution. Following this line of thought, many people see a conflict between the "welfare-state" goals of security and adequacy of income and minimum levels of necessary services for all, on the one hand, and the high employment required for economic progress on the other hand.

In the following discussion, we focus on the issue of how the quantity of labor may be affected. It should be noted, however, that social welfare benefits and the payments to finance them may have other direct and indirect effects. They may alter the size of distribution of income; and they may moderate cyclical swings in employment and output. By encouraging more expenditure on education and health care, they may improve the quality of labor. They may lower the intensity of work effort by, for example, changing people's willingness to make geographical or occupational moves. Such benefits may alter the propensity of households to save and hence shift the national balance between consumption and investment. Further, they may, by distorting choices in labor and consumer markets, impose what is called an "excess burden," i.e., an unnecessary loss of worker surplus or consumer surplus, on households. Finally, this set of benefits may induce changes in the size and economic role of the family. A full evaluation of social welfare expenditures would include an inquiry into all these possible outcomes and a weighing of the desired versus the undesired outcomes.

As noted, this paper examines only one hypothesis concerning the welfare state, namely, that increases in the relative importance of social welfare spending cause reductions in the quantity supplied. More specifically, the question is: Would the current labor supply be larger than it actually is if the great increase in welfare spending had not occurred?

## 2. THE RECENT CHANGES IN LABOR SUPPLY

The supply of labor did not change dramatically in the period under study. The employment ratio went up from 55 in 1950 to 57 in 1977. Similarly, the civilian labor force participation rate (LFPR) rose from 59 to 62% (see Table 2). This overall change results from a decline of the labor force participation of men from 86 to 78% and a sharp rise in participation by women from 34 to 48%.

The measured rise in the overall participation rate is doubtless somewhat greater than the rise in full-time-equivalent participation. This is because women are more frequently part-time employees than men, and also because the number of young and the old, who also contribute disproportionately to part-time work, has increased faster than the rest of the population (see Table 3). This point is underscored by the fact that average hours worked per employee did show a decline. In all private employment the weekly average fell from 39.8 hours in 1950 to 36.2 in 1976. Manufacturing, mining, and contract construction showed no decline, but all other industry divisions did (U.S. Dept. of Labor, 1977, p. 221). From these data, we conclude that there probably has been a slight relative decline in the supply of market labor. (If we were able to account for a likely decline of homework by married women, we might find a sharper decline of market and nonmarket labor supply.)

Table 2

Civilian Labor Force Participation Rates, Employment and Unemployment  
Rates for Selected Years 1950-1977

Year	Civilian Labor Force Participation Rate			Civilian Employment Rate <sup>a</sup>	Unemployment Rate
	Total	Males	Females	(Percent)	
1950	59.2	86.4	33.9	55.2	5.3
1960	59.4	83.3	37.7	54.9	5.5
1970	60.4	79.7	43.3	56.1	4.9
1977	62.3	77.7	48.4	57.1	7.0

<sup>a</sup>The percentage of the working-age population that is employed in civilian jobs.

Source: Economic Report of the President, Together with the Annual Report of the Council of Economic Advisers, U.S.G.P.O., 1978, p. 228.



Table 3

Total Population 16 Years of Age and Older, by Age, 1950 to 1980

Age	1950	1960	1970	1980 (projected)	Percentage increase, 1950-80
Total, 16 years and over	109,141	121,814	142,956	167,659	54
16 to 19	8,542	10,698	15,275	16,682	96
20 to 24	11,680	11,116	17,184	20,908	79
25 to 34	24,036	22,911	29,294	36,157	50
35 to 44	21,637	24,223	23,142	25,702	19
45 to 54	17,453	20,581	23,310	22,640	29
55 to 64	13,396	15,627	18,664	21,047	57
65+	12,397	16,658	20,087	24,523	105

Source: Employment and Training Report of the President, U.S.G.P.O., 1977, p. 252.

Table 4  
 Civilian Labor Force Participation Rates for Males 16 Years and Over,  
 by Race and Age, Selected Years, 1950 to 1976

	1950	1960	1970	1976
	(Percent)			
White				
Total, 16 years and over	86.4	83.4	80.0	78.4
16 and 17	50.5	46.0	48.9	51.8
18 and 19	75.6	69.0	67.4	73.5
20 to 24	87.5	87.8	83.3	86.2
25 to 34	96.4	97.7	96.7	95.9
35 to 44	97.7	97.9	97.3	96.0
45 to 54	95.9	97.9	94.9	92.5
55 to 64	87.3	87.2	83.3	75.4
65+	45.8	33.3	26.7	20.3
Black and Other				
Total, 16 years and over	85.9	83.0	76.5	70.7
16 and 17	57.4	45.6	34.8	30.2
18 and 19	78.2	71.2	61.8	55.6
20 to 24	91.4	90.4	83.5	78.4
25 to 34	95.6	96.2	93.7	90.6
35 to 44	96.2	95.5	92.2	90.6
45 to 54	95.1	92.3	88.2	83.4
55 to 64	81.9	82.5	79.2	65.7
65+	45.5	31.2	27.4	19.7

Source: Employment and Training Report of the President, U.S.G.P.O., 1977,  
 pp. 142-144.

The LFPR of men fell due to declines in specific groups, namely, black men of all ages, and white men of age 55 and older (see Table 4). Offsetting the declining participation of men was the rising LFPR of women in every age group except 65 and over. A most striking increase in participation (not shown in Table 4) was registered by married women with husbands present, whose LFPR went up by 21 points, from 24 to 45%. The possibility of joint decisions on labor supply is suggested by the simultaneous drop in the LFPR of married men with wife present from 92 to 82% (U.S. Dept. of Labor, 1977, pp. 189-190).

These divergent work trends of men and women were apparent in the years antecedent to the "explosion" of welfare state benefits. Men have tended to start work later and retire earlier, and women have tended to participate increasingly in market work since at least the turn of the century. The "liberation" of women from home work is attributable in some measure to the changes in fertility, to changes in laws and customs imposing responsibilities for relatives outside the nuclear family, and to the invention of appliances that ease the burden of household chores. It may also be due in some part to shifts in the structure of work opportunities away from agriculture and toward the service occupations. The trends toward less work by men may be explained in part by changes in laws related to work, such as child labor and school-leaving age laws, and to falling relative prices of goods, such as travel and television, which are complementary to leisure. But, perhaps the primary reason to suspect that the trend toward less work began and might have accelerated even in the absence of a rise in social welfare expenditures is that wage rates,

family incomes, and accumulated savings were rising. It is plausible that as people get richer, they tend to take more leisure. We will return to this particular proposition later.

All these "explanations" for observed changes in labor supply overlap and are entangled with the hypothesis that labor supply has responded negatively to the expansion of social welfare benefits. Without that expansion, would the labor supply of men have declined less, and/or would that of women have increased more? It is, of course, quite impossible empirically to represent the counterfactual general equilibrium appropriate to answering that question. We are driven to (1) deductive analysis of a partial equilibrium variety and (2) empirical testing of hypotheses drawn from theory against fragmentary data.

### 3. THEORY OF LABOR SUPPLY EFFECTS OF TAXES AND BENEFITS<sup>1</sup>

We turn now to a brief review of the conventional price-theoretic approach to the question of how taxes and benefits financed by taxes affect the supply of labor. We assume that the effects of the private contributions and benefits referred to above are similar to the effects of the public programs they resemble.

Many theorists begin with the assumption that "the" labor supply curve slopes upward and to the right. We will go along with this convention but we must note that the conclusions about the likely effects of some taxes and some benefits depend essentially on that assumption.

Suppose that a tax is imposed on wages and that the wage rate net of tax therefore falls. One would expect, following the assumption stated above, that the worker would move back and down his pretax supply curve.

The market wage would fall by less than the amount of the tax and, most interesting to us here, the quantity of labor employed would fall. This is consistent with imagining that workers have decided that since leisure "costs" less than it did before the tax, they will take more of it. This substitution effect overrides their understanding that if they want to maintain their pretax purchasing power they must work more hours. The latter understanding is referred to as an income effect, which, in this case, only partially offsets the substitution effect of the tax.

This theoretical outcome and balance of income and substitution effects does not follow if the labor supply curve is assumed to be inelastic with respect to the wage rate or is seen as backward bending. In the first case, a tax on wages would not affect the quantity of labor offered or employed at the pretax or nominal wage. In the second case, such a tax would induce more work effort than was forthcoming before the tax was imposed (see Figure 1, Panel A).

The type of benefit that is obverse to the tax on wages is a subsidy to wages. Here, assuming that the labor supply curve slopes upward and to the right, the result is that the worker will move up and out his supply curve and offer more labor at the presubsidy wage rate. The designs of the wage tax and the wage subsidy are shown in Figure 2, Part A. Wage rates, subsidies, or earnings subsidies are relatively rare in the American system of transfers, but are represented by the Earned Income Credit of 1976, the WIN tax credit of 1972, and the Employer Tax Credit of 1976.

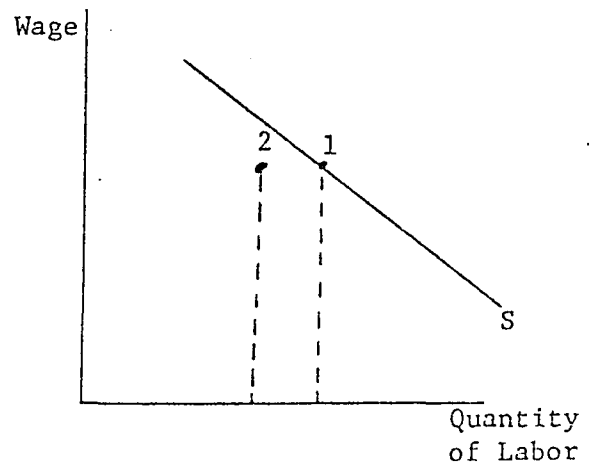
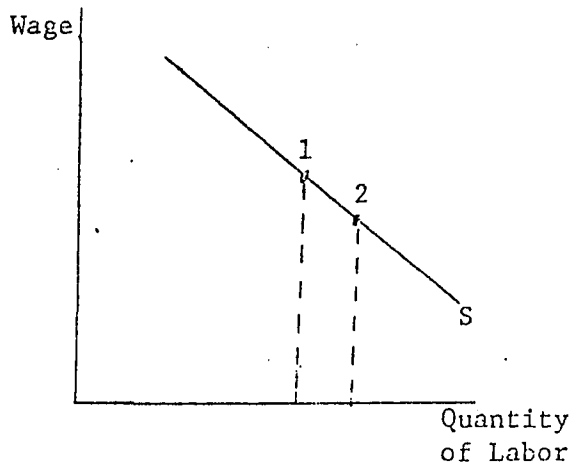
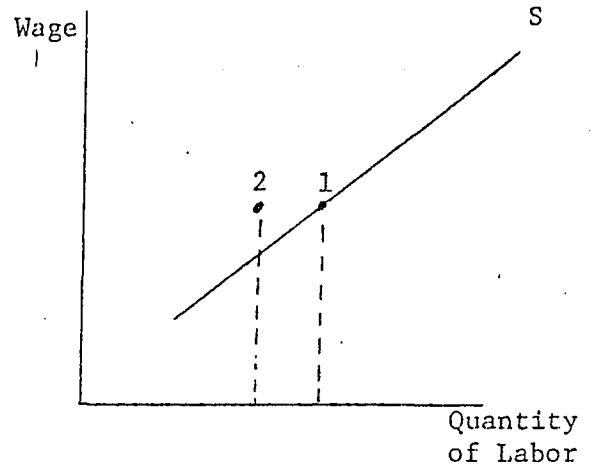
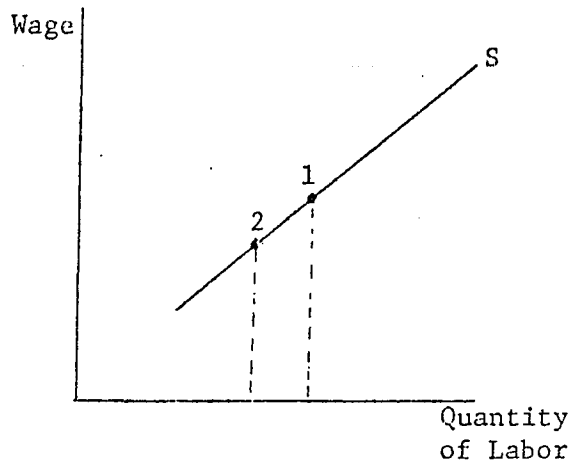
A more common design for a social welfare benefit is the offer of a lump-sum grant unrelated to wages. An example of this is the provision of

Figure 1

Responses to Wage Rate Reductions and to Additions to Non-Employment  
Income, Assuming Two Different Supply of Labor Curves

Panel A: Wage Rate Reduction

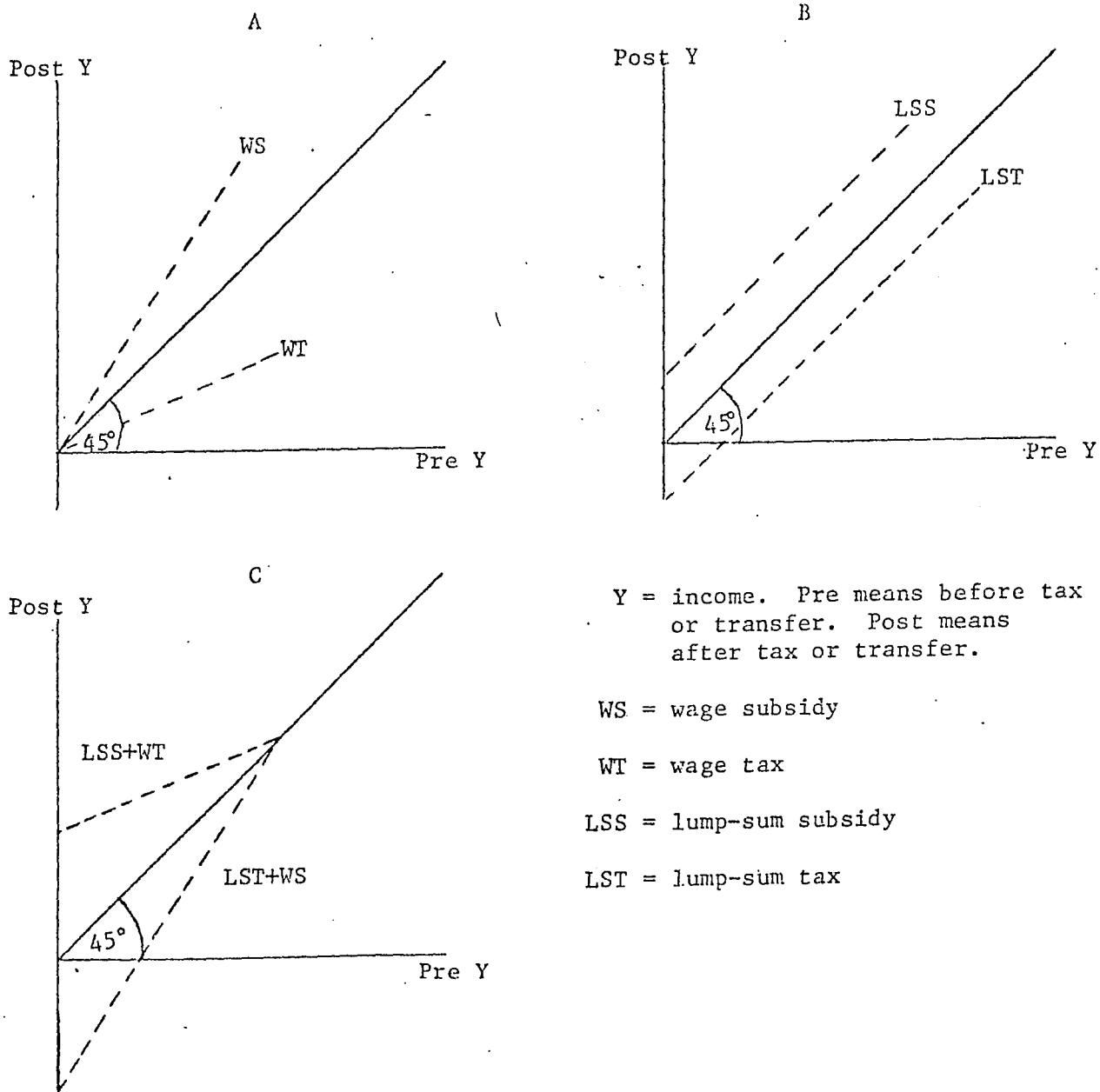
Panel B: Addition to Non-Employment  
Income



In all diagrams, Point 1 is position before change, Point 2 is position after change.

Figure 2

Designs for Taxes and Benefits Showing Relationship to Earnings



Y = income. Pre means before tax or transfer. Post means after tax or transfer.

WS = wage subsidy

WT = wage tax

LSS = lump-sum subsidy

LST = lump-sum tax

free schooling to pupils without regard to the income of their parents. Such a benefit does not affect the wage rate but, rather, appears in the household budget as nonlabor income. To the extent the parents were paying for schooling before the lump-sum grant was initiated, one might suppose that they would believe that their living standard had gone up and that they could afford to work less. Since the wage rate is unaffected, we can represent this as a shift of the supply curve to the left (see Figure 1, Panel B). The outcome of a reduced labor supply would be the same whatever the slope of the labor supply curve. The obverse type of tax to a lump-sum benefit is, of course, a lump-sum tax (see Figure 2, Part B). Such a tax reduces nonlabor income and thereby induces or coerces more work effort.

Another design for social welfare benefits is to relate them inversely to wages. Here we can distinguish two variations. One, a work-conditioned design, would pay a benefit only in cases where a person is deemed totally unable to work because of physical disability or involuntary unemployment. One might think that, by definition, this benefit design cannot have a work disincentive effect. However, it may encourage some to feign inability to work or to find work. Moreover, it may have the indirect effect of freeing a relative of the burden of providing support for the direct beneficiary and hence adding to the relative's nonlabor income and thereby shifting his supply of labor curve to the left.

Only a small portion of all social welfare programs fit this description of a work-conditioned grant under which all benefits are denied if one has any earnings. Perhaps the best examples of such a design are



Unemployment Insurance in states that do not allow for partial benefits, and general assistance in some jurisdictions. AFDC for unemployed fathers has some characteristics of this design with its 100-hour work rule. It is true, however, that a work-conditioning philosophy enters into what we classify below as earnings-conditioned benefits to the extent that eligibility is restricted to persons who are either not able to work or are not expected to work. Only people in categories defined by health status, age, and child-rearing responsibilities are eligible for some benefits. Aside from schooling, the greater part of all social welfare benefits go to the aged. The logic of this is that people who are less able to work are not likely to reduce work effort very much and, moreover, whatever reduction does occur may not be viewed by society as a bad thing. However, unexpected differences in leisure responses to benefits do sometimes complicate the problem of achieving what voters will consider a just distribution of income and leisure.

The second variation of benefits related inversely to wages is one that may be called the income-conditioned or earnings-conditioned benefit. In this more common variation of the two the benefit is scaled to diminish to zero as earnings or total incomes rise (see Figure 2, Part C). This scaling may involve a benefit reduction rate of (as in the case of the "notch" in Medicaid benefits) more than 100%, or as is the case in the food stamp program, far less than 100%. The earnings-conditioned benefit may be seen as having two parts. One is a lump-sum grant, which adds to nonlabor income and is assumed to have an income effect of shifting the supply of labor to the left. The other part is the benefit-reduction

rate, which is like a tax in that it reduces the wage rate. This reduction in wage rate has both an income and a substitution effect and will, if the supply curve of labor slopes upward and to the right, move the beneficiary to a lower point on his new labor supply curve. Presumably, a 100% benefit reduction rate would lower the net wage to zero, and the beneficiary would offer little, if any, labor. Thus, both the lump-sum grant or guarantee and the benefit-reduction rate contribute to a reduction in work effort. This design is the obverse of a lump-sum tax in tandem with a wage subsidy (see Figure 2, Part C). The two parts of the latter design combined would theoretically provide the maximum incentive to work. To further promote work, one could add to this design a tax on goods that are complementary to leisure and a subsidy on goods, such as child day care, commuter service, and training, which are complementary to work.

The contemporary American system of transfers may be characterized as having three main features. (1) It is largely financed by what can be treated as taxes on earnings. (2) Its benefit side is dominated by lump-sum and earnings-conditioned grants. About one-third of all social welfare benefits, most notably certain education and health care benefits, are distributed on a per capita basis and are invariant to earnings. These fit the description given above of lump-sum grants. Almost two-thirds of all benefits -- some of them in cash and some in kind -- are earnings-conditioned benefits. These include Old Age and Disability Insurance, Unemployment Insurance, public assistance, food stamps, public housing, Medicaid, some higher education benefits, and child day care. Wage subsidies and work-conditioned benefits make up only small parts of

the overall total of social welfare benefits. (3) The greater part of earnings-conditioned benefits go to aged and disabled persons and to female heads of families.

#### Theoretical Discussion Summarized

Both the taxes that go to finance the benefits, and the benefit reduction rates in the earnings-conditioned benefits have the effect of reducing wage rates. The lump-sum grants and the guarantee element of the income-conditioned grants add to the non-labor income of beneficiaries. According to the theory reviewed above, a reduction in the wage rate will have the effect of reducing the quantity of labor supplied, assuming that the labor supply curve slopes upward and to the right. At the same time, an increase in nonlabor income will induce less work whether or not the labor supply curve slopes upward and to the right. One might guess that noncash benefits have less effect per dollar in this regard than do cash benefits, but all of the effects work in the same direction. It is this reinforcing of the work disincentive that leads to the conclusion that there is an inevitable trade-off between income redistribution and income growth and, in the extreme case where all earnings are taxed away and all goods are distributed free of charge to consumers, to a trade-off of free choice by workers. As one text puts it, "This, indeed, is the dilemma of utopian communism, where a person should contribute to the community's output according to his ability, and compensation (the distribution of goods among individuals) should be according to need. In the absence of a self-interest oriented economic motivation, another mechanism of work allocation and stimulus to effort would be needed (Musgrave and Musgrave, 1976, p. 487)." That "other mechanism" may be regimentation and coercion of workers.

However, theory cannot tell us how strong the effect of an increase in nonlabor income may be, nor can it tell us, since it does not establish the slope of the labor supply curve, the direction or the magnitude of the effect of a wage-rate reduction. Hence it is critical that we find empirical evidence of labor responses to wage rate changes and to additions to nonlabor income.

#### 4. EMPIRICAL STUDY OF LABOR RESPONSE TO NONLABOR INCOME

We note at the outset that empirical researchers have paid little or no attention to the question of how nonlabor income in the form of such in-kind, lump-sum benefits as education and health care may affect the quantity of labor supplied. However, many scholars have noted that women are influenced in their labor decision by the receipt of nonlabor income in the form of husband's income. It still seems to be the case that, all other things being the same, married women do less market work the higher their husbands' incomes, although that relationship is less strong than it once was. On the other hand, it is harder to establish that men's labor supply is influenced by wives' earnings (Flaim, 1977, pp. 16-18). We should also note that empirical studies have yielded widely divergent findings with respect to work response to cash social welfare benefits.

Program records from public assistance and social insurance files can be used to study the work effects of these types of nonlabor income. By comparing program records from two or more jurisdictions having varying levels of benefits, we may be able to measure a marginal change in work effort. Similarly, we may observe the before and after work effort associated with a change in benefits in one program in a single jurisdiction.

In both instances, one has to take account of variations across space or time in all relevant program characteristics and in all relevant environmental conditions and personal attributes. Cross sectional and longitudinal studies using program records have been done with reference to specific public assistance and social insurance program variations. They tell us, with varying degrees of credibility, that more people will apply for and receive assistance benefits if benefit levels are more generous, people will retire earlier if eligibility is extended to younger workers, and people will work less if unemployment insurance benefits are raised and extended for longer periods (Brehm and Saving, 1969; Gallaway, 1965; Ehrenberg and Oaxaca, 1976).

Household surveys of income by source, together with information on wage rates, hours worked, health status, age, sex, family status, school attendance and so on, provide another entree for econometric study of work response to nonlabor income. Such data enable one to compare the work behavior of those who have a high level of nonlabor income with those of like characteristics who do not. Numerous studies of this kind have been done using household survey data.<sup>2</sup> They vary as to methodology; some exclude spouses' earnings; other leave out work-conditioned benefits; most count social benefits net of the effect of benefit-reduction rates as nonlabor income. (The latter procedure, as opposed to counting the gross benefit, may result in an overstatement of the effect per dollar of nonlabor income.) Some exclude persons who are unable to work. All such studies find it hard to fill all the cells, so to speak. For example, most data bases provide few cases of people with low wage rates who have much private nonlabor income.

These studies all tend to find that work effort declines with increases in nonlabor income. The most recent, by Stanley Masters and Irwin Garfinkel (1978), finds a smaller response than do most earlier studies. According to Masters and Garfinkel each increase of \$1,000 in nonlabor income is associated with a reduction of 1% in the labor supply of prime-age, healthy men. This response is greater among aged persons, i.e., 10%. It is about 4% for women, and for young, single persons. The authors use these findings to simulate a negative income tax with guarantees at poverty-line levels and a 50% benefit reduction rate applicable only to intact, non-aged families. According to this simulation, the work effort of those eligible for benefits would fall by about 15%. The 15% change in work effort by the beneficiaries would amount to 2.5 % of the national total of work time.

None of these studies tell us much about how higher wage-earners respond to nonlabor income nor, as we noted earlier, about how people in general respond to nonmoney social welfare benefits. Empirical studies do, however, confirm the theoretical hypothesis that people do work less in response to provision of nonlabor income.

##### 5. EMPIRICAL STUDY OF LABOR RESPONSE TO WAGE-RATE REDUCTIONS

Theory tells us that social welfare benefits may discourage work in two ways, namely, by adding nonlabor income and by reducing the net wage rate by a combination of benefit-reduction rates and tax rates. What do empirical studies tell us about work response to reductions in wage rates?

The leading studies on this question have been done by Paul H. Douglas and his associates, who have estimated labor supply functions using time

series of hours worked per year in several industries and cross-section data on hours worked and labor force participation rates (Bowen and Finegan, 1969). Their major finding is that men's labor supply curve is highly inelastic and slightly backward-sloping with respect to wage rates. Other studies, including those by Jacob Mincer and Glen G. Cain, find that married women have a supply curve that slopes upward and to the right (Mincer, 1967; Cain, 1966). This would suggest that men respond one way to a wage rate reduction and women respond in another way. The difference is thought to be due to the fact that while men substitute leisure for work, women substitute market work for home work.

Three widely cited studies of the effects of changes in marginal tax rates on high-income earners reported no significant change in work effort (Sanders, 1951; Break, 1957; Barlow, Brazer, and Morgan, 1966). Thomas Sanders studied the effect of taxes on 160 executives in the United States. Break studied 306 solicitors and accountants in England, and Robin Barlow, Harvey Brazer, and James Morgan asked similar questions of 957 high-income individuals. These studies seem to confirm the Douglas finding that the supply of labor for men is inelastic.

Studies based on social welfare program changes yield mixed findings about the effects of benefit-reduction rates. One study found that Social Security recipients worked more when benefit-reduction rates were lowered. Another, reported in 1961, found that few welfare mothers responded to lower benefit-reduction rates in AFDC (Gallaway, 1966; Colorado Dept. of Public Welfare, 1961). The 1967 AFDC change from a 100% to a 67% benefit-reduction rate and more deductions for work expenses produced little change in the work effort of beneficiaries.

Studies based on household surveys have not established that variations in benefit-reduction rates make much difference in work supplied by men. The Masters and Garfinkel study (1978) referred to earlier did estimate, however, that a 10-percentage-point increase in the benefit-reduction rate would lead female heads of families to reduce work effort by 2%, and wives to reduce work effort by 4 %. Data limitations prevent estimates of the effect of benefit-reduction rates approaching 100%. The method used in this study is to compare the work behavior of similar individuals who have the same level of nonlabor income but different wage rates. The different wage rates are a stand-in for varying benefit-reduction rates. Not surprisingly, surveys provide few examples of people working at a zero wage rate.

Experiments with negative income taxation have yielded some new evidence on labor supply responses. Unfortunately, the results to date do not enable separate estimates of response to nonlabor income and wage rate reductions. The first of these experiments, which is referred to as the New Jersey experiment, concentrated its attention on families headed by able-bodied, prime-age men. The main finding of the 3-year experiment was that in the experimental families, considered as a group, male family heads reduced hours worked by 6% and wives by 30% (Watts and Rees, 1977). Again, data limitations prevent a good measure of the separate work effects of high benefit-reduction rates. There are reasons to doubt the point estimates of the results of an experiment of this type. It was of only 3 year's duration and was applied to people in scattered locations. Hence, there was no opportunity to observe changes in the labor market or in the community that might accompany a nation-wide, permanent benefit program.



Moreover, the New Jersey experiment suffered from the "contamination" by the AFDC-U program, which was introduced in New Jersey after the experiment was underway (Pechman and Timpane, 1977).

The Seattle-Denver experiment has yielded similar findings of disincentives to work associated with a negative income tax. Among the families that were offered a guarantee at the poverty-line and a 50% benefit-reduction rate, husbands reduced hours of work by 6% and wives by 22%. This amounted to a 10% reduction of work effort by all husband-wife families receiving benefits or a 3.5% reduction by all husband-wife families, including those who receive no benefits (Keeley et al., forthcoming). The latter figure is comparable to the Masters-Garfinkel simulation, cited above, of a 2.5% reduction of work time.

We conclude from this review of empirical studies of the effects of changes in wage rates that men do not work much, if any, less in response to a "moderate" reduction in wage rates, but that married women and female heads of families do work less in response to such a change.

## 6. APPLICATION OF FINDINGS TO LABOR SUPPLY

As we stated earlier, the present-day American system of transfers directs the greater part of its cash and in-kind benefits to the minority of the population who are aged (62 and older), disabled, or in broken families. Table 5 shows that 25% of the population aged 16 years and older are in these categories. We estimate that people in those categories receive about 69% of social welfare expenditures. The other 75% of the population get about 31% of total expenditures, but most of that is in the form of education benefits which are not earnings-conditioned. This characteristic of the transfer system means that the greatest disincentive

Table 5

Distribution of Social Welfare Benefits, by Type, Among Categories of Population, 1976

	Total Benefits	Earnings-Conditioned Benefits	Other Benefits	
			Health	Education
Social Welfare Benefits (in billions of dollars)	331	222	17	92
Population 16 Years of Age and Older, by Category	Percent of Population	Percent of Benefits		
Aged 62 and Older	17	51	68	90
Disabled Under Age 62	5			5
Female Heads with Children	3	18	25	0
All Others	75	31	7	10
				92

effects are aimed at categories of people who are not expected to work. Conversely, those who are most clearly expected to work are relatively shielded from disincentives of nonlabor income and benefit-reduction rates.

Table 6 gives us a partial picture of how the system of taxes and transfers impacts on groups of households in the several pretransfer income classes, by household type. It shows that average transfers net of taxes paid are particularly large relative to income in the lowest income class, that the breakeven point (where transfers equal taxes) is well below the median income for non-aged couples and single persons, and that benefit-reduction rates and tax rates combined (referred to in the table as "impact rates") are above 40% for non-aged households below the breakeven points. It also suggests the degree to which the system favors the aged. However, this finding is somewhat misleading since education benefits are excluded.

A comparison with the 1961 system of taxes and transfers is afforded by an earlier study, which examined only money transfers and an assumed 7% proportional tax. This study represented the 1961 picture as follows for four-person families. (Compare with "couples with children" in Table 6.) Net benefits were \$1650 (in 1961 prices) for the lowest income class; the breakeven point was at about \$5,000 of pretransfer income, and the combined benefit-reduction and tax rates were about 30% for households below the breakeven point (Lampman, 1966).

Nonlabor income in the form of social welfare benefits amounted to \$331 billion in 1976. This figure is \$187 billion greater than it would have been if such benefits were equal to 9% of GNP as they were in 1950. Since then per capita benefits rose from \$355 to \$1,514 in constant, 1976, prices. Breakeven points do not appear to have changed much relative to

Table 6

Net Impact of Transfers and Taxes Per Unit, and Impact Rates, by Pre-Transfer Income Class  
and by Type of Household, 1976

	Number of Units (millions)	Income Class									
		Under \$1,800		\$1,801 - \$7,900		\$7,901 - \$14,000		\$14,001 - \$21,700		Over \$21,700	
		Impact	Marginal Rate	Impact	Marginal Rate	Impact	Marginal Rate	Impact	Marginal Rate	Impact	Average Rate
Aged Groups											
Couples	6.10	\$ 7315	11%	\$ 6895	29%	\$ 5049	24%	\$ 3454	31%	\$- 3911	10%
Single Persons	7.96	4441	18	3750	23	2474	30	440	32	- 6087	16
Nonaged Groups											
Couples with Children	27.24	5144	41	2595	48	- 244	32	- 2259	27	- 6385	19
Couples without Children	14.25	5114	52	2343	44	- 366	33	- 2516	29	- 7260	21
Single Persons	13.63	2070	44	135	33	- 1783	29	- 3596	35	- 9400	28
Mothers with Children	5.22	5565	58	3047	46	406	18	- 731	22	- 4655	13

Source: Harold Watts and Felicity Skidmore, "An Update of the Poverty Picture Plus a New Look at Relative Tax Burdens," Focus (Institute for Research on Poverty Newsletter), vol. 2, No. 1, Madison, Wisconsin, Fall 1977, pp. 5 ff.

Note: Transfers and taxes included are as follows: social insurance cash benefits, government employee pensions, veterans benefits, public assistance, in-kind transfers (excluding education), and income taxes and half of Social Security taxes.

median incomes. However, the share of benefits that are earnings-conditioned has risen from 55 to 67% and benefit-reduction rates are somewhat higher.<sup>3</sup> Moreover, since 1950, tax rates have had to rise to accommodate the expansion of social welfare benefits from an amount equal to 9% of GNP to 21%. This latter point alone means that net wage rates could have been 12% higher in 1976 than they in fact were.<sup>4</sup>

We can make only a very rough guess as to how the considerable increase in guarantees, benefit-reduction rates, and tax rates may have affected the size of the labor supply over the last quarter of a century. We are not aware of any efforts by anyone else to supply a quantitative answer to this particular question. Our guess is that the quantity of labor supplied in 1976 would have been about 7% greater than it actually was if social welfare expenditures had been maintained at 9% of GNP.

We come to that number by noting, first, that the greatest increases in disincentives have been aimed at relatively small constituents of the labor force, namely, the aged, the disabled, and the female heads. For the larger groups in the labor force, the extra nonlabor income and the reductions in net wage rates have been relatively small (see Table 7, column 2).

Second, we apply the findings of empirical studies reviewed above that some groups are more responsive than others to a given stimulus. The findings indicate that older men and disabled persons are highly responsive to increases in guarantees and that women are moderately responsive. Additionally, women are more responsive than men to reductions in wage rates (see Table 7, column 3).

Table 7

Estimation of Size of 1976 Labor Supply if Social Welfare Benefits were on Scale of 1950

	Actual Numbers in Civilian Labor Force, 1976 (in millions)	1950-1976 Increase in Disincentive to Work	Responsiveness to Disincentive	Hypothetical Increase in Labor Force Full-Time Equivalents (in millions) if Benefits were on Scale of 1950
Age 62 and Over	6	High	High	2.0
Disabled Under Age 62	2	High	High	.7
Female Heads with Children	2	High	High	.7
Age 18-24	19	Low	Moderate	1.0
Other Women	25	Low	High	2.5
Other Men	41	Low	Low	.4
Total	95			7.1

We arrived at the numbers in column 4 of Table 7 by the following process. For people aged 62 and over we assumed that guarantees went up \$3,000 and that the labor supply response is -10% for every \$1,000 increase in nonlabor income and -1% for every 10% increase in tax rate. Those with current earnings far above their Social Security breakeven levels are relatively unaffected. Hence, we estimate that labor supply for this group would have been a third, or 2 million persons greater, than it actually was. The same reasoning was applied to the disabled.

By far the largest part of the increase of social welfare spending has been directed to the aged. And, as we noted in Table 4, the most remarkable drop in labor force participation rates occurred among men aged 65 and older. It is undoubtedly the case that some part of this drop, and of the lesser drop for those aged 55 to 64, is due to the increased availability of public and private benefits in the form of retirement, disability, and health care benefits (cf., U.S. Council of Economic Advisors, 1976). Retirement benefits replace more than half of net earnings for workers in low- and middle-income ranges and induce many to retire earlier than otherwise. Both the relatively high guarantees and retirement tests of earnings discourage work by aged persons, and particularly for those with lower earnings. However, the loss of labor time associated with retirement may be at least partially offset by extra preretirement labor time expended by men, and perhaps by their wives, in anticipation of extra needs due to a longer time in retirement. Further, some of the effects of Social Security may have been to reduce private saving and private intra- and inter-family transfers.

Female heads with children may be eligible for survivors' benefits in Social Security, for Aid to Families with Dependent Children, and for Medicaid and food stamps. These types of benefits have increased substantially. At present over three-fourths of the 4.4 million women who head families with children (this excludes women who head subfamilies) receive AFDC benefits. These "welfare mothers" have only somewhat higher labor force participation rates than do mothers with children present. It is likely that guarantees that are high relative to women's potential to earn and high cumulative benefit-reduction rates do induce many female heads to work less away from home than they otherwise might. (It is also alleged that AFDC encourages family desertion by fathers, who then do less work than others.) For female heads we assume that the guarantee went up by \$3,000 and combined benefit reduction rates went up by 20%. We further assume that female heads are highly responsive to higher guarantees -- labor supply shrinks by 4% per \$1,000 of nonlabor income -- and benefit-reduction rates -- 4% less labor for each 10% increase. From this we conclude that the labor supply for this group would have been .7 million, or one-third greater than it actually was in 1976.

Some young people aged 18-24 may receive survivor benefits if they are still in school. This may influence some to work less, and so may the subsidy to higher education. The number of students in higher educational institutions rose from under 3 million in 1950 to over 9 million in 1976. Some of that increase in enrollment would have occurred without the extra subsidy, as parental income, including the earnings of mothers, went up.



Enrollments might have risen even without such a rise in income simply because people became more interested in higher education. But it is probably fair to say that the extra subsidy contributed to the reduction of labor time from young people. That loss of labor time was perhaps partly offset by an induced increase of labor by the parents of those who, in the absence of the extra subsidy, would not be students. Such extra effort was necessary to cover the living costs of those who stay in school longer. Young people appear to be moderately responsive to work disincentives, so we estimate a 5% increase in their labor supply would accompany the assumed change in benefits and taxes.

The categories identified as "other women" and "other men" in Table 7 are not likely to be eligible for many benefits other than unemployment insurance, food stamps, and education benefits for their children. They are, of course, liable for payment of the 12-point increase in taxes associated with higher benefits. We assume that the "other women" have the same high responsiveness to disincentive as do female heads. However, since they tend to receive such a small quantity of transfers, we estimate only a 10% increase in their labor supply. It is interesting to note that, if social welfare expenditures were smaller, today's women would have less nonlabor income in the form of social welfare benefits (thus urging them to work more), but they would have more nonlabor income in the form of husbands' earnings net of taxes (thus urging them to work less).<sup>5</sup> "Other men," according to empirical studies, have a very low labor supply responsiveness to nonlabor income and to taxes on wages. Moreover, they tend to receive a relatively small quantity of transfers. Hence, we enter only a nominal one percentage point change in their labor supply.

Our best guess is that the total "loss" of labor time due to the increase of social welfare expenditures from 9 to 21% of GNP is on the order of 7% of the 1976 total of labor time. Most of that loss is allocable to those who are aged and disabled, women, or young people. It is perhaps unnecessary to point out that output thus "lost" is considerably less than 7% of GNP.

#### 7. RELATIONSHIP OF SOCIAL WELFARE BENEFITS TO MEASURED UNEMPLOYMENT

Our "guestimate" that the increase of social welfare spending may have induced a "loss" of about 7% of potential labor time does not indicate how that time breaks down into lowered labor force participation rates, increased unemployment rates, and reduced hours worked by those who are counted as employed.

It is likely that all three of these numbers are affected by social welfare benefits. In general, such benefits weaken the direct and indirect beneficiaries' attachments to the labor market by softening the penalties for not working and by reducing the rewards for extra work. Presumably the offer of increased nonlabor income and the simultaneous reduction of net wage income converts some potentially full-time, full-year workers into part-time, part-year workers. It enables and encourages people to make more gradual transitions from high school to the world of work, to stay out of the labor force while recovering from the loss of a father, and to move more gradually out of the labor force into retirement. The increase in social welfare spending may have restrained the rate of increase of women's participation in the labor market. To that extent, such spending and taxing has kept the number of women who are still in

transition toward a new and permanently higher level of market-labor activity at a higher level than it would otherwise be (Ross and Sawhill, 1975).

The size of the measured labor force is most clearly reduced by the increase in retirement and disability benefits. At the same time, however, such benefits may encourage a rise in the number of aged and disabled persons who are working part time or part year in order to supplement social benefits. Since limited work of this sort is associated with more frequent job searches, it is likely that the number of unemployed persons among those populations may rise. The same reasoning perhaps applies to AFDC and Unemployment Insurance (UI). The relatively high rate of earnings replacement (where the benefit is related to wages net of taxes on earnings and expenses of working) attracts people on to the benefit roles, the work-test keeps them in the measured labor force, and the high benefit-reduction rate discourages extra hours at work. Several studies suggest that recent UI changes affecting the labor supply side may have added as much as one-half a percentage point to the unemployment rate. Other studies suggest that job-search requirements recently imposed with respect to AFDC and food stamps may have added a somewhat smaller amount to the measured unemployment rate (Hamermesh, 1977; Cagan, 1977).

Increased outlays for schools, associated with greater enrollments, do not appear to have reduced the labor force participation rates of 16 to 24-year-olds. However, they have probably contributed to higher unemployment rates and shorter hours in this age group. On the other hand, increased enrollments in manpower training and work-experience programs add people

to the labor force and to the number counted as employed. In 1976, 3% of the labor force was enrolled in such programs.<sup>6</sup>

In offering these several speculations about the ways in which social welfare spending may alter conventional labor market measures, we are painfully aware of the partial nature of the analysis that underlies them. In reality, there are numerous interactions and intertemporal adjustments among family members and between public and private transfers which we are unable to account for. Moreover, there may have been important changes on the demand side of the labor market which we have not examined.<sup>7</sup>

Another difficulty is the lack of congruence between the concepts customarily used in analyzing the state of the labor market and those used in discussing the determinants of labor supply. The unit for counting the labor force and unemployment is, of course, the individual, while the approach used by labor supply analysts underlines the significance of the family unit. (Wives now earn 15% of total family income.) The time period in labor force measurement is a week, but it is usually a year or longer in studies of labor supply. Further, the two approaches differ in the concept of income that is used. While labor market analysts consider only wages, labor supply analysts emphasize the significance of nonwage components of income, including home production and leisure. (At the same time, we note the incompleteness of some labor supply studies that relate quantity of labor supplied to wages unadjusted for in-kind benefits or taxes or benefit-reduction rates.)

One important step toward harmonizing the two approaches, and one which would recognize the transformation in the supply side of the labor

market associated with the growth of social welfare spending, would be to develop better measures of the number of persons who are searching for only part-time or part-year jobs and the amount of fractional unemployment actually experienced. Such measures would highlight the tentative and transitional nature of labor force involvement of some persons who are particularly affected by social welfare benefits and their concomitant taxes and benefit-reduction rates. A second step would be for labor market analysts to relate work sought and work performed to broadened definitions of income and income-receiving units, thereby relating labor supply to both net wage rates and to needs and preferences of interdependent persons.

#### 8. SUMMARY

This paper has addressed the question: would the current labor supply be larger than it actually is if the post-1950 increases in the relative importance of social welfare spending had not occurred, and if so, by how much? We first concluded that there has in fact been some relative decline in the quantity of labor supplied, but that there are more than sufficient alternative explanations for this decline. To isolate the effect of social welfare expenditures we looked first to partial equilibrium theory and second to correlations found by empirical researchers.

Following the lead of theorists, we divided the social welfare system into two elements: (1) the lump-sum grants and the guarantees in earnings-conditioned grants, all of which add to the nonlabor income of beneficiaries; and (2) the taxes that go to finance the benefits and the benefit-reduction rates in the earnings-conditioned benefits, all of which combine to reduce

net wage rates. In recent years this system has doubled in scale relative to GNP and has become more earnings-conditioned in character. The great bulk of its benefits go to aged and disabled persons and to female heads of families.

The substantial increase in nonlabor income, according to theory, should have induced a withdrawal of labor supply, all other things remaining the same. However, theory gives us little guidance about the direction of the effect of the net wage-rate reduction brought about by social welfare expenditures.

Empirical study confirms the hypothesis that people do work less in response to nonlabor income. The response to the net wage reduction is probably in the same direction but of less magnitude than the response to nonlabor income. These responses vary considerably by age and sex of beneficiaries. The total effect of the expansion and changing character of the transfer system may have been to lower the quantity of labor that would otherwise have been supplied in 1976 on the order of 7%. About half this reduction is due to a hold-down in the rate of increase of labor supplied by women. Most of the remainder is explained by encouragement of earlier retirement by men.

The loss of labor supply shows up in reduced labor force participation rates, higher unemployment rates, and fewer hours at work. Depressed participation rates result from generous retirement and disability benefits. Higher unemployment rates follow higher replacement rates in UI and work registration requirements in welfare programs. That change is offset by reduced unemployment due to manpower training and work-experience programs. Lessened hours at work are the result of higher school enrollments and the

general increase in nonlabor income and the wage rate reductions associated with the growth of the social welfare system. Labor market analysts could adapt measures of unemployment to reflect the increasingly tentative and transitional nature of labor force involvement of people who are responding to separate elements of income and who have varying family need.

## NOTES

<sup>1</sup>In this section, we rely heavily on Musgrave and Musgrave (1976).

<sup>2</sup>A major part of this literature is to be found in Cain and Watts (1973).

<sup>3</sup>Recently there has been a trend toward extremely high benefit-reduction rates for some beneficiaries. This is particularly the case for those people who simultaneously receive several income-conditioned benefits and thereby are exposed to cumulative benefit-reduction rates in the range of 100%. See Lampman (1975).

<sup>4</sup>A detailed, careful study of all taxes and expenditures found that the fiscal system of 1970 was only slightly more redistributive than the fiscal system of 1950. This outcome is partly explained by the fact that the overall tax system became less progressive. See Reynolds and Smolensky (1977).

<sup>5</sup>One recent study finds that the great bulk of "under-utilized earnings capacity" is still that of females. Excluding the aged, students, and military personnel, 21% of the total of such "slack" is attributed to male heads and 11% to female heads and 68% to wives. See Garfinkel and Haveman (1977, p. 25).

<sup>6</sup>Some estimates of the reduction of the unemployment rate due to these programs range around three-tenths of one percentage point. See Cagan (1977).

<sup>7</sup>The weakness of demand for labor is emphasized in the following comment by Levitan and Taggart, "There is surely a tradeoff



between higher welfare standards and the number of persons who work. But considering the low productivity of the workers, their difficulty in finding employment and the number of workers they would displace if they found employment, the drag on the economy from their being on welfare is small. It is proper to resent handouts to those who can find work, but it is wrong to view most recipients of social welfare as loafers. As long as the policy of fighting inflation with unemployment continues, the majority of beneficiaries do not have any choice between work and welfare. The loss in output due to withdrawal from the work force because of the availability of welfare payments is dwarfed by involuntary unemployment [1976, pp. 285-286]."

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