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TRANSFERS, TAXES AND THE NAIRU

Daniel S. Hamermesh

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Cambridge MA 02138

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ABSTRACT

A substantial amount of existing research has examined how transfer programs and the taxes that finance them may have affected the nonaccelerating-inflation rate of unemployment over the past fifteen years. This study initially postulates a supply-side explanation of secular variations in unemployment. The estimates show higher replacement rates in transfer programs and higher tax rates both raised the unemployment rate (adjusted for changes in the demographic composition of the labor force).

The paper then examines the mechanisms by which changes in various transfer programs could have affected the measured unemployment rate. Some programs, unemployment insurance in particular, have induced an increase in measured unemployment because of the incentives they provide for firms to make layoffs and for workers to remain unemployed rather than take jobs as they are offered. Other programs, especially Social Security retirement benefits and Disability Insurance, have reduced labor force participation, especially among those workers with a high incidence of unemployment. Thus, there are effects both increasing and decreasing measured unemployment rates. All the programs, though, work to reduce the effective supply of labor, and with it measured employment. While the magnitudes of these effects are impossible to specify, a reasonable conclusion is that the net effect of transfer programs on measured unemployment rates is zero.

Daniel S. Hamermesh  
National Bureau of Economic Research  
1050 Massachusetts Avenue  
Cambridge, MA 02138  
(617) 868-3911  
Michigan State University  
Department of Economics  
Marshall Hall  
East Lansing, MI 48824  
(517) 355-8368

Just as war is too important to be left to the generals, the impact of taxes and transfers on the aggregate unemployment rate is too important to be left to the macroeconomists. I therefore subject the issue of how tax and transfer policy affects unemployment and aggregate supply to a detailed, microeconomic examination of the effects of individual tax and transfer program structures. This inductive approach is, I believe, likely to provide a far better guide to discovering how changes in these policies have worked through the economy than would a macroeconomic approach that ignored the programs' complexities.

Throughout the discussion we need to distinguish the programs' effects on two different aspects of economic performance. First, they may affect the measured nonaccelerating-inflation rate of unemployment (NAIRU). Such effects would be important for planning macroeconomic policy, though it is not clear how informative knowledge of any effects on the NAIRU is for learning about aggregate supply. Second, each tax and transfer policy may change the amount of employment observed at the NAIRU; assuming productive efficiency, this means that these policies will affect the amount of output, and thus per-capita incomes observed in the economy. It is this second set of effects that is more in the spirit of the supply-side discussions of recent years. Unlike the first effect, it is more than just an issue of measurement.

Before proceeding to present first a macro approach to the issue, then a detailed micro approach, it is worth considering some well-known (to labor economists) aspects of labor force change over the past twenty years. For selected years of roughly comparable aggregate demand pressures (though 1969 was probably somewhat tighter than the other two years), we present the aggregate unemployment and participation rates, and unemployment rates, participation rates and labor force shares of five demographic groups. Several features, in decreasing order of my estimate of their importance in the history of the U.S. labor market over the past 20 years, stand out: 1) The adult female

TABLE 1

Selected Labor Force Data, 1957, 1969, 1979

	1957	1969	1979
<b>Aggregate</b>			
Unemployment Rate	4.3	3.5	5.8
Participation Rate	59.6	60.1	63.7
<b>Teens</b>			
Unemployment Rate	8.8	8.8	16.1
Participation Rate	49.7	49.4	58.1
Fraction of Labor Force	.064	.086	.092
<b>Women 20+</b>			
Unemployment Rate	4.1	3.7	5.7
Participation Rate	36.5	42.7	50.6
Fraction of Labor Force	.297	.340	.378
<b>Men 20-24</b>			
Unemployment Rate	7.8	5.1	8.6
Participation Rate	87.0	82.8	86.6
Fraction of Labor Force	.054	.065	.080
<b>Men 25-54</b>			
Unemployment Rate	3.1	1.6	3.4
Participation Rate	97.1	96.1	94.4
Fraction of Labor Force	.455	.395	.362
<b>Men 55+</b>			
Unemployment Rate	3.5	1.9	2.9
Participation Rate	63.4	56.1	46.7
Fraction of Labor Force	.130	.114	.088

defined above are presented in Table 2. The change in the rate of per-capita real GNP growth has the expected negative sign. Interestingly, the trend coefficient is negative. (Remember, we have removed any trend effects produced by demographic changes in the labor force.) Including all lagged terms (in both NRR and TAX) significantly increases the explanatory power of the equation.<sup>5/</sup> We thus base our discussion of these variables' effects on the results in column (4) of Table 2. Both the terms in the net replacement rate and those in the tax rate are significant, and the sum of each set of four coefficients is positive.

Since NRR grew from .095 in 1954:II to .265 in 1978:IV (reaching a high of .290 during the 1973-75 recession), we may infer that the growth of transfer payments relative to net wages and salaries has induced an increase in the unemployment rate. A similar inference may be drawn from the positive coefficients on TAX and the increase in TAX from .167 to .301 (its highest value) during this period. However, lest this be reported in tomorrow's Wall Street Journal as proof positive of the deleterious effects of transfers and taxes on labor income, two considerations are in order. First, the coefficients imply incredibly large effects of taxes and transfers on the adjusted unemployment rate. For example, a one standard deviation increase in NRR from its mean is seen to induce an increase in  $U^*$  from its mean, 5.00, to 7.85. Similarly, an increase in TAX of one standard deviation from its mean of .231 induces an increase of  $U^*$  from its mean to 6.08.<sup>6/</sup> Both of these are ridiculously large, suggesting other things are going on that we have not accounted for. Second, it may be the skepticism of one who has seen too much simple-minded macroeconomic "evidence," but I tend to disbelieve studies whose bold conclusions are based solely on time-series results. Accordingly, I would give little weight to the results in this section (or to anyone else's time-series results on such issues), and would instead base my conclusions on careful thought about the programs' effects and on cross-section evidence about their impact.

### III. Some Theoretical Considerations

Given my skepticism about using macro estimates of the effects of taxes and transfers on unemployment to deduce their effects on the NAIRU, it is incumbent upon me to propose some alternative method of answering this question. Help is provided by the approach of Perloff and Wachter (1979) and others who use aggregate production and pricing models to deduce what aggregate unemployment rate, adjusted for demographic change, is consistent with nonaccelerating inflation. This method is clearly the correct one for macro policy planning; it does not, though, as its users would readily admit, indicate whether changes in tax and transfer policy are responsible for changes in the NAIRU. (This approach really says little about the causes of changes in the NAIRU). Thus, while it may be helpful for other purposes, it provides no evidence on the positive issues under consideration here.

A second approach is simply to make grandiose statements about how the NAIRU has increased tremendously, or, depending upon one's political views, how unemployment much above four percent is evidence of a recession. In the former camp we have statements from at least one ex-Chairman of the Council of Economic Advisors; in the latter, a recent annual report of the Council of Economic Advisors made the bold admission that, "A number of forces have been at work...to raise the overall unemployment rate at which inflationary pressures begin to appear above the neighborhood of 4 percent...."<sup>7/</sup> Neither statement has the least bit of scientific basis, and neither should therefore receive any serious attention. Nonetheless, because of the political importance of the issue, and because of the attention those making such statements command, they have infected the public debate. They do not, though, tell us anything about how or to what extent transfers and taxes have affected the labor market.

A third approach is inductive; it tries to construct, from available estimates of the effects of individual tax and transfer programs, the likely impact on the

in tax and transfer policy. In conjunction with this we consider whether the slowdown in the growth of real output per capita may also have been in part induced by these policy changes.

Although it is impossible to summarize in a succinct way the massive amount of theoretical work on the incentive effects of various transfer programs, I believe that there are sufficient general similarities among the programs' effects to make a general discussion of their likely economic impact worthwhile. The purpose of doing so is to point out some aspects of these effects that have been ignored by research that has been concentrated narrowly; to demonstrate the similarities among various strands of research; and to provide a focus for the discussion of specific programs' effects in Section IV. Throughout this analysis we assume that leisure and unemployment are synonymous--both are voluntary. We also recognize that any attempt to synthesize a general model will surely ignore some important programmatic details within individual transfer schemes.

We examine the likely effects of transfers under the assumption that each member of the adult population faces two separate situations vis-à-vis these programs. In the first the individual is ineligible for benefits under the program. Nonetheless, the program affects his behavior because of the incentives it provides to establish eligibility for benefits later on. This represents the entitlement effect discussed for UI in Hamermesh (1979b), and part of the effect of OASI on hours of work before age 62 implicit in Burkhauser-Turner (1978). As Figure 1 shows, the budget line in the absence of the transfer scheme (and the taxes that finance it) is OAB. With the transfer program and its concomitant tax structure the line shifts to OACFGH. As compared to the budget line OADE, describing the choice set available to the worker who sees only the wage net of taxes, the constraint OACFGH induces substantial changes in behavior. (See Moffitt and Kehrer, 1980; Burtless and Hausman, 1978; and Hamermesh, 1980.) Some persons who would have been at the corner solution at A, or who would have

found an internal maximum along AC, are induced by the entitlement aspect of the transfer program to increase their supply of labor and move to point F. (In addition to its effects in UI and OASDI, it may also be operative in affecting military enlistments, as the post-service educational and other benefits are an added bonus to enlistees.) Though this entitlement effect has no immediate impact upon unemployment rates, it may change the aggregate rate insofar as it increases labor force participation among persons whose probability of being unemployed differs from the average. So too, it will clearly increase market employment and thus measured real GNP.

Once eligibility for the transfer is established, the individual faces a different set of constraints. Under UI and OASDI these can mutatis mutandis be described as resulting from a lump-sum benefit paid if no work, or only a small amount of work, is undertaken; as reflecting the sum of the wage rate and a steadily reduced benefit as hours increase, until the point at which no more benefits are paid. The budget line OACFGHJ in Figure 2 describes this choice set. As compared to the case in which the only perceived effect is through the tax (along OADE), the impact of the program is to induce those who otherwise would have supplied labor along FC to reduce their supply (assuming leisure is a normal good). This effect likely occurs beneath the ceiling on OASI benefits (currently \$5000 per year), though this does not appear to have been analyzed empirically; and the same effect is expected beneath the \$280/month at which an individual no longer is eligible for Disability Insurance.

In addition to the possible effect in shifting persons rightward from F in Figure 2, transfer programs also shift them from points to the left of F toward point F. These are the disincentive effects that have received so much attention in the literature (see Feldstein, 1973, and Hamermesh, 1977, on regular UI; Muntz, 1970, on partial UI benefits; Quinn, 1977, and Boskin, 1977, on OASI; and Parsons, 1980, Leonard, 1979, and Haveman and Burkhauser, 1980, on DI.) In



The net effect of taxes and transfers on aggregate supply combines all of these separate impacts implied by this general model. Entitlement effects, induced unemployment, bunching at notches in benefit structures, and behavior induced by taxes, either general income taxes or earmarked taxes that finance a particular program, must be considered as we discuss how each specific transfer program affects the labor market.

While our discussion abstracts from changes in the demographic mix that have affected the NAIRU, we should recognize that there are other changes in the composition of the labor force that are induced by transfer schemes and that will have an impact on the NAIRU. Within each demographic group for example, those persons with the lowest market productivity (relative to their productivity at home) will be induced to leave by any given increase in transfer payments. So long as relative market-household productivity is positively (negatively) correlated with the individual's probability of being unemployed when in the labor force, this will induce a decrease (increase) in the measured unemployment rate within the particular demographic group. Though this is a change induced by transfers, it is also a measurement problem of a sort similar in quality to that which we have circumvented by assuming constant labor-force weights.

#### IV. Effects of Specific Transfer and Tax Programs

That transfer payments have formed an increasing fraction of disposable income was made clear in our discussion in Section II, and it is underscored by the totals in the bottom two lines of Table 3. The growth of transfer payments has been very uneven, however; it is interesting to note that the phrase "welfare mess" is hardly apropos, as "welfare"--usually thought of as AFDC--has grown more slowly than disposable income. Disability Insurance payments have been the most rapidly growing among programs that were ongoing in 1966, and we

have seen the birth and explosive growth of payments under SSI and Food Stamps. The data clearly suggest that transfers could, by virtue of their increased generosity and coverage, have induced substantial changes in the labor market since the mid-1960s. Whether this is in fact the case can be seen by a program-by-program consideration of the transfers' effects.

Prompted by Feldstein's (1973) seminal work, there was resurgence of research on the effects of UI on the labor market. Unfortunately the bulk of this work is on only one of the potential impacts of UI, namely on the duration of spells of unemployment. The twelve studies summarized in Hamermesh (1977, Chapter 3) show a substantial consensus that higher UI benefits do induce people to remain unemployed longer (as our discussion in Section III suggested). Further work (eg., Kiefer and Neumann, 1979, and Katz and Ochs, 1980) has done nothing to dispel this consensus, and even my synthesis "best-guess" impact--.5 extra weeks of unemployment for each .1 increase in the net replacement rate-- seems supported by more recent studies.<sup>8/</sup> There should be no doubt whatsoever that UI benefits in the U.S. do induce longer spells of unemployment.

Feldstein (1976) and Baily (1977) have shown how the partly experience rated tax that finances UI can induce increases in employment fluctuations and thus increases in the number of spells of unemployment. This is postulated to occur because the marginal tax cost to employers of another layoff is zero: Many employers' UI taxes already exceed the benefits paid to prior employees because of nonzero minima on state UI taxes, and some others' taxes are limited by maxima on state tax rates. (Elsewhere, Hamermesh, 1977, I have shown that roughly only 2/3 of UI taxes are experience rated.) Recently, there has been some effort to quantify the impact of the tax structure on the labor market. Brechling (1978) has carefully parameterized state UI tax laws and shown that they appear to have a substantial effect in raising manufacturing layoff rates across states and over time. Halpin (1979) has presented similar evidence for

as I have shown elsewhere (Hamermesh, 1979b) that even among adult women the net effect is negative, we may conclude it is negative in aggregate as well.

As Table 3 shows, retirement benefits under Social Security represent the largest component of the transfer panoply. While our discussion in Section III hinted at the program's major effects, there is one other effect that deserves mention first. Not only does OASI raise the cost of working for those eligible; the structure of benefits is also such that the cost is especially raised for younger eligibles. This occurs because: 1) At age 72 the earnings ceiling is removed, whereas it applies before then; 2) The reduction in monthly benefits if one files at 62 (60 for women) is less than the actuarially fair reduction; 3) The increase in monthly benefits if a man (woman) postpones filing beyond age 65 (age 62) is far less than would be actuarially fair;<sup>9/</sup> and 4) The ceiling on earnings is a more important constraint among younger eligibles, because their market wage rates are greater. These last three considerations coalesce to induce those eligible for benefits to file as early as possible. The removal of the ceiling at age 72 likely comes too late to have much impact on persons who have been out of the labor force, and whose skills have deteriorated.

Far more important than the induced switches among eligibles, the system has provided increasing incentives for early retirement through expanded support levels. As Munnell (1977) showed, these rose sharply between the late 1960s and 1976, both because of ad hoc statutory increases and the now repealed double indexing of benefits. Even though the 1977 Amendments will prevent further increases in gross replacement, the projected rises in payroll tax rates, and a continuation of current trends in taxes on earnings, indicate that net replacement may continue rising. This suggests that the incentive for early retirement will continue to increase unless further amendments to the Social Security Act are passed.

The magnitude of the increases in net replacement is large enough to have had substantial impacts on the labor market. Quinn (1977) and Boskin (1977)

evidence (Vroman, 1974) and micro studies (Hamermesh, 1979a) imply that it is shared by workers and capitalists through higher product prices. It is likely that the tax reduces effort. (I believe that substitution effects outweigh income effects for some groups, and that they are roughly equal for others.) However, though this does imply a reduction in total labor inputs into production, it may also imply a reduced NAIRU, since the greatest labor supply elasticities are among groups with a high incidence of unemployment, (compare Borjas-Heckman, 1978, and Cain-Watts, 1973.)

All these considerations suggest that OASI retirement benefits change labor-force participation in such a way as to reduce the NAIRU: The composition of the labor force is induced to shift toward groups with a low incidence of unemployment. With the exception of the (to me) secondary effect on the distribution of hours of work over the lifetime, the theoretical arguments and empirical evidence suggest the major impact of OASI retirement benefits is to decrease employment. Because of increased net replacement and earlier eligibility, this effect has moreover likely increased since the 1950s, and has increased since the late 1960s for the first of these reasons.

Federal Disability Insurance has since 1960 provided benefits to disabled workers of all ages. As Table 3 showed, the program has received increasing attention from potential eligibles, drawn by increased replacement rates and a not overly harsh interpretation of eligibility rules. While there is a five-month waiting period during which the person is not to be involved in substantial gainful activity, an initial denial of benefits still leaves the applicant four appeals levels; and the evidence (Haveman and Burkhauser, 1980) suggests that claimants are increasingly aware of this and increasingly successful in their appeals.

Like OASI under Social Security, Disability Insurance provides incentives that affect the NAIRU and aggregate employment. Workers with low market productivity, either because of severe impairments or because of minor impairments

The effects of DI on the labor-market issues of interest--the NAIRU and the size of the work force--are the same as those of OASI: Market employment is reduced, as is the NAIRU. This rapidly growing program may well have contributed to reducing the rate of GNP growth, but it has also disguised some of the unemployment that would otherwise have been observed.

While the Food Stamp program is relatively new and has grown rapidly, AFDC payments were established under the Social Security Act and have grown relatively slowly in the last decade. Analytically, though, they can be lumped together for our purposes. The first consideration for each program is the work registration requirement each entails: Recipients of benefits must register with the state Employment Service and accept suitable work if such is found for them. Clarkson-Meiners (1977) have argued that this has induced a 2 percentage point increase in measured unemployment. The calculation is based on the assumption that no registrants would have been in the CPS labor force before the work registration requirement was imposed, and that all report themselves as unemployed in the CPS. Both assumptions seem highly questionable, and Cagan (1977) and Devens (1978) have argued that the Clarkson-Meiners number is greatly overstated. Without econometric evidence based on observation of the effect of Food Stamp or AFDC on labor force status, little credence appears owed to this finding. One would need longitudinal data on to test the issue properly; though such are available, the test has not been undertaken. Perhaps the best conclusion on the issue is that there may have been some one-shot effect on the NAIRU in the early 1970s, but it was likely tiny.

If one believes the registration effect on the NAIRU was important, one must also believe that the requirement has induced an increase in employment and thus in aggregate supply: Some of these induced to register presumably did find work when they otherwise would not have. Since I do not believe the effect on the NAIRU is large, I do not believe this positive effect on employment is large

these other programs on the NAIRU or on employment; since the discussion above has given the flavor of the likely directions of the impacts of most programs, there is little point repeating the analysis absent specific empirical results. Suffice it to say that these other programs most likely accentuate the effects we have already discussed.

I have avoided analyzing the effect of income taxes on the NAIRU and on aggregate supply. While the latter issue has received tremendous popular attention (and far too little scientific analysis), the former has received none. There is no obvious direct effect of the progressive income tax on the NAIRU, though there may be some compositional effect of the sort we have stressed throughout this section. Whatever the impact of the income tax on the labor supply of high-wage earners, it is unlikely to have induced them to withdraw from the labor force. A reduction in weekly hours seems far more likely. Thus if anyone is induced to reduce market work to zero, it is probably those whose market opportunities are least attractive. To the extent that the income tax does affect supply--and, I stress, this has not been demonstrated directly--it has likely done so among persons with the greatest probability of being unemployed. Thus, if anything, the progressive income tax reduces the NAIRU by changing the composition of the labor force.

The effect of the progressive income tax on hours of employment cannot be answered here. (Hausman's paper covers this in more detail.) Nonetheless, we should note that the induced reduction in output (assuming wage rates reflect marginal productivity) is  $\sum_i t_i \eta_i w_i N_i$ , where  $t$  is the marginal tax rate on the  $i$ 'th group of potential workers;  $\eta$  is their labor supply elasticity;  $w$  is their market wage, and  $N$  is the number of persons in the group. Across different groups of workers both a higher marginal tax rate and a higher supply elasticity will induce a greater reduction in effort (and thus presumably in market output and real GNP). Among high-wage groups the marginal income tax rate on effort is fairly high; however, all the available evidence suggests  $\eta$  is quite low

the studies that have done so for particular programs suggest the decline is substantial. That transfers induce such a reduction should be especially disturbing, as the U.S. economy already contains a (probably increasing) bias against market work. (Though, as we saw above, its effects may not be very large.) While guessing the size of the induced drop in employment is too bold for my taste, it is worth noting that, if even one-half of the decline in participation of men 55+ has been caused by changes in OASI and DI benefits and regulations, that alone would have induced a .8 percent reduction in aggregate employment since the mid-1950s. The effect for the entire labor force is likely somewhat larger than this. This guess, though, creates a conundrum: Why has aggregate labor force participation risen by 3.6 percentage points since 1969, at the same time we estimate that taxes and transfers have induced a decline? Have nonmarket substitutes for women's time in the home experienced such huge relative price reductions? Has the structure of tastes changed (a thought that is repugnant to me as an economist)? Perhaps the real issue we should be addressing is why the aggregate participation rate has grown so much and departed from its long-term near constancy just below 60 percent.

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FOOTNOTES

1. The implied effect of a .1 increase in gross replacement by UI in the Grubel-Maki study is an extra 6.31 percentage points of unemployment!
2. A TAX variable that excluded employer contributions from both numerator and denominator was also used in place of the variable discussed in the text. While the results were qualitatively similar, the coefficient of determination was in every case slightly lower.
3. The model was also estimated with the theoretically improper variable, percent change in GNP. Though the  $R^2$  exceeded those reported for comparable equations in Table 2, and though the implications of NRR and TAX were the same as in the table, the lack of a good justification for this variable suggests the discussion should be based on the model including its rate of change.
4. The polynomial lags were estimated with the far end-point coefficients constrained to equal zero. A test of the validity of these constraints in the equation in column (4) yielded  $F(3,87)=.49$ . (The 95 percent significance level with these degrees of freedom is 2.71.)
5. In an equation like that in column (4) from which TIME was excluded, the sum of the coefficients on NRR was 5.35, and that on TAX was 3.00.
6. NRR has a mean of .171 and a standard deviation of .060; TAX has a mean of .231 and a standard deviation of .040. Their correlation is .933.
7. Herbert Stein noted, "I am not in a position to insist that it [full employment] is 7 percent unemployment. But it is a possibility that must be given weight. Suppose we accepted the idea that there is a 50-50 chance that we are now at full employment." (Wall Street Journal, September 14, 1977, p. 22) The CEA statement is from the Report, 1978, p. 171.
8. The weak evidence available suggests that this effect is smaller in looser labor markets (Hamermesh, 1977, Chapter 3).
9. Each month beyond age 65 in which benefits are not claimed raises the monthly benefit eventually claimed by 1/4 of one percent; each month before age 65 in which benefits are claimed reduces the monthly benefit by 5/9 of one percent. (Department of Health, Education and Welfare, Social Security Handbook, 1978)
10. Because of the problem of specifying full-capacity earnings to hold constant for the effects of health on the probability of filing, Leonard's results should be viewed as quite tentative.

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