The NBER Digest
NATIONAL BUREAU OF ECONOMIC RESEARCH, INC.
August/September 1981

Tax Policy, Labor Supply, and Economic Costs

The income and payroll taxes collected by the federal government have been rising rapidly over the last two decades: in 1960, these taxes accounted for 56 percent of federal revenues; in 1978, they contributed 76 percent of federal revenues. In *Working Paper No. 610,* **Income and Payroll Policy and Labor Supply,** Research Associate **Jerry A. Hausman** attempts to measure the economic costs of these taxes, and to compare them with the costs of alternative tax plans.

In earlier work, Hausman investigated the effect of income and payroll taxes on labor supply. In inflationary times like these, income tax collections rise because of the progressive rate schedule and because tax brackets are not sufficiently indexed. Payroll tax collections have also risen with increased demands of the Social Security system, and these collections are scheduled to continue to increase in the coming years. A 1979 Hausman study found that income and payroll taxes reduced the labor supply of husbands by about 8 percent; wives' labor supply was reduced by about 30 percent.

In addition to the effect on the labor supply, though, these taxes have another economic cost. One measure of that economic cost, employed by Hausman in this study, is "deadweight loss." The deadweight loss of a tax is roughly defined as "the amount the individual needs to be given to be as well off after the tax as he was before the tax, minus the revenue raised by the tax."

In his paper, Hausman investigates both the labor supply effects and the deadweight loss of three different tax plans: the current income tax system; proportional reductions in tax rates; and a linear, progressive income tax. He first considers the effects of the current system (progressive, with increasing marginal tax rates) on husbands.

Hausman finds that the average husband works 2181 hours per year instead of 2367 hours, because of the income tax. For that same individual, the deadweight loss of the tax is $235, or 21.8 percent of the total tax revenue collected from him. For husbands as a group, "the tax system decreases labor supply by 8.5 percent and the mean deadweight loss as a proportion of tax revenue raised is 28.7 percent."

Moreover, he finds that the deadweight loss of the current income tax rises rapidly with wages. In fact, "individuals in the highest wage category bear a cost about ten times the lowest category . . . ," Hausman finds. Similar tests for wives show that "the current income tax system both has important labor supply effects and imposes a significant cost in welfare terms" in raising tax revenues.

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Next, Hausman considers the effects of Kemp-Roth type proposals (tax rate reductions of 10-30 percent across the board) on husbands. A 10 percent reduction in income tax rates would raise the mean hours of labor supplied by 1.1 percent and would lower tax revenues by 7.4 percent. The average ratio of deadweight loss to tax revenues would fall from its current level of 22.1 percent to 19 percent. A 30 percent reduction in tax rates would raise labor supply 2.7 percent, decrease tax revenues by 22.6 percent, and lower the

ratio of deadweight loss to revenue to 15.4 percent.

For wives, the effects would be even stronger. The 10 percent cut would increase the labor supply by 4.1 percent and lower tax revenues only 3.8 percent. With a 30 percent cut, labor supply would increase 9.4 percent and revenues would fall 16.2 percent.

Finally, Hausman considers a linear, progressive income tax designed to yield the same revenues as the current system with a single marginal rate and an initial exemption of up to $4000 of income. He designs a rate schedule beginning at 14.6 percent with no exemptions and rising to 20.7 percent with a $4000 exemption. With a linear, progressive tax, even at the highest exemption level, the deadweight loss for married men would fall 49 percent from its level under the current system. Labor supply would be only 1.5 percent less than if there were no income tax at all.

Wives' labor supply would also increase. At the 14.6 percent tax rate, revenues would fall 5.1 percent. At the 20.7 percent rate, though, revenues would *rise* 11.2 percent. Hausman concludes that "approximately all taxpayers are made better off by this type of linear income tax system." He does, however, caution policymakers in his paper that "neither deadweight loss nor labor supply are sufficient measures alone in evaluation of the income tax. . . . its redistributive aspect must also be accounted for."

Social Security and Retirement

An understanding of why people choose to retire or continue working is crucial to many economic and political issues. Most obviously, the age of retirement affects both the number of people collecting Social Security benefits and the number paying taxes, and thus the payroll tax rate needed to finance the system. In *Working Paper No. 659,* **The Effect of Social Security on Retirement in the Early 1970s,** NBER Research Associates **Michael J. Boskin** and **Michael D. Hurd** find that changes in Social Security benefits have a powerful influence on retirement decisions.

Boskin and Hurd select the period from 1969 through 1973 because rapid increases in the real (inflation adjusted) level of benefits at that time provided a close approximation of a "social experiment." Congress raised the average benefit 28 percent in real terms from 1970 to 1972, and the maximum benefit rose more than 50 percent between 1968 and 1976. Boskin and Hurd use survey data on men who were aged 58 to 63 in 1969 to assess the impact of the benefit changes on retirements. Their principal findings are:

1. The benefit increases were a primary cause of an acceleration in the pace at which older men were leaving the work force. The labor force participation of older men has been falling for decades, but the rate of decline speeded up in the early 1970s.

2. Social Security "wealth" (the present value of Social Security benefits) interacts with other forms of wealth. Many of the elderly have few assets of their own, and this group has a markedly higher propensity to retire at age 62 when benefits are first available.

3. The magnitude of the induced-retirement effect is large enough that it cannot be ignored when estimating the fiscal implications of major benefit changes.

Boskin and Hurd hypothesize that Social Security may cause some people to retire before age 65 even if the reduction in benefits for early retirement is actuarially fair. If Social Security provides more "savings" than some people would otherwise accumulate independently, and if it is not possible to borrow against future benefits, that "liquidity constraint" may cause people to retire early in order to draw on their Social Security wealth and to provide a pattern of consumption more to their liking. Boskin and Hurd predict that among people with the same total wealth, those with a larger portion made up of Social Security wealth will have a higher propensity to retire at age 62 because of the liquidity constraint.

In addition, changes in benefits may affect retirements in the short run, even if the system has no long-run impact on the age of retirement. An increase in benefits may not affect the age of retirement in the long run because younger workers can adjust to the change by saving less. But older workers suddenly find themselves with unanticipated wealth that they can consume only if they retire. Boskin and Hurd argue that the short-run effects of the benefit changes in the early 1970s are more clear than the long-run effects. It is reasonable to presume that the increases were unanticipated and left prospective retirees with more wealth than they had planned on having. If leisure is like any other good, then the increases in wealth would induce more consumption of it—that is, more retirements. While Boskin and Hurd's findings are consistent with a long-run liquidity constraint effect, their study focuses on short-run impacts.

Boskin and Hurd analyze the retirement behavior of

individuals in a variety of ways. The simplest way is to calculate the conditional probabilities of retirement—the proportion of people who reach a given age without retiring, for the ages from 59 through 66. Looking at those probabilities for people of different "vintages" (for example, people who were 63 on January 1, 1969, versus those who were 57), Boskin and Hurd find very large increases in the probability of retirement over a span of only a few years. For instance, men who were 62 in 1969 had a 5 percent probability of retiring that year, while in 1972, 62 year olds had a 19 percent probability of retiring. The comparisons show that the decline in labor force participation was due to changes in retirement probabilities at all ages.

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Next, the two economists examine whether people entitled to higher Social Security benefits had a higher probability of retiring if age and private wealth were held constant. In seventeen of twenty-one age and asset groups, people with greater Social Security wealth did have higher probabilities of retiring. For example, among men who were 63 in 1974, those with more than $45,000 of private assets had an 8 percent probability of retiring that year if their Social Security wealth was in the $20,000 to $25,000 range, but a probability of retiring of 18 percent if their Social Security wealth was higher.

After making these simple comparisons, Boskin and Hurd estimate conditional-probability-of-retirement equations, using additional variables such as wages and health status. The results are remarkably consistent with the simple comparisons. For example, a $10,000 increase in Social Security wealth raises the possibility of retirement in seventeen out of twenty cases at ages 62 through 65. One surprising finding is that workers with little private wealth are not strongly affected by changes in Social Security benefits until age 65.

Finally, the estimated effects on probabilities of retirement are used to estimate the change in labor force participation among men aged 60 to 64 from 1968 to 1973, based on the Social Security wealth that the men had at the beginning of the period and the actual change in benefits during those years. According to the equations, the benefit increases should have caused labor force participation to drop by 8.4 percentage points. The actual decline over the period was 8.2 percentage points. Boskin and Hurd believe the closeness of these figures lends strong support to their conclusions about the effects of changes in Social Security benefits. AE

An Empirical Investigation of Real Interest Rates

Interest rates on Treasury securities, investments, and the like are referred to as "nominal interest rates." Although high nominal interest rates are the focus of most financial news stories, for some time economists have attempted to estimate and study "real interest rates," nominal rates that have been adjusted for expected inflation. It is believed that these rates may influence business cycles as well as the economy's level of saving, capital formation, and productivity.

In *Working Paper No. 622,* **The Real Interest Rate: An Empirical Investigation,** Research Associate **Frederic S. Mishkin** looks at movements in the real interest rates over the last fifty years and seeks to answer a number of lingering questions:

1. Is the real interest rate constant over time?
2. Do increases in inflation cause the real interest rate to decline?
3. Are movements in real economic variables, such as employment and output, correlated with movements in the real interest rate?
4. How have real interest rates varied over the last fifty years? That is, were real rates truly unusually high during the initial stages of the Great Depression but negative during the 1970s?
5. Are changes in expected inflation reflected in movements of nominal interest rates?

Mishkin uses quarterly data on three-month Treasury bill rates and data on inflation rates to calculate real interest rates. He finds, contrary to some earlier work, that real interest rates were not constant in the period from 1931 to 1979. Real rates were very high during the contractionary phase of the Great Depression; they have never been as high since that time. From 1938 to 1951, when nominal interest rates were pegged by the government, real rates were negative. In the 1950s and 1960s, real interest rates were positive, but in the mid- and late 1970s, they were negative.

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Aftertax real rates varied even more than pretax rates. The aftertax real rate of interest has been nega-

tive since 1969 and may not have been positive at all in the postwar period through 1979.

Mishkin further finds that the real interest rate goes up when inflation declines or when the growth of the money supply slows. However, he does not observe a significant correlation between movements in real economic variables and movements in real interest rates.

During the postwar period, Mishkin observes, expected inflation and nominal interest rates moved together. But, movements in nominal rates are not a good indicator of movements in real rates; the two were negatively correlated during the postwar period. In fact, Mishkin concludes that "nominal interest rates contain little information on real interest rates and hence on the tightness of monetary policy."

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