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The Compliance Cost of the U.S. Individual Income Tax System

It cost the average U.S. household about \$275 to file 1982 income tax returns (state and federal), according to an NBER study by **Joel Slemrod** and **Niki Sorum** (*Working Paper No. 1401*). That includes \$44 for professional advice and other out-of-pocket expenses and \$231 for the value of the nearly 22 hours spent by the average household on preparation of tax returns.

Nearly 46 percent of U.S. households paid for professional tax assistance; for those households, the average cost was \$76. Moreover, while about three-fourths of the households spent less than 20 hours preparing their returns, 11 percent of them spent over 100 hours. Of the time spent on tax filing, almost two-thirds was devoted to record keeping.

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Households with very high or very low incomes spent a larger share of their income on tax filing than middle-income households did. The average expenditure was 1.4 percent of household income. However, there was very little variation in costs by level of education: those with an eighth grade or lower education spent 0.9 percent of their income on preparing tax returns, while those with postgraduate schooling spent 1.1 percent of their income on tax filing.

Slemrod and Sorum use the experience of Minnesota taxpayers to estimate national costs and find that the total compliance cost of filing federal and state income tax returns for 1982 was between \$17 and \$27 billion. This figure represents 2 billion hours of taxpayer time and about \$3 billion spent on professional assistance.

For their study, Slemrod and Sorum surveyed 2000 Minnesota taxpayers and received 600 usable replies. They were concerned only with the costs to the taxpayers, not the costs to governments or third parties.

Movements of Long-Term Real Interest Rates

Until quite recently, it has been impossible to measure long-term real interest rates and to determine what drives these rates over time. But in a new study for NBER, **Short-Term Movements of Long-Term Real Interest Rates: Evidence from the U.K. Indexed Bond Market** (*Working Paper No. 1543*), **James A. Wilcox** uses evidence from the United Kingdom to attempt just that.

In 1981, the United Kingdom began to issue government bonds with both coupon payments and principal fully indexed to the British equivalent of the Consumer Price Index. The first such bonds carried a 2 percent coupon and could be held only by pension funds. In March 1982, other investors were allowed to buy these indexed bonds. By 1984, such bonds constituted one-third of new government debt and about 10 percent of outstanding government debt.

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Because investors in indexed bonds are protected from inflation, the interest rate on these bonds is an excellent measure of the real (inflation-adjusted) interest rate. In addition, the difference between interest rates on traditional, or nominal, bonds and the real interest rate on indexed bonds is a good indicator of investors' anticipation about future rates of inflation. Since investors in the United Kingdom can obtain an inflation-adjusted return by holding indexed bonds, the return on nominal bonds must be high enough to yield the real interest rate plus the anticipated rate of inflation.

Between the middle of 1981 and the middle of 1984, the real long-term (15-year) interest rate in the United Kingdom rose from 2.5 percent to 4 percent. During this same period, the nominal interest rate rose from 15 percent to 16 percent before declining to about 11 percent. The implied rate of expected inflation declined from a peak of over 13 percent to under 8 percent. Obviously, most of the fluctuation in nominal interest rates is associated with fluctuations in expected inflation rather than in real interest rates.

Wilcox finds that long-term *real* interest rates are not affected by changes in expected inflation. Rather, the increase in real rates that occurred over the sample period was caused by an increase in anticipated economic activity, measured by an index of leading economic indicators. Tighter monetary policy also raises real interest rates, Wilcox finds, while higher oil prices depresses them.

Academic Ability, Earnings, and Teachers

How can we raise the level of academic ability of U.S. teachers without reducing the size of the teaching force? By combining minimum standards for

certification with higher salaries, according to NBER Research Associate **Charles F. Manski**. In *NBER Working Paper No. 1539*, he estimates that increasing teachers' salaries by 10 percent and requiring a combined Scholastic Aptitude Test (SAT) score of 800 would bring the average academic ability of teachers up to the level of all working college graduates without reducing the total number of teachers. To achieve further improvements in the teaching force would require a higher ability standard and a larger salary increase.

Manski's data are from a 1979 survey of nearly 3000 college graduates who were graduated from high school in 1972 and were working more than 30 hours a week in 1979. About 17 percent of them were teachers. In his analysis, Manski uses SAT scores and class rank in high school as a measure of academic ability.

In this sample, the teachers had an average (combined) SAT score of 950, compared with an average of 1024 for other college graduates. They also had ranked lower in their high school classes and were earning lower salaries than the other college graduates. In fact, the average weekly salary for the male teachers was \$230, compared with \$303 for other men in the sample. For women, average weekly salaries were \$219 for teachers and \$248 for other workers.

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Moreover, the teachers earned less than the others even if they had the same academic ability. For example, Manski finds that among men with SAT scores in the 800–1000 range, the average pay of professional workers was almost 50 percent more than that of teachers. For women with SATs between 800 and 1000, professionals earned 22 percent more than teachers.

By raising teachers' salaries, school boards could attract more people to the profession and thus could be more selective in their hiring. Manski estimates that a 10 percent increase in salaries would increase the number of people who want to be teachers by 25 to 30 percent.

To increase the academic ability of teachers, though, school boards would also need to institute minimum ability standards. Manski estimates that the average SAT score of teachers could be raised to 1130 by setting 1000 as a minimum required score and raising average weekly salaries by 40 percent.

Have U.S. Corporations Grown Financially Weak?

Many business analysts feel that the financial strength of U.S. corporations has eroded over the past 20 years. The ratio of total corporate debt to total corporate assets has increased, as has the proportion of short-term debt to total assets. At the same time, corporations have fewer liquid assets, both as a percentage of total assets and as a percentage of their short-term liabilities. All of these trends seem to indicate that corporations are more vulnerable to financial shocks today than they were two decades ago.

However, a recent study by NBER Research Associate **Robert A. Taggart, Jr.** (*Working Paper No. 1523*) concludes that corporate financial strength is close to its historical average. Much of the perceived weakening on corporate balance sheets is the result of a failure to properly account for the effect of inflation, he suggests.

For instance, when debt is compared to the market value rather than the book value of assets, debt/asset ratios show a rise from about .17 in the late 1940s to over .30 in the early 1970s, followed by a decline back to about .28 in the 1980s. However, the debt/asset ratios immediately after World War II were very low by historical standards. By comparison, from 1900 to 1940 the ratios averaged over .30, close to their current level. Similarly, corporate liquidity today is low compared to liquidity in 1945 or 1950, but not dramatically lower than in other years.

It is true, however, that debt—especially short-term debt—now accounts for a historically high percentage of corporate financing. From the end of World War II until 1963, short-term debt supplied about 16 percent of corporate financing. From 1964 to 1983, almost 25 percent came from short-term debt. This increase has made corporations more vulnerable to fluctuations in interest rates than they were in the past.

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Taggart suggests that corporate debt was unusually low just after World War II because of the huge increase in perceived business risk that occurred during the Great Depression. Since then, business risk seems to have declined, and debt/asset ratios

and corporate liquidity have returned to traditional levels. Taggart also notes that the recent shift away from long-term debt may reflect the reluctance of lenders to bear the risk of interest rate fluctuations. Finally, Taggart suggests that borrowing by the federal government may tend to crowd out corporate borrowing by increasing the cost of debt versus equity financing.

Incentive Effects of Private Pension Plans

Most private pension plans with defined benefits provide large incentives for workers to retire at a stated early retirement age and even larger incentives for them to retire at the normal retirement age. The fact that the proportion of older workers covered by such plans has increased substantially since World War II may help to explain why the share of older people choosing to work has declined in the postwar period.

In *NBER Working Paper No. 1510*, Research Associates **Laurence J. Kotlikoff** and **David A. Wise** examine the incentives for retiring that are built into defined-benefit pension plans. The yardstick they use is the change in accrued, vested pension wealth that a worker would receive by remaining with the firm for one more year. Pension wealth is analogous to the value of an annuity whose benefits would exactly equal the worker's pension.

Although Kotlikoff and Wise did not have data on individual wages or benefits, they were able to calculate pension wealth for typical workers using a sample of 2342 pension plans collected by the U.S. Bureau of Labor Statistics. By calculating changes in pension wealth for workers of different ages under pension plans with a variety of provisions, the authors identify a number of important determinants of pension wealth: (1) the worker's current age and seniority; (2) the plan's ages of early and normal retirement; (3) vesting provisions; (4) possible pension offsets against Social Security benefits; (5) credit for years of work beyond the plan's early and normal retirement ages; and (6) the formula that links pension benefits to earnings. Because the change in pension wealth depends on so many factors, the incentives to retire can vary enormously from plan to plan, and for workers of different ages under the same plan.

However, in virtually all plans the accrual of pension wealth decreases when the worker becomes eligible for early retirement and falls even more sharply at the age of normal retirement. For instance, Kotlikoff and Wise examine 513 plans that base benefits on earnings, where workers become vested all at

once after 10 years of service (cliff vesting), and where early and normal retirement ages are 55 and 65, respectively. They find that the average accrual of pension wealth in these plans drops from 9.7 percent of earnings at age 55 to 6.8 percent of earnings at age 56 and from 4.4 percent of earnings at age 65 to a *negative* 15.2 percent of earnings at age 66. In other words, a 65-year-old worker who stays with the firm for an additional year will receive an increase in pension wealth equal to 4.4 percent of annual earnings, but a worker aged 66 who stays another year will suffer a *loss* in pension wealth of 15.2 percent of earnings. This sharp decline in total compensation after age 65 provides a strong incentive for workers to leave the firm when they reach retirement age.

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The value of pension wealth actually falls after the normal retirement age because most pension plans do not increase the level of benefits to reward years of service beyond that age. That is, workers do not receive “interest” on their pension wealth for postponing the flow of benefits for a year. Nor do they receive higher benefit payments to offset the fewer years in which they will receive benefits.

Another provision in many pension plans reduces benefits by a certain percentage of a recipient's Social Security benefits. Plans with such “offset” provisions typically have lower rates of increase in pension wealth prior to the early retirement age than plans without offset provisions. However, they involve smaller declines in pension compensation at the ages of early and normal retirement than other types of plans.

For plans with early retirement at age 55, normal retirement at age 65, and a Social Security offset, pension wealth on average increases by 7.6 percent

of earnings at age 55 and 5.8 percent at age 56. Under similar plans without offset provisions, pension wealth increases by 11.6 percent of earnings at age 55 and 7.8 percent of earnings at age 56.

Kotlikoff and Wise also find that different industries and occupations typically have different early and normal retirement ages. In almost all plans in the retail trade and service industries, normal retirement is at age 65. However, in the transportation industry, 62 percent of plans have normal retirement at age 55, and about 20 percent have normal retirement at age 62. In manufacturing, about 35 percent of plans have normal retirement before 65. Also, pension plans covering production workers specify normal retirement at 55 more often than do plans for professional and clerical workers.

While most pension plans encourage workers to leave their jobs when they reach retirement age, many plans seek to discourage workers from quitting at younger ages. To illustrate this point, Kotlikoff and Wise compare the pension wealth of two typical workers in each of the 2342 pension plans in the BLS sample. The first joins a firm at age 31 and continues there until the age of normal retirement. The second also joins a firm at age 31, but at age 41 leaves for another job with the same salary and pension benefits at a different firm, where he works until he retires. In this example, at retirement the pension wealth of the second person is on average only 72 percent of the pension wealth of the first person. The job change clearly will cost the worker pension money unless the new salary or pension plan is more lucrative than the former salary or plan.

Finally, because women tend to live longer than men, a woman with the same salary and pension plan as a man will accumulate more pension wealth. Kotlikoff and Wise calculate that the pension wealth of a typical woman in their sample is 9 percent larger on average than the pension wealth of a similar man at age 55 and 13 percent larger at age 65. Of course, the pension wealth of the average woman is smaller than the pension wealth of the average man because women's salaries are typically lower than men's salaries.

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