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Staying in School Pays Off

According to a new NBER study by **Joshua Angrist** and **Alan Krueger**, "students who are compelled to attend school longer by compulsory schooling laws earn higher wages as a result of their extra schooling." The estimated return to the involuntary investment in an additional year of schooling is roughly a 7.5 percent increase in earnings, about the same as the increase for men who attend school voluntarily.

In **Does Compulsory School Attendance Affect Schooling and Earnings?** (*NBER Working Paper No. 3572*), Angrist and Krueger point out that most school districts require that children reach age six by December 31, in order for them to enter first grade. States also typically require school attendance until students' sixteenth birthday. Therefore, students' birthdates are related to their required years of schooling.

"In most school districts, individuals born in the beginning of the year start school at a slightly older age, and therefore are eligible to drop out of school after completing fewer years of schooling than individuals born near the end of the year," Angrist and Krueger note. Using 1980 Census data, they find that for men born in the 1930s and 1940s, those with birthdays in the first quarter of the year completed about one-tenth of a year less school on average than those born in the last quarter of the year.

The high school dropout rate was 23 percent for men born in the 1930s and 14 percent for men born in the 1940s. On average, men born in the first quarter of those years were roughly 10 percent more likely to drop out of high school than men born in the fourth quarter of those years, the authors calculate.

Angrist and Krueger also report that about 12 percent of 16-year-olds in 1960 had dropped out of school versus 5 percent in 1980. Comparing dropout rates around the sixteenth birthday in states with an age 16 versus an age 17 compulsory schooling requirement, they estimate that attendance laws kept one-third of potential dropouts in school in 1960, but only one-tenth of them in school in 1980.

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To measure the return to additional schooling attributable to compulsory attendance laws—or, conversely, the economic cost of dropping out—Angrist and Krueger focus on men aged 40–49, presumably well along in their working lives. Using 1970 Census data, for example, the authors find that men aged 40–49 who were born in the first quarter of the year earned about 0.9 percent less per week and had about 0.13 fewer years of schooling than men born in the other three quarters of the same year. Therefore, the implied rate of return to education was about 7 percent, the authors calculate. Based on 1980 Census data, the analogous rate of return to education rose to 10 percent.

Income, Not Taxes, Determines Homeownership

Family income, not the tax code, is the main determinant of homeownership, according to an NBER study by **James Berkovec** and **Don Fullerton.** In **A General Equilibrium Model of Housing, Taxes, and Portfolio Choice** (*NBER Working Paper No. 3505*), Berkovec and Fullerton point out that of the lowest-income families—those with less than $5000 (in 1983 dollars) annually, for example—only 38 percent owned their own homes. But 71 percent of families with incomes between $30,000 and $50,000, and 96 percent of families with annual incomes of $200,000 or more, owned their own homes.

Berkovec and Fullerton also consider what would happen if the tax code were reformed to remove its bias in favor of homeownership. One reform they consider is to "level the playing field" among investments by taxing homeowners on the imputed rental value of their homes, just as if they were investing in homes and renting them out. Such a reform, the authors note, would have the obvious effect of reducing the return on investment in housing, making housing a less attractive investment. But they point out that such a reform also would have a more subtle effect: it would shift some of the risk of homeowning from owners to the government, making housing a more attractive investment. On net, Berkovec and Fullerton estimate, the reform would increase the probability of homeownership by a modest 1 percent. They find that the obvious effect would outweigh the subtle effect for the highest-income taxpayers. For taxpayers with annual incomes over $200,000, taxing the rental value of all homes would decrease by 0.1 percent the probability of owning a home. But the subtle effect would outweigh the obvious effect for lower-income families. For families making $10,000 to $20,000 (in 1983 dollars) annually, for example, the new tax would raise the probability of owning by 1.6 percent.

> **"Eliminating homeowners' deductions for property taxes and for mortgage interest . . . also would have only small effects on homeownership."**

The authors also estimate that taxing homeowners for the imputed rental income on their houses would permit a more efficient allocation of resources than did the tax law as it existed in 1983. The added taxes on homeowners would allow the government to reduce marginal tax rates, thus increasing the average real income per family by $380 (1983 dollars) annually.

Taxing homeowners on this imputed rental income may not be practical, though. Therefore, Berkovec and Fullerton consider other reforms, such as eliminating homeowners' deductions for property taxes and for mortgage interest. Both reforms, Berkovec and Fullerton estimate, also would have only small effects on homeownership. Both reforms would allow marginal tax rates to be reduced, making the tax system more "efficient." But the gain in efficiency would be less than if imputed rental income were taxed. Eliminating the property tax deduction would increase the average real income per family by only $87, they estimate, and eliminating the mortgage deduction would increase it by only $32. The reason that both reforms would increase efficiency by so much less than taxing imputed income, the authors note, is that neither of the reforms would shift the risk of home investment from the owners to the government. This foregone shifting and pooling of risk accounts for most of the difference between the two "practical" reforms and the less practical reform of taxing imputed rental income. Berkovec and Fullerton conclude: "[T]he success of a reform designed to address the relative taxation of owner and rental housing depends greatly on whether it allows government to help owners diversify." DRH

Pensions and Job Changing

Pension-covered jobs offer higher total compensation than "noncovered" jobs, and it is this compensation premium, rather than the reluctance of workers to lose or shrink their pension benefits by shifting to another firm, that explains lower turnover among workers covered by pensions, according to NBER Research Associate **Alan Gustman** and **Thomas Steinmeier.** In **Pension Portability and Labor Mobility: Evidence from the Survey of Income and Program Participation** (*NBER Working Paper No. 3525*), they find that, between 1984 and 1985, individuals without pensions were more than three times more likely (20 percent versus 6 percent) to move from their current jobs than individuals with pensions. Those moving from jobs without pension coverage gained an average of 7 percent in wages, while those moving from jobs with a pension lost an average of 6

percent. Further, about 14 percent of those who moved from nonpension jobs gained pensions in their new jobs, while 64 percent of those who moved from pension jobs lost pensions in the move.

Gustman and Steinmeier also find that workers with defined-contribution pension plans are only slightly more likely to change jobs than workers with defined-benefit pension plans. In the former, a company contributes a specific amount to an individual's pension plan that the worker may receive as a lump sum on retirement. In the latter, the worker (or spouse) receives a promised, regular pension benefit for life.

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Defined-benefit pensions, which are the predominant form of private pensions, calculate benefits with formulas based on job tenure and/or wages. These formulas usually result in value accruing disproportionately in the later years of employment, or "backloading." Thus, workers with defined-benefit plans who leave the firm prior to retirement give up a large share of their potential pension benefits.

But Gustman and Steinmeier find that workers who separate from any jobs with pensions typically lose both wages and pension eligibility in their new jobs. These losses are even greater than those resulting from backloading.

Further, except for workers approaching retirement age, the loss from backloading is a very small fraction of total compensation. So those who would otherwise gain from changing jobs can easily offset the loss. The compensation premium, and not backloading, accounts for most of the difference in mobility rates between pension and nonpension workers, Gustman and Steinmeier find.

Indeed, the authors calculate that backloading lowers the mobility rate of pension-covered workers by less than one percentage point, while the compensation premium in a pension-covered job lowers mobility by about eight percentage points. This means that backloading accounts for about 5 percent, and the remaining compensation premium for about 60 percent, of the difference in mobility rates between pension-covered and nonpension-covered workers.

Of course, multiple job changes will lower pension incomes after retirement, even for those with defined-benefit plans. However, workers covered by pensions usually are getting premium pay that dwarfs any pension losses resulting from backloading if they leave their jobs.

Gustman and Steinmeier use data from the 1984-5 Survey of Income and Program Participation, which interviewed workers every four months. They confine their analysis to males in order to avoid the complicating effects of career interruptions that some females are subject to, because of motherhood.

DRF

Is the Role of Banks Eroding?

Banks play an important role as financial intermediaries by accepting deposits from firms and households and making loans to businesses. To evaluate and monitor the creditworthiness of potential borrowers, banks stay close to them; thus, they are in a better position to make loans than individual depositors or other financial institutions would be.

Now a recent NBER study by **Gary Gorton** and **George Pennacchi** suggests that as other financial institutions gain the ability to evaluate commercial loans, this special function of banks may be eroding. In **Banks and Loan Sales: Marketing Nonmarketable Assets** (*NBER Working Paper No. 3551*), they report that now banks frequently sell their commercial and industrial loans to other financial institutions. Such loan sales rose from $27 billion in the second quarter of 1983 to a peak of $291 billion in the third quarter of 1989.

Less than half of the original borrowers were investment-grade firms, and less than half of the loans had maturities under one year. Nonbank financial institutions bought almost one-quarter of the loans that were sold by the originating bank. The remainder of these loans were bought by other banks.

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Gorton and Pennacchi observe that the importance of banks in corporate borrowing fell sharply in recent years: the ratio of short-term commercial paper *not* held by banks to banks' commercial and

industrial loans rose from less than 10 percent in 1959 to over 75 percent in 1989. The authors suggest that many corporations with solid credit ratings now issue publicly traded debt, such as commercial paper, instead of borrowing from banks.

Gorton and Pennacchi note that banks also have lost part of their market to junk bonds. Annual new issues of junk bonds grew from less than $1.5 billion prior to 1981 to over $30 billion in 1986, then declined to $25-$30 billion toward the end of the decade. This form of corporate borrowing largely bypassed banks, with 75 percent of junk bonds held by other financial institutions, such as insurance companies, money managers, mutual funds, or pension funds.

Finally, Gorton and Pennacchi suggest that nonbank financial institutions may now be able to assess information about the creditworthiness of borrowers more easily than in the past. If regulations such as reserve and capital requirements increase bank operating costs, then banks may have become less able to compete with other financial institutions as a source of finance for corporate borrowers.

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