

## Example 14.2

# Do Tax Incentives Increase Saving?

Many of the industrialized capitalist countries offer favored tax treatment to saving under their personal income taxes. The U.S. has been especially interested in encouraging saving for retirement through tax-favored instruments such as Individual Retirement Accounts (IRAs) and employer-sponsored pension plans (401(k)s). The U.S. also offers tax incentives for saving for higher education and a tax credit for saving to low-income taxpayers. Tax favored savings instruments in other countries include:

- Canada's registered retirement savings plans (RRSPs) and registered home owners savings plans (RHOSPs)
- Britain's Individual Savings Accounts
- Germany's *Vermögensbildungsgesetz* and *Bausparkassen* tax incentive programs
- Italy's tax incentives for life insurance policies
- Japan's *Maruyu* accounts
- France's individual (PEPs) and two society-building savings plans (CELs and PELs).

We focus here on the U.S. IRAs and 401(k)s because their effects have been extensively studied by economists, far more so than the tax-favored savings instruments in the other countries.

### THE KEY QUESTION

The main question about any tax incentive for saving that economists and governments would like to be able to answer is simply: does it work? Does the tax incentive increase individuals' total saving or just induce them to substitute the tax-favored saving for

taxable saving that they would have undertaken anyway? This question is especially important to the U.S., where national saving (saving by the private and government sectors) is very low, both absolutely and relative to most of the industrialized market economies. The government sector is in deficit (negative saving) and the rate of personal saving out of disposable income by households has been very low for the past ten to fifteen years, to the point of turning negative in 2005 and 2006 for the first time since the Great Depression of the 1930s. The tax revenue lost to the U.S. Treasury through IRAs and 401(k)s is estimated to be approximately \$125 billion (2006), which itself represents negative saving by the government sector. Therefore, unless IRAs and 401(k)s strongly stimulate personal saving by households, their effect is to reduce national saving (at least until taxes are collected on the pension income when the IRAs and 401(k)s are cashed in during people's retirement years).

In addition, IRAs and 401(k)s are specifically designed to encourage people to increase their savings for retirement, and many economists view them as a good policy because they are convinced that the majority of American people save far too little for their retirement years. In 2004, the median value of the financial assets of people between the ages of 54 and 65 (those considered to be near retirement) was only \$30,000.<sup>1</sup>

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## IRAs AND 401(K)s

The two most important features of IRAs and 401(k)s in determining whether they increase the personal saving of individuals are their highly favored tax treatment and the dollar limits that Congress has placed on them.

Savings instruments such as passbook savings accounts and regular certificates of deposits are taxed as they should be under an income tax: individuals cannot deduct funds placed in these accounts, the interest on them is taxed as it accrues, and the funds are not taxed when withdrawn. In contrast, all purchases of IRAs and 401(k)s are tax deductible, the interest (or other form of earnings) accumulated on them is excluded from the tax base, and individuals pay taxes on the principal and accumulated interest (earnings) when they are cashed in during retirement. That is, IRAs and 401(k)s are taxed as they would be under a consumption tax.<sup>2</sup> The ability to avoid taxes up front and accrue interest tax-

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<sup>1</sup> A. Munnell and A. Sunden, "401(k) Plans are Still Coming up Short," *An Issue in Brief, Number 43*, Center for Retirement Research, Boston College, Table 1. P.2. Households have increased their rate of saving since 2008 to 4 to 6% of disposable income as they attempt to reduce their debt and restore their financial wealth following the financial crisis of 2008. These rates are more in line with historical household saving rates over the long run, but it is unclear whether they will continue after the economy recovers and households' balance sheets have been restored.

<sup>2</sup> Congress later introduced a variation of IRAs and 401(k)s called Roth IRAs (in 1998) and Roth 401(k)s (in 2001), for which the interest earned is also excluded from the tax base. Otherwise they are taxed like regular savings instruments--purchases are not tax deductible, and the principal and interest are not taxed when withdrawn. Also, to encourage people to use the regular and Roth IRAs and 401(k)s for retirement income only, withdrawals are subject to a ten percentage point tax rate penalty if taken before age 59½.

free gives IRAs and 401(k)s a tremendous rate-of-return advantage over the taxable instruments. The advantages of 401(k)s are further enhanced because employers can match employees' contributions. As with the employees' contributions, matching funds are tax deductible to the employees, and the interest (earnings) on these funds accrues tax-free.

The ability to take advantage of IRAs and 401(k)s has always been restricted, however. When IRAs were introduced in 1974, they were available only to taxpayers who did not participate in a pension plan through their work, and they were subject to a limit of \$1,500 per year. There have since been three noteworthy changes. In 1981, IRAs were made available to all taxpayers, and the limits were increased to \$2,000 plus another \$250 for the taxpayer's spouse. In 1986, eligibility for IRAs was phased out entirely between incomes of \$30,000 to \$40,000 for taxpayers filing jointly and \$25,000 to \$35,000 for single filers, so that they were subsequently available only to lower income taxpayers. Finally, the 2001 tax cut increased the limit in a series of steps to \$5,000 by 2008, but retained the phase out for moderate and higher income taxpayers.

The 401(k)s were introduced in 1978 as an employer-sponsored pension option for their employees. They, too, have always been subject to limits, although much higher limits than the IRAs. The limit on employee contributions to 401(k)s in 2006 was \$15,000 per year. Matching contributions by employers increase the combined contribution limit to \$44,000 (2006), or the employee's entire compensation if less than \$44,000. Unlike IRAs, there are no income restrictions on employees' participation in 401(k) plans.

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## DO IRAs AND 401(K)s INCREASE PERSONAL SAVING?

Economists have not been able to provide a convincing answer to the question of whether IRAs and 401(k)s increase personal saving. There are a number of uncertainties, both theoretical and empirical.

### **Theoretical uncertainties**

When thinking about the effects of IRAs and 401(k)s, it is natural to begin with the long-run Life-Cycle Hypothesis (LCH) of consumption and saving (described in Chapter 12 of the text), in which people plan their consumption and saving decisions over their entire lifetimes based on their projected lifetime resources. This would appear to be the appropriate model because IRAs and 401(k)s are targeted at encouraging saving for the very long run, for the retirement years. According to the LCH, people save in an effort to smooth their consumption or standard of living over time. In the simplest LCH model

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There are a few exceptions, such as withdrawals for medical emergencies. (The tax penalty on the Roth versions applies only to the accumulated earnings.)

people are not constrained from borrowing and lending and there are no bequests – people eventually consume all their lifetime resources.

The tax advantages given by IRAs and 401(k)s increase their after-tax rate of return and, in doing so, generate both a substitution (relative price) effect and an income (purchasing power) effect on people's decisions regarding current versus future consumption. The substitution effect favors future consumption over current consumption because each dollar of current consumption sacrificed by saving leads to a larger amount of future consumption. Future consumption has become relatively cheaper, inducing people to save more. The tax advantages also increase people's lifetime income or purchasing power, which favors both current and future consumption since they are both goods that contribute to lifetime utility. But more current consumption implies less saving, so that people tend to save less. Therefore, the substitution and income effects of the tax incentives tug in opposite directions on saving; the theoretical effect of tax incentives on saving is ambiguous.

The limits on IRAs and 401(k)s also come into play. For individuals who save more each period than the limit amounts, and large numbers of people do, only the income effect applies. These people would purchase IRAs and 401(k)s to the limit to increase the overall returns to their saving, but there is no substitution effect associated with the tax incentives because the returns on their last dollars of saving above the limits are still taxable. As noted, the income effect favors current as well as future consumption, so that the tendency of the tax incentives is to *reduce* their saving.

The simple LCH model clearly does not apply to all savers, however. For example, of those people who participate in IRAs, only 70% contribute the full amount. In terms of the LCH, these people are liquidity constrained and for them both the substitution and income effects apply. Their saving may well increase. Yet many taxpayers appear to be so liquidity constrained that they do not participate at all in IRAs. In addition, economists have discovered many aspects of people's behavior regarding IRAs and 401(k)s that are irrational from a narrow economic perspective but are consistent with patterns of behavior uncovered by psychologists and psychiatrists.<sup>3</sup> One example is that many people purchase only \$2,000 of IRAs even if they are eligible to buy more. Psychologists note that people tend to develop focal points to guide their behavior, and the 1981 limit of \$2,000 may have come to serve as such a focal point. Still another example is the suspicion among some economists that the surge in IRA purchases in 1981 was mainly due to the government's extensive attempts to promote IRAs. The government's advertising campaign may have induced people to think about their retirement seriously for the first time. In a similar vein, the steady growth in 401(k)s may be explained in part by the use of automatic payroll deductions to finance them. Both the

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<sup>3</sup> Economic analysis based on insights from psychology has come to be called behavioral economics and it is rapidly growing in importance. The Epilogue of the textbook offers a brief introduction to behavioral economics.

government advertising and the payroll deductions help to overcome people's psychological tendency to give too much weight to the present and not enough to the future. They often lack the self-discipline required to sacrifice now for worthwhile benefits in the future.

Whatever the truth may be, economists who study saving behavior have found that there are many different motives for saving, such that people have very different proclivities or tastes for saving. No one model has emerged as an accurate predictor of saving behavior in the developed market economies.

### ■ Empirical uncertainties

Regarding the empirical analysis of tax incentives for saving generally, most studies that attempt to relate aggregate saving to the rate of return on saving find no relationship between the two. Saving seems to be determined by other factors – such as income, age, and wealth. Some researchers using micro data sets on individuals have found that saving is positively related to the rate of return on saving, but the estimates are all over the place, from almost no effect to saving elasticities close to one.

The same degree of empirical uncertainty exists regarding the effects of IRAs and 401(k)s on personal saving. In the first place, just looking at simple trends over time offers little or no insight. IRAs and 401(k)s have followed very different paths since their introduction. In 1981, at the time when IRAs were made available to all, only 1% of taxpayers took advantage of them even though half of the taxpayers were eligible. Their value was only \$5 billion. But their use increased dramatically under universal eligibility; by 1986, 15% of taxpayers participated and their value rose to \$38 billion. Then their use plummeted following the phase-out on 1986, falling to \$10 billion by 1990 with only 4% of taxpayers participating, and IRA participation has remained low ever since.<sup>4</sup>

In contrast, 401(k)s have increased steadily since 1981. This happened in large part because firms have been shifting away from defined benefit pension plans to defined contribution pension plans. Under a defined benefit plan, a firm establishes and invests in a pension fund on behalf of all its employees and provides predetermined (defined) annual pensions to its retirees paid for from the assets and earnings in the fund. The pensions are given regardless of the investment performance of the fund. Under a defined contribution plan, investments in the pension fund are earmarked to individual employees' pensions, and the amount of pension income each employee receives depends on the success of their earmarked investments. The firms changed from defined benefit to defined contribution plans to shift the risk of investing for pensions from themselves to their employees. Employees manage their own investments in 85% of the defined

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<sup>4</sup> B. Douglas Bernheim, "Taxation and Saving", in A. Auerbach and M. Feldstein, (eds.), *Handbook of Public Economics, Volume 4* (North Holland: Elsevier Science Publishers B.V., 2002), Chapter 18, pp. 52 and 65.

contribution plans. The use of 401(k)s has grown, since they are the vehicle used for investment under the majority of the defined contribution plans.

At the same time that use of IRAs was rising and then falling and use of 401(k)s was steadily growing, the average personal saving rate out of disposable income behaved differently still. It has been decreasing steadily since the mid-1980s, becoming negative in 2005, as already noted. Nothing obvious emerges from such divergent trends. Clearly, careful econometric analysis is required to capture the other-things-equal effect of IRAs and 401(k)s on personal saving.

As it happens, there have been a number of careful econometric analyses of the effects of IRAs and 401(k)s on personal saving, but the results could hardly be more inconclusive. One group of economists (notably Jonathan Skinner, James Poterba, David Wise, and Steven Venti) concludes that most of the purchases of IRAs and 401(k)s represent new saving – the result that the U.S. Congress and administration are obviously hoping for. But another group (notably Eric Engen, William Gale and John Scholz) is just as convinced that IRAs and 401(k)s almost entirely substitute for saving that would have occurred anyway without the tax incentives. Unfortunately, there appears to be little hope of reaching a reconciliation of these views given the data available to economists.

The differences between the two groups of studies turn on a number of econometric issues that are well beyond the scope of this text. But the main problem is that there are so many different kinds of savers. Some people save quite a bit, others hardly at all, and those who save more purchase more of all kinds of assets, including IRAs and 401(k)s. These differences in tastes for saving confound the efforts to determine the independent effects of IRAs and 401(k)s on total saving.

Consider, first, the IRAs. The ideal data set to test for the effect of IRAs on saving would be random samples of two distinct groups of people – one group that was always eligible for IRAs and another group that was never eligible for IRAs. The data on the individuals in each group would include their incomes, age, wealth, and other variables that might determine people's tastes for savings, all measured over a fairly long time period. Then a regression of non-IRA saving on all these variables that included purchases of IRAs by the eligible group would give an unbiased estimate of the effect of IRAs on non-IRA saving, independent of the effects that all the other control variables have on non-IRA saving. This is so because IRA eligibility is predetermined from the point of view of each individual. It cannot be related to unobserved variables that might affect the tastes for saving, which are captured by the error term in a regression equation. Estimates on the coefficient of an explanatory variable in a regression equation are biased away from their true values when the explanatory variable is correlated with the error term.

IRA eligibility has not been predetermined over time, however. From 1981 to 1986, when IRA purchases grew rapidly, IRA eligibility was virtually universal. Before 1981 it was linked to participation in a private pension plan and after 1986 it was linked

to income. Therefore, it is quite possible that people with higher than average tastes for saving were those who purchased IRAs, which implies that purchases of IRAs and the unobserved tastes for saving embodied in the error term are positively correlated. This tends to produce an upward bias in the estimated relationship between IRAs and total personal saving. Given the data available to them, economists have not found a convincing way to avoid this bias or to determine its extent in a regression analysis.

The 401(k)s would appear to be more hopeful, because the employers determine whether to offer 401(k) plans to their employees. Hence eligibility for 401(k)s would appear to be predetermined from the point of view of individuals. But this appearance is deceptive. In fact, employers often adopt 401(k) plans because their employees pressure them to, and people with high tastes for saving are more likely to work for companies that offer 401(k) plans. Therefore, it is reasonable to suppose that the earliest 401(k) plans were offered to people with the highest tastes for saving, with subsequent 401(k) plans offered to people with ever-lower tastes for saving as time passed. Douglas Bernheim refers to this as a dilution in the tastes for saving over time among 401(k) participants. If a dilution has occurred, then there would be a negative correlation between 401(k)s and unobserved tastes for saving over time in a regression equation, leading to a downward bias in the estimate of the effect of 401(k) plans on total saving. By the same argument, people who do not participate in 401(k) plans would tend to have the lowest tastes for saving. As time passes and more people participate in 401(k) plans, the tastes for saving for the group of non-participants also decreases on average. Therefore, the tastes for saving of the two groups, participants and nonparticipants, may move closer *or* further apart, since the average tastes for saving are decreasing for both of them. It is not clear how this movement biases the estimates of 401(k) participation on saving in a regression analysis comparing the total saving of participants and non-participants. Once again, there appears to be no sure way to remove these potential biases given the data available to researchers.

In his article on the effect of tax incentives on saving for the *Handbook of Public Economics*, Douglas Bernheim laments that empirical analysis has not been able to establish the effects of 401(k)s and IRAs on personal saving (or of tax incentives for saving generally). This would appear to be the appropriate conclusion to draw from the econometric studies to date, and the conclusion is not likely to change unless better data become available to economists.

## Sources

This example draws heavily from B. Douglas Bernheim, "Taxation and Saving", in A. Auerbach and M. Feldstein, (eds.), *Handbook of Public Economics, Volume 4* (North Holland: Elsevier Science Publishers B.V., 2002), Chapter 18.

Also, S. Khitatrakun and J. Scholz, "Saving Incentives in the US," in O. Castellino and E. Fornero (eds.), *Pension Policy in an Integrating Europe* (Edward Elgar, 2003), Chapter 6.

For the view that IRAs and 401(k)s increase total personal saving, see J. Poterba, S. Venti, and D. Wise, “How Retirement Saving Programs Increase Saving,” *Journal of Economic Perspectives*, Autumn 1996. For the contrary view that they simply substitute for taxable saving, see E. Eigen, W. Gale, and J. Scholz, “The Illusory Effects of Saving Incentives on Saving,” *Journal of Economic Perspectives*, Autumn 1996.