

6. Saving incentives in the US^{*}

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6.1 INTRODUCTION

The metaphor used to describe retirement preparation in the United States is the ‘three-legged stool’. The seat of the stool is retirement security, which is supported by three legs: employer-provided pensions, public pensions (Social Security and, for disabled or indigent elderly, Supplemental Security Income), and private saving. Low rates of household and national saving in the US, both in comparison to previous US experience and relative to saving rates in other countries, have generated considerable interest in increasing saving by US policy makers.

Tax incentives have been the primary way that policy makers have sought to stimulate household saving. The resulting set of incentives – individual retirement accounts (IRAs), Roth IRAs, 401(k)s, SEP IRAs, Simple IRAs, Keoghs and a variety of education- and medical-related incentives that are also saving vehicles (education IRAs, qualified state tuition plans, and medical saving accounts) – require specific rules, which contributes to tax complexity, and, since affluent taxpayers are more likely than others to take advantage of the provisions, they contribute to income and wealth inequality. A central question is whether these provisions increase household and national saving.

This chapter begins with a brief discussion of US saving rates over time and policies designed to increase household and national saving. A central issue when evaluating the merits of tax incentives for saving is the degree to which families are preparing adequately for retirement. The literature comes to mixed conclusions.

We then present new descriptive information using data from the Health and Retirement Survey (HRS) on the efficacy of the largest tax incentives for

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private savings, 401(k)s. Our strategy is twofold. If 401(k)s increase private wealth, 401(k)-eligible households ought to have ‘better’ retirements than those without (assuming that after conditioning on covariates, 401(k) eligibility is exogenously determined). We examine this intuition using subjective questions about retirement satisfaction and worries in the HRS. Our second, more standard approach is to examine the relationship between 401(k)s and wealth in the HRS.

We find mixed evidence about the efficacy of 401(k)s. 401(k) eligibility is strongly correlated with worrying less about income in retirement. However, in cross-sectional data (and in pooled cross-sectional HRS data across waves), there is no evidence that 401(k)s are positively associated with wealth. We speculate that the frequent reporting of 401(k) balances and relative simplicity of program rules help people better appreciate the resources they have to draw on in retirement, and hence they help reduce worry. But at the same time, they also allow people to make economic or financial adjustments in other aspects of their labor supply or household portfolios, so 401(k)s do not increase private wealth.

The chapter concludes with a brief discussion of issues related to social security, employer-provided pensions, and tax incentives for private saving.

6.2 SAVING RATES IN THE UNITED STATES

Figure 6.1 plots a time series of US household (personal) saving rates as a percentage of disposable personal income from the National Income and Product Accounts (NIPA) and the Flow of Funds. Between 1950 and 1993, personal saving rates as a percentage of disposable income (as measured by the NIPA) ranged between 6.9 per cent and 10.9 per cent. Personal saving rates began falling in the mid-1980s and then fell sharply beginning in 1993, reaching -0.1 per cent of disposable income in 2000. The Flow of Funds personal saving rate, which account for purchases of consumer durables as saving, show a similar pattern, with sharp reductions starting in the mid-1980s.

The apparent striking decline in personal saving raises the concern that American households are not preparing adequately for retirement. Gale and Sabelhaus (1999), however, note that these saving measures do not account appropriately for the effects of inflation on interest flows, do not count consumer durables accumulation as investment, and do not treat contributions to retirement programs on a consistent basis. Moreover, the distinction between household and corporate saving is blurry. If adjustments are made to address these concerns, the apparent decline in saving over the last two decades is much smaller. If unrealized capital gains are included in saving

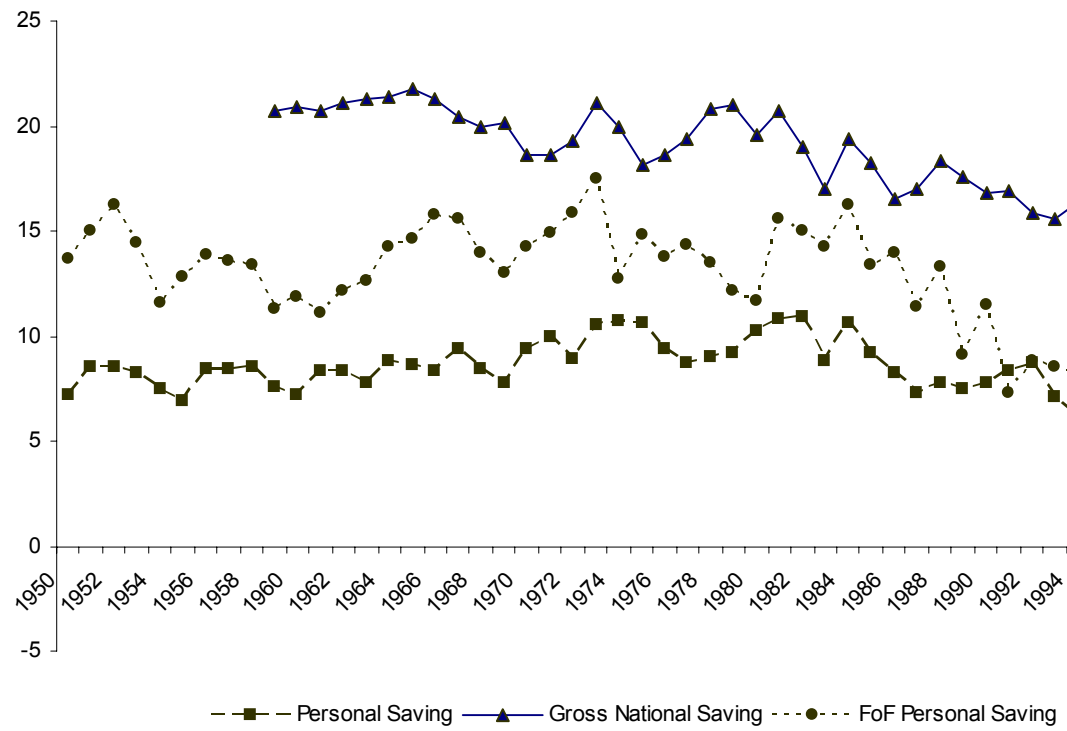


Figure 6.1 Personal saving as a percentage of disposable personal income, and national saving as a percentage of GDP

measures (and as income), saving rates in 1998 were at 40-year highs.¹ Adjusting saving series for asset revaluations raises thorny issues having to do with the factors driving asset price increases, but when assessing retirement security, it probably makes sense to do so.

Two distinct questions arise with the NIPA and Flow and Fund saving series and potential adjustments of them. First, what do they tell us about retirement preparation and national saving? Gale and Sabelhaus (1999) conclusively show that aggregate series on household saving do not prove that households are preparing less aggressively for retirement than they had done in the past. Even without the Gale and Sabelhaus adjustments, Figure 6.1 shows that gross national saving rates remain only slightly lower than historical averages in the 1990s, reflecting primarily the sharp improvements in the federal budget deficit over this period.

Second, how do policy makers respond to changes in the household and national saving series? The pairing of two results, that the most well publicized series on household saving was negative in 2000 and that the US is a low-saving country internationally,² leads to considerable ongoing political interest in saving-promotion policies. The tax bill signed by the President in June 2001, creates a new account in 2006 called the Roth 401(k), which has a \$15 000 annual contribution limit; it increases contribution limits for IRAs (to \$5000 in 2008) and 401(k)s, 403(b)s and 457 plans (up to \$15 000 by 2006); it raises contribution limits for workers over 50 on IRAs, 401(k)s, 403(b)s and 457 plans; and it creates a new tax credit (providing a 50 per cent match on saving up to \$2000) for low-income families (with incomes under \$30 000) to save from 2002 to 2005.

6.3 THE EVOLUTION OF POLICY RELATED TO HOUSEHOLD SAVING

Most economists and policy makers believe national saving rates are an important long-term determinant of economic growth (see, for example, Aaron and Shoven, 1999). As discussed in more detail below, however, there is mixed evidence that Americans are failing to prepare adequately for retirement and that tax incentives have significantly increased private saving. Nevertheless, the US continues to enact policies to expand tax incentives for saving.

The key building blocks for increasing saving are public pensions, employer-provided pensions, and non-pension net worth. We briefly discuss each of these.

6.3.1 Public Pensions (Social Security)

Social security was founded in 1935 as one of President Franklin Roosevelt's New Deal programs and was designed to meet the unmet social need of older workers leaving the workforce without sufficient post-retirement income to be self-supporting.³ Over the years it has been referred to as 'the third rail of American politics,' meaning that any politician that dares to reduce (or 'touch') social security would not be reelected (which is 'death' for a politician). Benefits have steadily increased over the years, to the point where replacement rates (the percentage of final-year earnings accounted for by social security) are estimated to be 53 per cent for retirees who first receive benefits at age 65 in 2000 and who earned 45 per cent of the average covered wage over their complete working lives (in 1997 this would be \$12 342). Replacement rates are 40 per cent, 32 per cent and 24 per cent for workers earning the average covered wage (\$27 426 in 1997), 160 per cent of the average covered wage (\$43 882), and the maximum (\$65 400) respectively, over their working lives.

For some time social security has been collecting more in taxes than it spends in benefit payments, hence the program has been accumulating a surplus. The surplus is expected to increase over time, until 2016 when benefits are expected to exceed taxes for the first time. With the aging of the baby boom generation, the social security surplus is expected to last until 2029.⁴ Rhetoric from politicians of both parties suggest social security will be preserved, but debates will continue over the best way to ensure the system's long-run solvency (see, for example, Aaron and Shoven, 1999).

6.3.2. Employer-provided Pensions

Rules governing employer-provided pensions were largely set in place by the 1974 Employee's Retirement Income Security Act, though pension arrangements in the US have changed sharply since then. In 1975, 70.8 per cent of the 38.4 million active participants in pensions (and 71.5 per cent of the total pension assets) were in defined benefit (DB) plans, where pension benefits typically depend on length of service and compensation patterns, but have little to do with the investment returns of pension assets. By 1995 only 35.5 per cent (and 51.5 per cent of the assets) of the 66.2 million active participants were in DB plans.⁵ The rest were in defined contribution (DC) plans, where the size of the pension benefit depends directly on the investment performance of the assets held in the pension. In roughly 85 per cent of these DC plans, workers control investment choices, given a specific set of employer-designated options (Mitchell, 2000).

Employers bear the risk of market fluctuations under DB pension

arrangements, while this risk is borne by individuals under DC pensions. The costs of job changes are likely lower with DC pensions, where benefits are portable upon vesting. Benefits are also more transparent under DC pensions, where participants typically receive quarterly benefit statements. DB pension formulas generally depend on years of service and earnings trajectories and are back-loaded, which may influence job change decisions. These differences may result in different behavioral responses to the alternative pension arrangements.

A particularly popular form of DC pension over the past twenty years is the 401(k). Employers may decide to offer a 401(k) plan to their workers (nonprofit employers can offer 403(b) plans and state and local governments can offer 457 plans). Employers frequently match employee contributions up to a specific threshold (for example, 10 per cent of salary or \$5000). Workers then choose whether or not to participate. In 2001, contributions up to \$11 000 are exempt from tax. Moreover, earnings on the contributions accumulate tax free. Withdrawals on the 401(k) are taxed as ordinary income.

The budgetary cost of the net exclusion of pension contributions and earnings from employer plans is estimated to be \$89.1 billion in 2001 (IRAs are another \$15.2 billion and Keoghs are another \$5.5 billion).⁶ This tax expenditure is designed to increase private and national saving and enhance retirement income security. If people fully substitute pension and financial wealth, however, the pension tax expenditure will not increase private saving. The revenue loss from the tax expenditure could lower national (the sum of public and private) saving, and do nothing more than provide a large incentive for employers to offer compensation in the form of pensions, which in turn disproportionately benefits high-wage workers and their employers (since the probability of pension coverage increases with earnings). Alternatively, if there is little offset, pension subsidies may be a cost-effective way to increase private and national saving.

If employer-provided pensions increase household saving, 'non-discrimination rules' are likely to be an important reason. These rules limit the amount of benefits received by highly-compensated employees in a company relative to the benefits received by other employees. Thus, a company is not able to provide overly generous amounts of untaxed fringe benefits to executives without providing the same (or similar) benefits to the lowest-paid workers. Perhaps as a consequence of non-discrimination rules, firms that offer voluntary pension arrangements, such as 401(k)s, often provide generous match rates in order to ensure a high enough degree of participation by less well-compensated employees. It is likely that non-pension wealth offsets are lower for families with few assets in non-pension form than they are for high net worth families.

6.3.3 Tax Incentive for Private Savings

At any given time, roughly half of all workers are not covered by employer-provided pension plans (roughly one-third of all workers reach retirement with no benefits from employer-provided pension plans). Policy makers have designed a variety of tax incentives to promote (non-pension) private saving. These are justified, in part, as provisions to enhance the retirement income security of pensionless workers.

An individual retirement account (IRA) is available to those under age 70½ who have earned income. Earnings grow tax-deferred until withdrawal. Contributions are deductible for all taxpayers not covered by an employer-provided pension. For those that are covered, full deductibility is restricted to households with incomes below specific income thresholds.⁷

Roth (or ‘backloaded’) IRAs differ from regular IRAs in that contributions to the account are not deductible, but withdrawals from the account are not taxable. Like regular IRAs, earnings on the account are typically not taxable. Penalty-free withdrawals can be taken after the taxpayer reaches age 59½ or becomes disabled or buys a home for the first time. There are also income limits on Roth IRAs.⁸

Optimal investment planning is made even more difficult by IRA-like saving incentives designed for educational expenses. Education IRAs are similar to Roth IRAs in that there is no up-front deduction, but deposits and earnings may be withdrawn tax-free if used to pay for the costs of higher education. If accumulations are not used for educational expenses, a 10 per cent excise tax is imposed. Relative to some forms of taxable saving, even if the investor pays the non-education excise tax, education IRAs would be good investments. But education IRAs are not the only and, in some cases, not the best college saving plan.

Qualified state tuition plans (QSTPs, or 529 plans) are investments operated by a state to help families save for future college costs. Plans vary across states, some provide tuition at in-state universities and others operate like a mutual fund. Some states offer a state income tax deduction for contributions (up to a ceiling) to the QSTP, and investments can be directed into a S&P500 index fund. Like other saving incentives, QSTPs provide tax-free accumulation, but have contribution limits as high as \$100 000 per beneficiary. If the account is not used for educational expenses, most states collect a penalty of 10 per cent of the earnings portion of a ‘non-qualified’ withdrawal (meaning, an investor would recover 100 per cent of the principal and 90 per cent of the earnings from the investment).

Two concerns arise from the patchwork of retirement and education saving incentives. First, it is hard for people to figure out the best investment choices given various plan features. While the financial consequences of suboptimal

choices for an individual may not be large, they nevertheless may contribute to the feeling that somebody smarter, better connected or better informed is not facing commensurate tax responsibilities, given their circumstances. Second, participation in tax incentives is positively correlated with income and wealth, and hence they contribute to the erosion of tax progressivity and the striking increase in US income inequality.⁹

The case for tax incentives for saving rests with two issues. First, are Americans under-saving for retirement? If they are, it may make sense to try to encourage saving through tax incentives. However, even if there is evidence of under-saving, tax incentives may not be a sensible policy response unless they stimulate additional private and national saving. So the second critical question is whether or not tax incentives stimulate private and national saving at a reasonable cost. We provide a brief review of work examining the first issue in the next section. Following that we present new work on the relationship of 401(k)s on retirement wealth and subjective retirement expectations.

6.4 THE ADEQUACY OF RETIREMENT PREPARATION

The following quotation from the *Wall Street Journal* captures a popular view of US consumption patterns.

A long time ago, New England was known for its thrifty Yankees. But that was before the baby boomers came along. These days, many New Englanders in their 30s and 40s, and indeed their counterparts all over America, have a different style: they are spending heavily and have sunk knee-deep in debt. ... A recent study sponsored by Merrill Lynch & Co. showed that the average middle-aged American had about \$2,600 in net financial assets. Another survey by the financial-services giant showed that boomers earning \$100,000 will need \$653,000 in today's dollars by age 65 to retire in comfort – but were saving only 31 per cent of the amount needed. In other words, saving rate will have to triple. Experts say the failure to build a nest egg will come to haunt the baby boomers, forcing them to drastically lower standards of living in their later years or to work for longer, perhaps into their '70s.¹⁰

The academic (as opposed to journalistic) evidence on this issue is mixed. Several academic papers that focus on consumption changes around retirement find results consistent with inadequate retirement preparation.¹¹ Recent papers identify what has been termed 'the retirement-savings puzzle', where consumption falls upon retirement by more than would be anticipated by a life-cycle model where households are equating the marginal utility of consumption across time, subject to an uncertain environment. Banks *et al.* (1998) estimate a model of changes in log consumption using cohort data

from 25 years of the British Family Expenditure Survey. The model accounts for changes in the number of people in the household, the increase in mortality risk as households age, expected retirement and unemployment. While the model closely tracks consumption growth for cohorts prior to retirement, it systematically understates the decline in consumption in the first two years around retirement. The economic magnitude of the discrepancy is not large – they find the anticipated fall in consumption growth, after accounting for household demographics and labor force status, is around 2 per cent while the actual consumption growth around retirement falls by as much as 3 per cent. Nevertheless, they interpret their results as suggesting there are unanticipated (negative) shocks occurring around the time of retirement.

Bernheim *et al.* (2001) also examine changes in consumption around retirement. Using data from the Panel Study of Income Dynamics (PSID) they find the mean (median) drop in average consumption in the two years following retirement for American households is 13.1 per cent (11.3 per cent). After conditioning on similar factors as Banks *et al.*, they report that 31 per cent of the sample of American households reduce their consumption by at least 35 per cent. While the PSID only contains information on a few expenditure categories, the decline in consumption occurs with food consumed at home, with food consumed away from home, and is consistent with sensitivity analysis using budget share data from the Consumer Expenditure Survey. While one might expect some drop in consumption following retirement, particularly for work-related expenses, finding that consumption drops by a much larger amount than found by Banks *et al.* and that it drops across several distinct consumption categories is provocative. Bernheim *et al.* argue their results are difficult to reconcile with the life-cycle model and that they are more likely to be the result of household behavior not governed by rational, farsighted optimization.

Moore and Mitchell (1998) also conclude Americans are not preparing adequately for retirement.¹² They calculate the annuity value of old age wealth and compare this to observed income in the Health and Retirement Study. They translate shortfalls in usual replacement rates into the amount of income one would need to save approaching retirement. They find the median household would need to save 16 per cent of annual earnings between 1992 and the time of retirement (at 62) to have a replacement rate of 69 per cent. Delaying retirement age to 65 would require saving of 7 per cent, and lead to a replacement rate of 78 per cent. Moore and Mitchell conclude, ‘... despite seemingly large accumulations of total retirement wealth, the majority of older households will not be able to maintain current levels of consumption into retirement without additional saving’.

In contrast, Engen *et al.* (1999) conclude that married American couples

where the husband works full time are saving adequately for retirement.¹³ They present optimal wealth to income ratios calculated from a dynamic, stochastic life-cycle simulation model, and then compare these to actual ratios calculated from the HRS and Surveys of Consumer Finances (SCFs). They find a wide distribution of optimal simulated ratios within the population due to realizations of earnings uncertainty, so they argue that empirical work that focuses on discrepancies of actual wealth relative to a median (or mean) target wealth-income ratio does not provide compelling evidence of under- or over-saving. They then show that actual wealth distributions from the HRS and SCF closely match (or are larger than) the simulated optimal distributions.

A skeptic could look at the work suggesting that retirement preparation is inadequate and note (1) the Banks *et al.* results imply an economically insubstantial retirement saving puzzle; and (2) the Moore and Mitchell results are not necessarily indicative of inadequate saving since households should not be expected to fully accumulate retirement resources until the time of their retirement.¹⁴ Bernheim *et al.* (2001) document an economically substantial change in consumption around retirement. This result, however, is not *prima facie* evidence of inadequate retirement preparation. Both food consumed at home and away from home could clearly fall upon retirement as retired households replace expensive convenience foods with food made from scratch. Without further evidence on leisure-consumption complementarities, it is not fully clear how to interpret their results.

A skeptic might also raise concerns about the evidence showing American families are preparing adequately for retirement. Gustman and Steinmeier (1999a) explicitly acknowledge that they do not offer a standard for assessing adequacy, but rather simply note that HRS households have accumulated considerable wealth relative to their lifetime incomes. Engen *et al.* (1999) focus only on married couples where the husband works at least 20 hours per week, excluding, for example, more than 30 per cent of the HRS sample that is single-person households. Even for households they do consider, the standard they impose for assessing adequacy, while a significant contribution to the literature, is modest. Remember, they compare distributions of wealth-income ratios in the HRS and SCFs with simulated optimal distributions. Variation in the optimal targets arise, for example, if households have positive or negative income shocks late in life. But specific households in the HRS (and SCFs) receive income shocks and there is no good reason to think that those who have negative (positive) income shocks late in life are necessarily those who have low (high) wealth-income ratios. Put differently, each RHS household has an optimal wealth income ratio given the Engen *et al.* model, but the fact that distributions match does not necessarily imply that each household is achieving its target. The result on distributions in their

paper (assuming the distributions match perfectly, which they do not) only ensures that at least half the households exceed their targets.

We are left without a strong conclusion about the findings of existing work on the adequacy of retirement preparation in the US. Additional work on this topic that helped resolve discrepancies would be worthwhile. But even if the weight of the evidence was consistent with the idea that Americans are not preparing adequately for retirement, it does not necessarily follow that tax incentives for saving, like IRAs and 401(k)s, are sensible policy initiatives. For this to be true they must, at a minimum, increase private saving. More generally, holding all else constant, tax incentives will only increase national saving if the increase in household saving is larger than the reduction in government saving associated with the tax preference.

6.5 THE EFFICACY OF TAX INCENTIVES TO ENHANCE RETIREMENT SECURITY

Tax preferences for household saving have been widely available since 1981, when eligibility for Individual Retirement Accounts was made universal (eligibility was restricted in 1986, but the popularity of 401(k) plans has increased steadily since the early 1980s). Despite the widespread availability and popularity of tax preferences for saving, measures of private, household saving have declined sharply over this period, as shown in Figure 6.1. Of course, household saving might have been even lower in the absence of the tax preferences.

A number of authors have tried to systematically evaluate the effects of tax incentives for saving. Engen *et al.* (1996) present new work and examine the older papers and conclude there is little compelling evidence that tax incentives have significantly increased private, and particularly national saving. Poterba *et al.* (1996) examine the same data and conclude the opposite. Papers examining the effects of 401(k)s on saving typically either treat 401(k) eligibility as being exogenous, and hence rely on simple regression-adjusted comparisons of the wealth of households eligible and households ineligible for 401(k)s, or rely on the intuition that if 401(k)s increase household saving, asset accumulation should increase with the period of 'exposure' to 401(k)s. Scholars continue to reach different conclusions because of disagreements about whether or not 401(k) eligibility is in fact exogenous, and how the composition of 401(k) eligible groups changes over time.

A nice, recent contribution is Engen and Gale (forthcoming). They use over time variation (using data from the 1987 and 1991 Surveys of Program Participation) to identify the effects of 401(k)s on wealth, and allow these

effects to vary by income group. They assume, therefore, that within an income class after conditioning on other characteristics, that 401(k)-eligible households would have similar wealth accumulation patterns as 401(k)-ineligible households in the absence of 401(k)s. They only find positive effects of 401(k)s on wealth for low income groups, and conclude that between 0 and 30 per cent of 401(k) contributions between 1987 and 1991 represented net additions to private saving. Since 401(k)s generate a substantial tax preference, the effects on national saving would be considerably smaller.

Engelhardt (2000) uses the 1992 wave of the HRS to show that 401(k) eligibility is positively, significantly associated with net worth, but the effect is sharply reduced if the empirical specification incorporates pension wealth. The intuition for this result is that 401(k)s may substitute for other forms of pension wealth, so excluding other pensions from the analysis excludes an important wealth component for 401(k)-ineligible households.

In this section we explore the relationship between 401(k)s and retirement security. We do this in two ways. First, we present correlations between 401(k) eligibility and subjective views about retirement. If 401(k)s increase retirement wealth, we expect to see households eligible for 401(k)s to feel better about retirement than observationally equivalent households without 401(k)s. Second, we examine the correlation between 401(k) eligibility and wealth to see if these correlations are consistent with the evidence on subjective expectations.

6.5.1 The Health and Retirement Study¹⁵

The Health and Retirement Study is a national panel study with an initial sample (in 1992) of 12 652 persons and 7702 households.¹⁶ It oversamples blacks, Hispanics and residents of Florida. The baseline 1992 study consisted of in-home, face-to-face interviews of the 1931–41 birth cohort, and their spouses, if married. Follow-up interviews were given by telephone in 1994, 1996, 1998 and 2000. The 2000 HRS is currently preliminary.

The survey covers a wide range of topics, including batteries of questions on health and cognitive conditions and status; retirement plans and perspectives; attitudes, preferences, expectations and subjective probabilities; family structure and transfers; employment status and job history; job demands and requirements; disability; demographic background; housing; income and net worth; and health insurance and pension plans.

Table 6.1 provides summary information on the sample used for the analysis. Households eligible for 401(k)s have greater educational attainment than others. This is reflected by their greater mean expected lifetime earnings, \$2.1 million, relative to the mean expected lifetime earnings of those not

Table 6.1 Means of characteristics of the HRS households: Wave I¹

	401(k) ineligible	401(k) eligible	Total
<u>Demographics (Mean)</u>			
Age	56.60	55.80	56.34
Fraction Male	0.69	0.79	0.72
Fraction Couple	0.61	0.79	0.67
Race			
White	0.83	0.88	0.85
Black	0.13	0.08	0.11
Hispanic	0.01	0.00	0.01
Other	0.03	0.03	0.03
Education			
School Years	12.13	13.37	12.53
Not Complete High School	0.29	0.15	0.24
High School Graduate	0.53	0.58	0.54
College Graduate	0.10	0.16	0.12
Post-College Graduation	0.08	0.12	0.09
Fraction Working	0.67	0.86	0.73
Fraction Self-employed	0.21	0.08	0.16
Fraction Retired ²	0.40	0.20	0.33
<u>Wealth (Mean) [1992 \$]</u>			
Non-pension Net Worth, not including IRA	215 543	216 382	215 813
IRA	16 860	25 525	19 655
Pension Wealth, not including 401(k)	77 633	108 358	87 543
401(k)	0	30 267	9 762
Social Security Wealth	143 182	182 013	155 707
(Expected) Lifetime Earnings	1 405 403	2 102 737	1 630 318
<u>Wealth (Median) [1992 \$]</u>			
Non-pension Net Worth, not including IRA	78 000	117 400	91 000
IRA	0	4 000	0
Pension Wealth, not including 401(k)	4 213	51 381	19 000
401(k)	0	1 923	0
Social Security Wealth	137 074	190 738	159 377
(Expected) Lifetime Earnings	1 200 098	1 902 350	1 457 998
Number of Observations	4 969	2 249	7 218

Notes:

¹ The table is based on the Wave I household-level sample, excluding households with severely missing values for wealth and income. The figures are weighted by the Wave I household analysis weights from the HRS tracker file version 2.

² Retirement statuses are derived from the self-reported information and working statuses at Wave I–V. Households are categorized as ‘retired’ if the heads of the households are categorized as either partially or completely retired.

covered by 401(k)s, \$1.4 million. These expected lifetime earnings measures are calculated using data on current and retrospective earnings, which, for years not observed in the data, are then used to estimate separate fixed-effects log earnings regressions for men and women by marital statuses (single and married/partnered) and three education groups (less than high school, high school graduate, and college and postgraduate graduate). The imputed earnings streams are summed to calculate the lifetime earnings measures, starting at the age people report taking their first full-time job and ending at the self-reported expected retirement date.

Our measure of defined benefit pension wealth uses the 'Pension Present Value Database' that Bob Peticolis and Tom Steinmeier have kindly made available on the HRS website, and in so doing, incorporates information on the specific details of the pension plans covering selected HRS respondents.¹⁷ The program makes present value calculations of HRS pensions for wave 1 respondents for nine different scenarios, corresponding to the Social Security Administration's low, intermediate and high long-term projections for interest rates, wage growth rates and inflation rates. For our study, we use the intermediate values for underlying assumptions with the Peticolis-Steinmeier DB pension wealth calculations.¹⁸

Following others in the literature (for example, Engen *et al.*, 1999, page 159), we do not use the Peticolis-Steinmeier calculations for valuing DC pensions. Gustman and Steinmeier (1999b) document discrepancies between reported and calculated pension values, showing the mean accumulations reported by respondents are only 69 per cent of the amounts calculated by using pension documents. It might seem that there is no *a priori* reason to choose between self-reports of DC pension wealth or calculations made on the basis of detailed plan documents. In this case, however, we view the self-reports to be more useful than the calculated values for two reasons. First, one could argue that it is people's perception of their DC wealth that will influence life-cycle consumption behavior. Second and more importantly, the pension calculation program assumes a constant contribution rate over time for participants of plans with voluntary contributions. If workers alter their contribution patterns (in particular, begin to increase contributions as they approach retirement and/or have children that leave the household), the calculated amounts will be overstated. Indeed, Gustman and Steinmeier (1999b) present evidence consistent with DC pension contributions increasing with age. Because of this, we use self-reported information to calculate DC pension wealth.¹⁹

We developed a simple social security simulation to calculate social security benefits for the respondent and spouse or, if higher, the couple, based on the actual and imputed earnings histories. Comparing wealth measures, we see that 401(k)-eligible households have greater IRA wealth,

pension wealth, 401(k) wealth and social security wealth than households not eligible for 401(k)s. While median financial wealth in the forms of non-pension, non-IRA net worth is also larger for 401(k)-eligible households, it is equal at the mean.²⁰ Given that households not eligible for 401(k)s have lower lifetime income, this raises the possibility that 401(k)s displace non-401(k) wealth.

6.5.2 401(k)s and Subjective Views About Retirement in the HRS Cross-section

If 401(k)s increase wealth and eligibility for 401(k)s is randomly determined in the population, households eligible for 401(k)s should have greater satisfaction (or greater anticipated satisfaction) in retirement than households not eligible for 401(k)s. Of course, 401(k) eligibility is not determined randomly in a population. Workers with strong saving preferences are likely to gravitate toward employers offering 401(k)s. Employers may try to manipulate the characteristics of their workforce with 401(k)s if the taste for saving is positively correlated with other attributes (Ippolito, 1997). It is also clear from Table 6.1 that 401(k)-eligible households have higher income and greater educational attainment than households not eligible for 401(k)s, and income and education are typically positively correlated with wealth.

To address these concerns, we examine the correlation of 401(k) eligibility and subjective views about retirement, comparing respondents in households eligible and not eligible for 401(k)s within a lifetime income quintile conditioning on other observable characteristics.²¹ Our identification assumption underlying the analysis is that after conditioning on observable characteristics, 401(k) eligibility is random for households within a given lifetime income quintile.

Our analysis focuses on two subjective questions. The first, which we refer to as ‘retirement satisfaction’ reads (for those who are retired): ‘All in all, would you say that your retirement has turned out to be very satisfying, moderately satisfying, or not at all satisfying?’ For those respondents not completely retired the question reads, ‘When you think about the time when you [and your (husband/wife/partner)] will (completely) retire, are you looking forward to it, are you uneasy about it, or what?’ In the regressions below, we group those ‘uneasy’ about retirement or ‘not at all satisfied’ in retirement together, and examine the characteristics correlated with these responses. One might be tempted to focus solely on those who have retired, since the interpretation of their responses seem more clear cut. But retirement dates are a choice variable that presumably is significantly influenced by one’s financial well-being. Hence, restricting the sample based on retirement status could bias results.

The second question reads for those who are retired, ‘Now for things that some people say are bad about retirement. Please tell me if, during your retirement, they have bothered you a lot, somewhat, a little, or not at all. Not having enough income to get by’. For those not completely retired: ‘Now for things that worry some people about retirement. Please tell me if they worry you a lot, somewhat, a little, or not at all. Not having enough income to get by’. In the regressions below, we examine factors correlated with the responses ‘not having enough income bothers me a lot’.

Table 6.2 shows the distribution of responses to these questions by lifetime income quintile. Overall, about 22 per cent of the population is not at all satisfied in retirement (or is uneasy about retirement) and 30 per cent are bothered a lot or worry a lot about not having enough income to get by in retirement. These concerns fall sharply with income and worries appear to be somewhat less prevalent for households eligible for 401(k)s relative to those who are not.

Table 6.2 Individual retirement outcomes by household lifetime income groups¹

	Not at All Satisfied with Retirement ²			Worried a Lot about Retirement Income ³		
	401(k) Ineligible	401(k) Eligible	Total	401(k) Ineligible	401(k) Eligible	Total
1st Income Quintile [%]	33.8	31.2	33.6	55.3	59.4	55.6
2nd Income Quintile	25.8	26.1	25.9	38.4	33.9	37.2
3rd Income Quintile	20.7	19.6	20.3	29.5	24.9	27.9
4th Income Quintile	19.0	15.2	17.2	23.6	18.9	21.4
5th Income Quintile	18.1	18.0	18.1	14.9	16.0	15.5
<i>All Income Quintiles</i>	<i>23.9</i>	<i>19.1</i>	<i>22.2</i>	<i>33.9</i>	<i>22.7</i>	<i>29.9</i>
Number of Observations	5066	2671	7737	5224	2713	7937

Notes:

¹ Expected retirement outcomes are used for non-retirees. The figures are weighted by Wave I HRS individual analysis weights. The samples exclude respondents who were proxy (and thus were not asked these questions by construction), answered ‘don’t know’, or refused to answer the questions.

² For completely-retired respondents, the question reads ‘All in all, would you say that your retirement has turned out to be very satisfying, moderately satisfying, or not at all satisfying?’ For not-completely-retired respondents, the question reads ‘When you think about the time when you [and your (husband/wife/partner)] will (completely) retire, are you looking forward to it, are you uneasy about it, or what?’ The answer ‘uneasy’ about retirement of the latter question is grouped together with the answer ‘not at all satisfied’ in retirement of the former.

³ For completely-retired respondents, the question reads ‘Now for things that some people say are bad about retirement. Please tell me if, during your retirement, they have bothered you a lot, somewhat, a little, or not at all. Not having enough income to get by.’ For not-completely-retired respondents, the question reads ‘Now for things that worry some people about retirement. Please tell me if they worry you a lot, somewhat, a little, or not at all. Not having enough income to get by.’

Table 6.3 presents probit regression coefficients (transformed into marginal effects) showing the factors correlated with, in column 1, not being at all satisfied in retirement (or being uneasy about retirement) and with, in column 2, being bothered a lot or worrying a lot about not having enough income to get by in retirement. Retirement concerns seem to be greater for women and they decline with age, though they are higher for those already retired. They are strongly correlated with being in poor health. They also, not surprisingly, fall with income and with net worth. One quite surprising result is that while worries about retirement income fall with education, dissatisfaction (and unease) about retirement increases with education.

Table 6.3 Correlations of subjective retirement views and 401(k) eligibility¹

	Dependent Variables	
	Not at All Satisfied with Retirement	Worried a Lot about Retirement Income
<u>Respondent's Characteristics</u>		
Gender (male = 1)	-0.03** (0.01)	-0.02* (0.01)
Age	0.02** (0.01)	0.01 (0.01)
Age ²	-0.00017** (0.00007)	-0.00014* (0.00008)
Race (non-white = 1)	-0.02 (0.01)	-0.03** (0.01)
High School Graduate	0.02** (0.01)	-0.04** (0.01)
College Graduate	0.04** (0.02)	-0.05** (0.02)
Post-Graduate School Graduate	0.06** (0.02)	-0.09** (0.02)
Marital Status (married = 1)	-0.07** (0.02)	-0.06** (0.02)
Retiree (retire = 1)	0.06** (0.01)	0.02* (0.01)
Forced to Retire	-0.16** (0.01)	-0.21** (0.01)
Poor Health	0.17** (0.02)	0.21** (0.02)
<u>Household Characteristics</u>		
Gender of Household's Head (male = 1)	0.02 (0.01)	-0.06** (0.01)
Two Income Earners	0.03**	0.05**

Table 6.3 (continued)

	Dependent Variables	
	Not at All Satisfied with Retirement	Worried a Lot about Retirement Income
	(0.01)	(0.01)
Family Size	0.01*	0.03**
	(0.01)	(0.01)
Have a Non-401(k) Pension	-0.03**	-0.06**
	(0.01)	(0.01)
2nd Income Quintile	-0.01	-0.04**
	(0.02)	(0.02)
3rd Income Quintile	-0.03*	-0.08**
	(0.02)	(0.02)
4th Income Quintile	-0.04**	-0.13**
	(0.02)	(0.02)
5th Income Quintile	-0.03	-0.15**
	(0.02)	(0.02)
1st Income Quintile x 401(k) Eligible	0.015	0.046
	(0.035)	(0.041)
2nd Income Quintile x 401(k) Eligible	0.012	-0.054**
	(0.021)	(0.021)
3rd Income Quintile x 401(k) Eligible	0.005	-0.061**
	(0.019)	(0.019)
4th Income Quintile x 401(k) Eligible	-0.033*	-0.045**
	(0.017)	(0.020)
5th Income Quintile x 401(k) Eligible	0.015	-0.010
	(0.019)	(0.023)
Net Worth	-0.17**	-0.42**
	(0.03)	(0.04)
Net Worth ²	0.06**	0.13**
	(0.02)	(0.02)
Net Worth ³	-0.006**	-0.011**
	(0.002)	(0.003)
R^2	0.063	0.146
Number of Observations	9 888	10 117

Notes:

¹ The results are marginal effects on probability of reporting a particular answer (Probit regressions). The sample sizes are larger than the one in Table 6.2 because a significant fraction of respondents who are not age-eligible as defined by the HRS are included. Standard errors are in parentheses.

* indicates significance at the 90% confidence level.

** indicates significance at the 95% confidence level.

The central coefficients of interest are the 401(k) eligibility indicator variables, interacted with the lifetime quintile indicators. These show only one marginally significant correlation between 401(k) eligibility and retirement satisfaction – that occurs in the fourth lifetime income quintile. But 401(k) eligibility is negatively, significantly correlated with being bothered a lot or worrying a lot about not having enough income to get by in retirement for respondents in households in the middle 60 per cent of the lifetime income quintiles. Moreover, the effects are fairly sizeable – around 5 percentage points, off a base that ranges from 21 to 37 percentage points.

Two questions arise from the analysis of subjective expectations. First, does the reduction in ‘worry’ correspond to observable differences in wealth between 401(k) eligible and ineligible households? We examine this issue in the next subsection. Second, how robust are the results on subjective expectations? On the latter question, the results depend somewhat on the treatment of respondents in the sample who say they will never retire (this is 845 of 6695 non-retired respondents in wave 1 of the HRS). In the regression in Table 6.3, these respondents are dropped because expectations about retirement are not well defined for people who never plan to retire. The results are similar if the ‘never retire’ respondents are included in the sample and those who say that ‘work is important because of the money’ are included in the undesirable outcome. The results are somewhat different if the ‘never retired’ are included in the sample and all are treated as not having worries (or unease). In this specification, 401(k) eligibility is again negatively correlated with bad expectations in the third and fourth lifetime income quintiles, but it is positively correlated with bad outcomes in the first quintile.

6.5.3 401(k)s and Wealth Accumulation in the HRS

Table 6.4 reports coefficients from a cross-sectional regression examining correlations between 401(k) eligibility and net worth. The first column gives coefficients from an OLS regression. Because of our concern about outliers in the net worth data, the second column reports coefficients from a median regression. The regression uses only Wave 1 data and restricts the sample to households who are not retired because we do not want to consider asset accumulation (or decumulation) of retired households.²² The dependent variable in these regressions is net worth, defined to include the value of defined benefit pension and defined contribution pension wealth. Like Table 6.3, the coefficients of primary interest in this specification are the interaction terms of 401(k) eligibility and lifetime income quintile. If 401(k)s increase overall net worth, we expect the interaction terms to be positive and significant.

Table 6.4 Regressions of Wave I net worth and 401(k) eligibility¹

Dependent Variable = Wave I Net Worth Including Pension Wealth	OLS	Median Regression
<u>Household Characteristics</u>		
Gender (male = 1)	3.62 (21.76)	-9.41* (5.29)
Age	9.58 (19.53)	5.46 (4.57)
Age ²	-0.03 (0.18)	-0.02 (0.04)
Race (non-white = 1)	-61.45** (19.96)	-25.98** (4.85)
High School Graduate	97.76** (20.30)	40.21** (4.94)
College Graduate	213.08** (29.19)	137.43** (7.11)
Post-Graduate School Graduate	387.09** (31.41)	238.07** (7.65)
Marital Status (married = 1)	141.78** (35.67)	51.05** (8.67)
Two Income Earners	-71.26** (25.23)	-15.43** (6.13)
Family Size	-10.99 (14.15)	-8.47** (3.43)
Have a Non-401(k) Pension	-42.39** (16.83)	27.54** (4.10)
2nd Income Quintile	49.26 (30.46)	24.76** (7.41)
3rd Income Quintile	122.37** (34.01)	58.47** (8.27)
4th Income Quintile	179.08** (37.59)	107.24** (9.14)
5th Income Quintile	471.33** (39.77)	286.36** (9.68)
Poor Health	-97.72** (33.40)	-22.28** (8.12)
1st Income Quintile x 401(k) Eligible	36.20 (55.03)	0.70 (13.37)
2nd Income Quintile x 401(k) Eligible	-54.72 (37.54)	-1.94 (9.13)
3rd Income Quintile x 401(k) Eligible	-47.57 (33.99)	6.16 (8.28)

Table 6.4

Dependent Variable = Wave I Net Worth Including Pension Wealth	OLS	Median Regression
4th Income Quintile x 401(k) Eligible	-91.68** (33.30)	-1.87 (8.11)
5th Income Quintile x 401(k) Eligible	-110.97** (34.68)	-28.81** (8.45)
Constant	-315.60 (532.52)	-210.29* (124.50)
R^2	0.15	0.17
Number of Observations	4736	4736

Notes:

¹ The sample excludes households whose heads were already retired at the Wave 1 interview. For married couples, we define the head as the partner with the highest lifetime income

* indicates significance at the 90% confidence level.

** indicates significance at the 95% confidence level.

The key interaction terms provide little evidence that 401(k)s increase net worth. In the median regressions, which we believe are the most informative, the coefficients are small and insignificant, except in the top lifetime income quintile. There the coefficient of -28.8 suggesting those eligible for 401(k)s in the highest wealth quintile have \$28,800 less private wealth than those who are not, after conditioning on observable characteristics. These results, coupled with the evidence from Table 6.3, suggest that 401(k)s help relieve anxiety about retirement living standards, perhaps because the value of 401(k)s are easy to keep track of, but they do little to increase wealth accumulation. The same transparency that relieves anxiety about retirement may also facilitate adjustments in other parts of the household's portfolio to mitigate positive effects of 401(k)s on wealth.

The other coefficients suggest that wealth is lower for non-white families, two-earner couples, and larger families; it increases sharply with educational attainment and with lifetime income; and it is higher for married couples and for families covered by a pension other than a 401(k) (in the median but not the mean regression). These coefficients are typical of regressions examining net worth, though the specification presented in this paper is unusual in that it conditions on lifetime income, and incorporates the value of defined benefit pensions in its wealth measure.

We conclude, like several recent papers on the topic, that there is little evidence in the HRS that 401(k)s increase private wealth accumulation. A conclusion like this must still be cautious, however. Wealth data are noisy, and this is particularly so when trying to use the HRS pension data. We have made painstaking efforts to mitigate potential problems, but problems may

still remain. Other implicit assumptions enter into empirical analyses of 401(k)s. Analysts must make some attempt to condition on lifetime resources (see, for example, Gale, 1998). We do this explicitly by including dummy variables for the household's lifetime income quintile. But if 401(k)s and other fringe benefits are capitalized in wages, for example, households may be inappropriately classified. Moreover, 401(k)s may affect other margins of behavior, such as retirement. The literature has not grappled in a serious way with these issues.

6.6 CONCLUSIONS

We do three things in this chapter. First, we describe the institutional factors affecting retirement preparation in the United States – social security (public pensions), employer-provided pensions, and tax incentives for private saving. Second, we provide a brief survey of the literature on the adequacy of retirement preparation in the US. Third, we present new evidence on the efficacy of tax incentives for saving using data from the Health and Retirement Study.

A large number of tax provisions attempt to enhance the private saving leg of the three-legged stool. But there is little compelling evidence that they promote private, to say nothing of national, saving.²⁵ The provisions are also piecemeal, each with different eligibility rules, contribution limits and other rules. Moreover, the incentives would seem to be designed in a way to reduce their efficacy. In particular, the benefits of the up-front deduction and tax-free accumulation increase with marginal tax rates. Hence, high income households have the largest incentive to participate in the programs. They also are most likely to receive employer-provided pension benefits (and hence benefit disproportionately from that tax expenditure) and the greatest opportunity to displace saving that would otherwise occur.

The largest tax incentive for saving, 401(k) plans, appears to be significant related to respondents worrying less about not having enough income in retirement. It is possible that the information provided about 401(k)s – quarterly reporting, newsletters and internet access – helps respondents to better understand the resources they have available for retirement. There is little evidence in the HRS, however, that 401(k) wealth significantly increases overall wealth accumulation. In the cross-sectional data (either 1992 or all years of the HRS pooled), 401(k) eligible households did not appear to have more aggregate wealth than households not eligible for 401(k)s. We conclude, therefore, that while there are many features of the US economy and tax system that are perhaps worth emulating, the patchwork of private saving incentives is not one of them.

NOTES

1. At the close of the first March trading day in 1992, March 2, the Vanguard Index 500 Fund (VFIX) was \$33.0186. Eight years later on March 1, the Vanguard index closed at \$127.2847, an increase of 285.5 per cent. The percentage increases over the intervening two-year intervals were 17.6, 46.0, 71.9 and 30.6.
2. See OECD Statistics: National Accounts, Main Aggregates, 1960–97.
3. In 2000, the OASDI program is financed by a 6.2 percentage point tax levied on employers and employees (for a combined 12.4 per cent tax) on earnings up to \$76 200. These tax receipts are credited to the social security trust fund. To receive benefits a worker must have at least 40 quarters of employment in jobs covered by the social security system (most jobs are now covered), unless they are disabled. Benefits are based on average indexed monthly earnings (AIME) for the highest 35 years of earnings (inserting 0s for monthly earnings if workers have fewer than 35 years of positive earnings) using a formula that gives low-income workers a greater share of their AIME than high-income workers. Workers (who are not disabled) can begin drawing benefits as early as 62. Benefits payments increase (nonlinearly) as retirement is delayed until age 70, at which point benefits no longer increase with age of retirement.
4. From the 2001 Annual Report of the Board of Trustees of the Federal Old Age and Survivors Insurance and Disability Insurance Trust Fund, Office of the Chief Actuary, Social Security Administration.
5. From 'Private Pension Plan Bulletin', Abstract of 1995, Form 5500, Annual Reports, Spring 1999, Pension and Welfare Benefits Administration, Office of Policy and Research, Department of Labor, http://www.dol.gov/pwba/programs/opr/bullet1995/e_8.htm.
6. Figures are from the FY2002 Federal Budget.
7. Specific institutional details on IRAs and other provisions discussed in this section can be found in <http://www.fool.com/money/allaboutiras/allaboutiras.htm> and <http://www.fool.com/csc/csc.htm>.
8. In 2001, annual contributions to a Roth IRA are limited to \$2000 minus the taxpayer's deductible IRA contributions. The \$2000 limit is phased out as adjusted gross income increases from \$150 000 to \$160 000 (married filing jointly) or \$95 000 to \$110 000 (single filer). There are several other types of less commonly used tax incentives for retirements. A Simplified Employee Pension (SEP-IRA) is set up by an employer for a firm's employees. In 2001, an employer may contribute up to \$30 000 or 15 per cent of an employee's compensation annually to each employee's SEP-IRA. A Savings Incentive Match Plan for Employees IRA (SIMPLE-IRA) is set up by a small employer for a firm's employees. In 2001, employees could contribute up to \$6000 per year to these IRAs and will receive some level of a matching percentage of pay from their employers. Between the employer and the employee, up to \$12 000 may be contributed annually to the participant's account. In addition to SEPs and SIMPLEs, the self-employed (and partnerships and unincorporated businesses) can also set up Keogh plans as either a defined benefit or defined contribution plan. As defined contribution plans, they may be structured as a profit-sharing, a money-purchase, or a combined profit-sharing/money-purchase plan.
9. Congressional Budget Office (2001), for example, reports that after-tax income grew an average of 157 per cent between 1979 and 1997 for the top one per cent of the population, rose a modest 10 per cent – about one-half of one per cent per year – for the 20 per cent of Americans in the middle of the income spectrum and was effectively unchanged for those in the bottom fifth.
10. 'Binge Buyers: Many Baby Boomer Save Little, May Run Into Trouble Later On: They Don't Build Nest Eggs Nearly Rapidly Enough for an Easy Retirement', Bernard Wysocki Jr., 6/5/95, A1 Wall Street Journal.
11. Hamermesh (1984) used limited consumption data from the Retirement History Survey in 1973 and 1975 to measure the ability of households to sustain pre-retirement consumption levels. He finds households do not have sufficient wealth to maintain pre-retirement consumption and that they respond by reducing real consumption as they age. Hausman and Paquette (1987) also find evidence of inadequate wealth accumulation.

12. Also see Bernheim (1997) for a similar conclusion.
13. Gustman and Steinmeier (1999a) examine patterns of wealth accumulation in the Health and Retirement Study and also conclude '... it is hard to find evidence of a massive crisis in retirement undersaving of the type that has been promoted in the media' (p. 294). Kotlikoff *et al.* (1982) use data from the 1969, 1971 and 1973 waves of the Retirement History Survey to compare the ratio of consumption annuity a household would be able to purchase with their lifetime resources (including human capital and social security wealth) with the annuity a household could purchase with the resources they have for old age. They conclude 'The results in this paper suggest that there is currently no systematic problem of undersaving among the elderly population' (p. 1068).
14. Engen *et al.* (1999) make both of these points.
15. An appendix with details on data construction and definitions is available from either author on request.
16. An overview of the HRS is given in a Supplementary issue of the Journal of Human Resources, 1995 (volume 30). There, 22 authors discuss and assess the data quality of many dimensions of the initial wave of the HRS. Subsequent careful work with the HRS related to this paper includes Gustman *et al.* (1998), Moore and Mitchell (1998), Gustman and Steinmeier (1999a) and Gustman and Steinmeier (1999b).
17. See <http://www.umich.edu/~hrswww/center/rescont2.html>.
18. The intermediate Social Security Administration assumptions are 6.3 per cent for interest rates, 5 per cent for wage growth, and 4 per cent for inflation.
19. After documenting the problem, Gustman and Steinmeier (1999b) raise concerns about respondent misreporting, so they use the plan documents for DC wealth, adjusted downwards based on a regression analysis of self-reported and calculated pension wealth. This leads them to reduce the calculated DC pension amounts by roughly half for a calculated pension of \$25 000 and almost two-thirds for a calculated pension of \$100 000.
20. Non-IRA, non-pension net worth is a broad measure that includes stocks, bonds, mutual funds, checking and saving accounts, CDs, other financial assets, housing, real estate less all liabilities.
21. Engen and Gale (forthcoming) first used this approach.
22. The qualitative and quantitative results are similar when we pool all five existing waves of the HRS so the results shown in Table 6.4 are not simply an artifact of using the 1992 HRS cross-section.
23. The effect of tax incentives on national saving will depend on their effect on private saving plus the (negative) effect on public saving, due to the tax break associated with the incentives.

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