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How Much Should Americans Be Saving for Retirement?

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How much should Americans save prior to retirement? Given Social Security's shaky financial condition, this is a critical question for baby boomers. A financial planning program—ESPlanner—is applied to data from the Health and Retirement Survey (HRS) to consider the amount that households approaching retirement should save. ESPlanner calculates households' highest sustainable living standards under borrowing constraints, simultaneously determining the saving and life insurance required to preserve those living standards through time.[2] Two alternative assumptions are made—first, Social Security's promised benefits are fully paid and, second, benefits are permanently cut by 30 percent after 15 years. We find that ESPlanner's recommended saving rates are quite high for all except the poorest households. Moreover, if these households are assuming that Social Security benefits will be fully paid, their saving will turn out to be much too low if major benefit-cuts occur after the baby boomers retire.

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Abstract

How much should Americans save prior to retirement? Given Social Security's shaky financial condition, this is a critical question for baby boomers. A financial planning program—ESPlanner—is applied to data from the Health and Retirement Survey (HRS) to consider the amount that households approaching retirement should save. ESPlanner calculates households' highest sustainable living standards under borrowing constraints, simultaneously determining the saving and life insurance required to preserve those living standards through time.[2] Two alternative assumptions are made—first, Social Security's promised benefits are fully paid and, second, benefits are permanently cut by 30 percent after 15 years. We find that ESPlanner's recommended saving rates are quite high for all except the poorest households. Moreover, if these households are assuming that Social Security benefits will be fully paid, their saving will turn out to be much too low if major benefit-cuts occur after the baby boomers retire.

How much should Americans save as they approach retirement? This is a critical question for any generation in its 40s and 50s. But it's particularly apt for baby boomers given that their future Social Security income is so uncertain. This uncertainty reflects the perilous condition of the system's finances. According to Social Security's actuaries, paying over time the full amount of promised benefits necessitates an immediate and permanent 4.7 percentage point hike in the program's 12.4 percent payroll tax rate.[1] The prospect that Congress and the Administration will raise Social Security taxes by almost two-fifths seems remote. But the smaller the chances of a major tax hike, the larger the chances of a major benefit cut.

This study applies a new financial planning software program, Economic Security Planner or ESPlanner, to consider how much households close to retirement should save. ESPlanner was developed by Economic Security Planning, Inc. The program maximizes households' sustainable living standards subject to borrowing constraints. It simultaneously determines the amounts of savings and life insurance households need to preserve their living standards through time.[2] We perform our analysis under two assumptions -- that Social Security pays it promised benefits in full and that Social Security permanently cuts benefits by 30 percent starting in 15 years. Our data set is the Health and Retirement Survey (HRS), specifically households with heads age 50 through 61. To preview our conclusions, ESPlanner's recommended saving rates are fairly high for all but the poorest HRS households. In addition, if HRS households are saving under the assumption that Social Security benefits will be paid in full, they are saving far too little given the potential for major cuts in those benefits when the baby boomers retire.

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The paper proceeds with brief descriptions of ESPlanner, our HRS data set, Social Security's long-term finances, and our findings.

I. ESPlanner

Consider maximizing an intertemporally separable, isoelastic utility function, which is defined over survival-state-specific levels of consumption that are adjusted for household composition and economies in shared living. Let this maximization be subject to resource constraints, liquidity constraints, and non-negativity constraints on life insurance purchases. ESPlanner finds the limit of the solutions to this problem as the intertemporal elasticity of substitution approaches zero.[3] In so doing, it smoothes the living standards of household members to the extent permitted by the household's borrowing constraints.

In forming its calculations, ESPlanner treats special expenditures and housing expenses as "off-the-top" expenses that are not subject to consumption smoothing. Contributions to and withdraws from tax-favored retirement accounts are also treated as exogenous. In addition to requiring these inputs, ESPlanner needs projections of future earnings, assessments of the size of current non tax-favored as well as tax-favored assets, information on defined benefit pensions, Social Security benefits for those currently collecting, and past and projected future covered earnings for those not yet collecting.

ESPlanner uses covered earnings to estimate the size of Social Security benefits for those not yet collecting benefits. Its benefit calculator considers eligibility rules, early retirement reductions, delayed retirement credits, benefit recomputations, the phased increase in the normal retirement age, the earnings test, family benefit maximums, the wage indexation of average

indexed monthly earnings, and the price indexation of benefits once they are received. All these elements feed into the determination of retirement, spousal, mother, father, children, and widow(er) benefits.

ESPlanner also calculates federal and state income and payroll taxes in the process of deciding how much a household can spend without outliving its resources. In the case of the federal income tax, for each year and survival state, the software computes itemizable deductions, and then determines whether the household should itemize or take the federal standard deduction. The software also incorporates federal deductions and exemptions, the partial taxation of social security benefits, the earned income tax credit, the child tax credit, the phase-out at higher income levels of itemized deductions, and the indexation of tax brackets to the consumer price index. In forming federal and state taxable income, ESPlanner deducts, as appropriate, contributions to tax-favored accounts and includes, as appropriate, withdraws from these accounts. The program considers most, but not all, factors entering into saving and insurance decisions. Its biggest omission is the riskiness of future income and expenditures on health care and other necessities. One can partly compensate for this shortcoming by entertaining worse-case scenarios. Since we do not consider such scenarios in this study, our reported recommended saving rates are likely to understate the rates at which households near retirement should save.

II. The HRS

Our data are drawn from the 1992 wave of the Health and Retirement Survey (HRS), which covers 12,652 respondents age 51 to 61 and their families. In drawing its sample, the HRS

interviewed 5,000 married couples in which both spouses responded, 200 married couples in which one of the two respondents refused to answer, and 2,452 single individuals. Our analysis considers only households whose heads are age 50 through 61 and for whom covered social security earnings are available for the head, and, if married, his or her spouse.

The survey collects information on health, income, wealth, pensions, social security benefits, demographics, education, housing, food consumption, family structure and transfers, current and past employment, retirement plans, cognition, health and life insurance, intra vivos gifts, inheritances, and bequests.[4] Unfortunately, the HRS data fields do not match up perfectly with the inputs required by ESPlanner. Bernheim, Forni, Gokhale, and Kotlikoff (1999) detail our procedures for imputing missing data.

III. Social Security's Long-Term Funding Crisis

The 38 percent tax hike needed to shore up Social Security's long-term finances is more than twice the size of the requisite tax rise acknowledged in Social Security's Trustees' Report (1999). The discrepancy between the two figures reflects the Trustees' Report's truncation of its projection horizon. The Trustees' Report looks out only 75 years, whereas the 38 percent figure is a truly long-term calculation. While 75 years may seem like a long-enough horizon, projected Social Security deficits in 76 years and beyond are extremely large. In this regard, it's important to note that a significant component of Social Security's current long-term financial problem is the result of the 1983 Greenspan Commission's not looking far enough into the future. Indeed, the Commission could have forecast back in 1983 that Social Security would face a massive 75-year financing shortfall in 1999 simply because of the addition of 16 years of large annual

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deficits into the 1999 75-year projection window.

Unfortunately, there is good reason to believe that even a 38 percent payroll tax hike would not suffice to address Social Security's problems. The 38 percent figure is calculated based on intermediate economic and demographic assumptions. But the "intermediate" nature of these assumptions has been called into question by top economists and demographers. Indeed, Social Security Advisory Board's 1999 technical panel recommended changes in the assumed intermediate rates of longevity improvement, real wage growth, and interest on government securities. In combination, the modified assumptions appear to raise the OASDI tax hike needed for true long-run solvency to almost 6 percentage points, which translates into close to a 50 percent tax rise!

IV. Recommended Saving Rates

Table 1 presents median recommended saving rates for HRS households whose heads are sorted into two age groups – 50 to 55 and 56 to 61. The table also decomposes its results by household income, marital status, race, and education. Saving rates are presented assuming that Social Security benefits will be a) paid in full or b) cut permanently by 30 percent starting in 15 years. A cut of this magnitude in the not too distant future appears to us to be roughly what lies ahead for the system. The table's results are based on an assumed 6 percent nominal interest rate and a 3 percent inflation rate. The numerator of the saving rate is defined as non tax-favored saving; i.e., saving apart from contributions to or withdraws from retirement accounts. The income measure used in the denominator also excludes net contributions to these accounts.

Consider first the results for the 50-55 year-old households assuming benefits are paid in

full. The median recommended saving rate for households with incomes of $0 to $15,000 is quite small, only 1 percent. On the other hand, for those with $100,000 or more in income, it is fairly high, 17 percent. For low-income households with incomes of $15,000 to $45,000 and moderate-income households with incomes of $45,000 to $100,000 the recommended saving rates are 13 percent and 14 percent, respectively. The fact that the median recommended saving rate is close to zero for the low-income group and that the rate rises with income is not surprising. Most low-income households will receive the majority of their post-retirement incomes from Social Security. And the higher the level of income, the smaller is the fraction of pre-retirement income being replaced by Social Security. The older sample, aged 56-61, generates the same pattern of saving rates by income. But with the exception of those with very low income, the median recommended saving rates are significantly higher, ranging from 17 percent for households with $15,000 to $45,000 in income to 23 percent for households with $100,000 or more in income.

Can households achieve these high saving rates by simply saving/reinvesting the capital income they earn on the non tax-favored assets they've accumulated to date? To examine this question, we calculated recommended saving rates out of non-asset income. Specifically, we subtracted non tax-favored capital income from recommended saving to form the numerator of this revised saving rate. To form the denominator, we subtracted the same quantity from income. Hence, the denominator is income exclusive of tax-favored asset income.

For the lowest and second-lowest income groups, median recommended saving rates are essentially unchanged for both age groups. For households with $45,000 to $100,000 in income, the new medians are 12 percent for younger households and 11 percent for older ones. The

corresponding non-asset income medians for the highest income households are 13 percent for both age groups. Hence, the answer to our question is no; while most households don't need to save as large a share of their non-asset income, they still need to save a non-trivial fraction of that income.

ESPlanner generally recommends higher saving rates for single households, non-white households, and non college-educated households. In some cases, the differences are substantial. Take non-white households age 56 to 61 with $15,000 to $45,000 in income. Their median saving rate is 29 percent, which is 6 percentage points higher than the median for whites and non-whites combined. Or compare the 28 percent median rate for single households with the 21 percent median for married households in the same income and age range. While there seem to be systematic differences here that merit future research, one should not exaggerate these differences. Within each cell there is a very considerable variation in recommended saving rates. So knowing the particular circumstances of a household is much more important than knowing its general demographic characteristics in formulating a useful saving rate recommendation.

The Impact of Potential Social Security Benefit Cuts

Table 1 also shows the impact of our hypothetical benefit cut. The results are, in many cases, dramatic. Take married households with very low incomes. Their median saving rate rises by 10 percentage points in the younger group and 12 percentage points in the older group. In the second lowest income group, the recommended rates for the younger and older age groups increase by 8 and 7 percentage points, respectively. Among high-income households, the recommended saving rate increases are smaller, but non-trivial. Increases in the recommended

rates of saving out of non asset income are equally large. For the middle income groups, the non-asset income saving rates now range from 16 to 22 percent.

To check the sensitivity of our results to the assumed real rate of return, we redid the analysis using a 8 percent nominal rate of return, which implies a 5 percent real return. For the 50-55 year-olds sample, recommended saving rates are 1, 11, 11, and 10 percent for the lowest through highest income classes. The corresponding Table 1 values are 1, 13, 14, and 17 percent. In the case of the 56-61 year-olds sample, the new medians are 1, 16, 17, and 20 percent, compared with the 0, 17, 20, and 23 percent values reported in Table 1. Thus, recommended saving rates are lower with the higher interest rate. However, earning a higher real interest rate does not mean the HRS households can ignore the possibility of a major Social Security benefit cut. With our assumed cut, the four saving rate medians are 4, 17, 16, and 12 percent for the younger income groups and 3, 21, 21, and 22 percent for the older ones.   These rates are substantially higher than their counterparts that assume benefits will be paid in full.

Conclusion

Because of data limitations, knowing precisely the rate at which HRS households save is not easy. Hence, we can't say for sure if HRS households are saving too little or too much. On the other hand, we can apply ESPlanner to the HRS to consider the rate at which Americans approaching retirement should be saving, assuming they wish to smooth their current and future living standards. ESPlanner's recommended saving rates center around zero for very low income households. But for low, middle, and upper income households, median recommended saving rates are fairly high. For these households, meeting ESPlanner's recommendations requires

much more than simply reinvesting asset income or counting on high real rates or return.   This is

doubly true when one takes into account the very real prospect of major cuts in Social Security

benefits in the not too distant future. According to our findings, Americans households close to

retirement, be their incomes high or low, need to save at much higher rates than would otherwise

be the case because of the risk of major cuts in Social Security benefits.

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Table 1
ESPlanner's Median Recommended Non Tax-Favored Saving Rates
(ratio of non tax-favored saving to income by income and demographic group)

	$0 - $15,000			$15,000 - $45,000			$45,000 - $100,000			$ 100,000 +		
50-55	**Full Benefits**	**Benefit Cut**	**Obs**	**Full Benefits**	**Benefit Cut**	**Obs**	**Full Benefits**	**Benefit Cut**	**Obs**	**Full Benefits**	**Benefit Cut**	**Obs**
Total Sample	.01	.06	243	.13	.20	533	.14	.19	502	.17	.20	116
Married	.00	.10	37	.09	.17	272	.14	.19	429	.17	.20	111
Single	.01	.05	206	.17	.24	261	.20	.24	73	.28	.29	5
Non White	.02	.06	126	.19	.25	169	.18	.22	61	.21	.23	17
Non College	.01	.05	226	.13	.20	445	.16	.21	317	.18	.21	52
56-61												
Total Sample	.00	.03	320	.17	.23	582	.20	.25	454	.23	.25	109
Married	-.11	.01	48	.14	.21	310	.20	.25	408	.23	.25	99
Single	.02	.03	272	.23	.28	272	.23	.26	46	.19	.20	10
Non White	.01	.02	153	.23	.29	153	.24	.30	56	.06	.08	8
Non College	.00	.03	303	.18	.24	474	.22	.27	290	.23	.26	50

Source: Authors' calculations.

Endnotes

[1] This is an unpublished estimate provided by Stephen Goss, Deputy Chief Actuary of the Social Security Administration.

[2] Gokhale, Kotlikoff, and Warshawsky (1999) provide numerous examples of ESPlanner's calculations.

[3] Auerbach and Kotlikoff (1987) take a similar approach to modeling consumption smoothing. But unlike their model, ESPlanner accounts for liquidity constraints, adjusts consumption for changes in household composition, and treats state and federal taxes and Social Security benefits in far greater detail.

[4] Mitchell and Moore (1997a and 1997b) provide excellent descriptions of the HRS, in general, and the wealth accumulation of the HRS sample in particular.