

Behavioral Effects of Social Security Policies on Benefit Claiming, Retirement and Saving

Alan L. Gustman
Dartmouth College
and
Thomas L. Steinmeier
Texas Tech University

14th Annual Joint Conference of the Retirement Research Consortium

August 2-3, 2012
Washington, D.C.

This research was supported by a grant from the U.S. Social Security Administration (SSA) as part of the Retirement Research Consortium (RRC). The findings and conclusions are solely those of the authors and do not represent the views of SSA, any agency of the Federal Government, the NBER Retirement Research Center, CRR, or MRRC.

The central purpose of this paper is to formulate and estimate a retirement model with endogenous claiming of Social Security benefits, and to use the model to inquire about the effects of various proposals to change the Social Security system. The forerunner to this work is a retirement model previously built to capture endogenously the spike in retirement at the Social Security early entitlement age and the wide variation in wealth holdings, even among individuals with similar lifetime earnings. We use the updated model to investigate the effects of several potential changes in the Social Security system, including changes in the early entitlement and normal retirement ages and the elimination of the payroll tax for individuals past the normal retirement age.

The central feature in the claiming decision is the tradeoff between a present lump sum and a future annuity. The value of the annuity can be broken down into two parts. First, there is the question as to the actuarial fairness of the annuity. For the high earner of a married couple, the annuity may be much more than actuarially fair, as indicated by the following calculations:

	Age							
	62	63	64	65	66	67	68	69
Married, 2% Interest	1.67	1.50	1.36	1.48	1.33	1.20	1.09	0.99
Married, 4% Interest	1.31	1.18	1.08	1.18	1.07	0.97	0.89	0.81
Single, 2% Interest	1.18	1.05	0.95	1.02	0.91	0.82	0.74	0.66

For a married male with a wife two years younger, postponing a dollar's worth of benefits at age 62 results in a future annuity with a present value of \$1.67 at a 2% real interest rate.

The second part of the annuity valuation is the question of how much an individual would be willing to pay for an actuarially fair annuity. Using a simple consumption model, Table 1 gives the ratio of the utility value of a marginal \$1 annuity relative to its actuarially fair cost as a function of the interest rate, the discount rate, and the age when sources of income other than the annuity run out. Individuals with low discount rates are likely to accumulate substantial assets which will last them well into old age, and for them the right side of the table is likely to be relevant. Individuals with high discount rates are likely not to have accumulated many assets and to exhaust those they do accumulate relatively quickly, and for them the left side of the table is likely to be relevant. For the former group, annuities will have a high value relative to their actuarial

cost, but for the latter group annuities may be valued at only a fraction of their actuarial cost.

This discussion forms the backdrop of the model used in the paper. The model begins with a standard utility function which includes the discounted value of leisure and consumption over the lifetime, where the weight of leisure gradually increases, with a more sudden increase in the event of a health shock. The choice set each period includes three work states (full-time work, partial retirement, and full retirement), consumption, and, for ages between the early entitlement age and 70, whether to begin claiming Social Security benefits. The budget constraint includes assets whose rate of return is stochastic, defined benefit and/or defined contribution pensions, and Social Security. Individuals can go back to work if they choose, but if they return to full time work, the wage will be lower to reflect the loss of tenure. A central feature of the model is heterogeneous discount rates which allow the model to capture the wide dispersion in wealth even conditioned on lifetime earnings.

The model is estimated by the method of simulated moments for a sample of two person households from the original Health and Retirement Study (HRS). The estimates yield generally significant parameters, and a standard test does not reject the model. As shown in Figure 1, for the husbands the model tracks the main retirement spike at age 62 fairly well in spite of the fact the Social Security actuarial adjustments at that age are generally at least actuarially fair. The spike at age 65 is less well reproduced, probably because the model does not contain the incentives related to Medicare eligibility at that age. Figure 2 shows that the model tends to underestimate Social Security claiming relative to observed claiming. Note that the estimation of the model did not use any claiming information, so that the simulated claiming behavior in the model is inferred from parameters estimated on the basis of retirement patterns.

Given the actuarial incentives discussed earlier, the underestimate of claiming is not a great surprise. The underestimate does, however, lead one to ask whether potential modifications might be able to bridge that gap, and what those modifications might be. Three modifications are considered in the paper. First, individuals might be expecting the currently legislated benefits to be cut in the future in response to the looming

insolvency of the system. Secondly, they might be using an interest rate that is higher than the long run rate used in the model. And third, the husbands might not be taking into account survivor benefits which will accrue to the wife after he dies. Figure 3 shows that the first two of these modifications can raise claiming to observed levels; in fact, the higher interest rate plot is so close to the observed plot that it is difficult to distinguish in the figure. The problem is in the magnitudes. The first assumes a 50% reduction beginning at age 70, and the second assumes a 5% increase in the real interest rate. Both seem a little extreme, but there is no reason they can't both be operating simultaneously with more plausible magnitudes.

The real issue is whether these modifications affect the ability of the model to predict the results of various changes to the Social Security system. Figures 4-6 look at the results for three potential changes: an increase in the early entitlement age to 64, a change in the full retirement age to 67 (it was 65 for most of this sample), and an elimination of the payroll tax after the full retirement age. These figures indicate that the original model and the modifications yield generally similar results, especially for the increase in the early entitlement age and the payroll tax elimination. For the increase in the full retirement age, the main discrepancy is with the modification involving reduced expected benefits. Overall, the largest retirement changes by far occur with extending the early entitlement age, but the largest changes in the system funding probably occur with increasing the full retirement age.

A recurring theme of this research is that in designing policies, one should be cognizant of the heterogeneous population and that policies may have different impacts on different parts of the population. For instance, individuals with high discount rates may be sharply affected by an increase in the early entitlement age, but individuals with low discount rates may delay claiming anyway. Higher future medical expenses may induce those with low discount rates to save more and work longer, but those with high discount rates may simply tighten their belts and rely on whatever welfare programs are available in response to large medical bills. We should recognize this heterogeneity and build appropriate heterogeneity into the models we use to gauge the effects of policies.

Table 1
Annuities: Willingness to Pay vs. Actuarial Value

Real Interest Rate	Discount Rate	Current Age	Age When Assets Become Zero				
			Immediate	70	80	90	100
0.02	0.00	62	1.23	1.25	1.38	1.60	1.78
		65	1.21	1.23	1.39	1.65	1.85
		70	1.17	1.34	1.37	1.72	1.99
0.02	0.02	62	1.00	1.14	1.34	1.59	1.78
		65	1.00	1.11	1.35	1.64	1.85
		70	1.00	1.18	1.32	1.70	1.99
0.02	0.04	62	0.83	1.05	1.32	1.58	1.78
		65	0.85	1.01	1.31	1.63	1.85
		70	0.87	1.05	1.28	1.69	1.99
0.04	0.02	62	1.20	1.21	1.32	1.48	1.59
		65	1.18	1.21	1.34	1.53	1.66
		70	1.15	1.35	1.34	1.61	1.80

Figure 1
Retirements from Full-Time Work

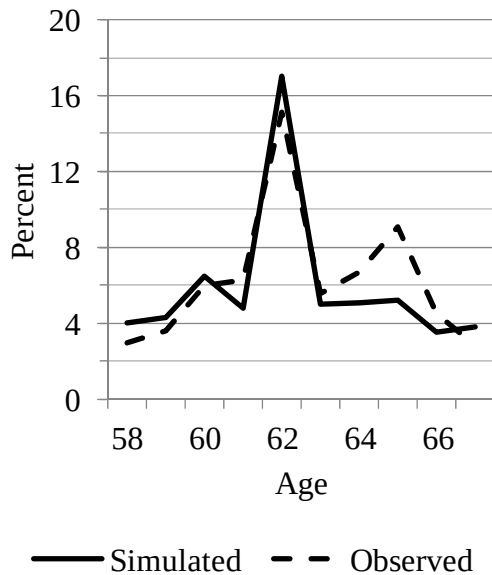


Figure 2
Percent Claiming Social Security Benefits

