

Diminishing America's Demographic Dilemma Through Pre-Funding Social Security

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The long-term structural imbalance in the Social Security system is widely recognized. Rebalancing Social Security's finances will require some kind of policy reform: raising the payroll tax rate, reducing benefits, raising the age of eligibility for benefits, or more significant structural reform. This project explores several reform possibilities, focusing particularly on their long-term macroeconomic implications.

Simple analyses of Social Security finances may ignore the feedback relationships between Social Security policy, on the one hand, and the broader economy, on the other. The drawback of this simplification is that the economic feedback effects of Social Security policy can be quite significant over time. Raising payroll taxes to correct the imbalance in Social Security, for example, has implications for labor supply, saving, investment, capital accumulation, real wages and economic growth. And, importantly, these economic implications are different from those that would result from a policy that reduced Social Security benefits as a balancing mechanism. These macroeconomic changes, in turn, feed back into Social Security finances. A fuller understanding of Social Security finances would take account of these effects, taking advantage of what is known in economics as "general equilibrium" analysis. In this study, we develop a new general equilibrium model of the U.S. economy; and we use the model to analyze a range of Social Security financing reforms.

One accomplishment of our work is methodological – more fully incorporating demographic change as an important factor in general equilibrium modeling. Specifically, we add: i) more realistic demographics that allows the model to better capture the population-age distribution and distribution of bequests; ii) cohort-specific longevity to reflect the important impact of rising longevity on the age distribution; iii) multiple earnings groups within each cohort to capture the impact that reforms have on different lifetime income groups; iv) the ability to simulate the model from non steady-state initial conditions in order to start the simulations with the prevailing age distribution; and v) a close calibration of the model to U.S. fiscal conditions and institutions. Our simulation model tracks the nation's aging process well. Although it abstracts from several features of economic reality, it gives new insights into the general equilibrium feedback effects of the demographic transition.

We begin by analyzing a "baseline" Social Security policy in which payroll taxes are raised to the level necessary to maintain Social Security benefits. We find that by 2030, payroll taxes would need to be raised to an estimated rate of 21.7 percent (with faster technological change) or 24.3 percent (with less technological change). As the payroll tax rises, however, it leads to a reduction in the national saving rate and, consequently, a reduction in capital accumulation. The reduction in capital, in turn, leads to lower real wages, because there will be less capital equipment associated with each worker. The result is a situation where macroeconomic conditions exacerbate rather than mitigate the fiscal problems of the Social Security system.

The same basic results are found when we simulate even further into the future, through the year 2100, as the higher payroll tax continues to depress capital accumulation that would otherwise occur. Sensitivity analyses using different rates of technological change, different longevity projections, and different assumptions about labor productivity produce modest differences in the estimated values of the model, but they do not change the basic conclusion that rising payroll taxes would lead to detrimental economic consequences that compound the problems of financing Social Security.

The second category of Social Security reform that we explore involves a reduction in benefits, either through gradually lower benefit amounts, or through a gradually increased age of eligibility for benefits. Both policies lead to higher levels of capital accumulation than would occur with an increased payroll tax. The containment of taxes under these scenarios increases the disposable income of younger cohorts and, by limiting old-age transfers, also increases their incentive to save, thus stimulating significantly more capital formation than under the baseline case. The downside of this approach is its distributional effect. Those already retired, or very near retirement, might be unaffected, if they are exempted from the benefit reductions. Those far from retirement would be helped, because of the lower payroll taxes and the long-term economic benefits associated with capital accumulation. Those in between, however, would experience significant welfare losses – absorbing the loss of reduced Social Security benefits without the longer-term rewards of lower taxes, higher real wages, and capital-driven growth.

The final category of Social Security reform that we analyze involves the pre-funding of future Social Security benefits; while paying off the liabilities accrued under the existing system with a tax levied on either wages or consumption. Our simulations show that this approach could avoid the adverse macroeconomic implications of a payroll tax hike and generate major benefits for future generations. However, paying off the accrued liabilities of the old system imposes burdens of their own on generations alive at the time of the reform. Still, the welfare losses tend to be spread out more evenly between generations and produce larger long-run gains. Financing the transition with a consumption tax may be particularly effective, because the economic benefits of pre-funding for future generations arise more quickly under consumption than wage-tax financing.

An important general finding from this project is that different approaches to balancing Social Security finances have different macroeconomic implications that should be considered in conjunction with the more direct effects of Social Security reform.

The full working paper is available on our website, www.nber.org/programs/ag/rrc/books&papers.html as paper NB04-07.

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This research was supported by the U.S. Social Security Administration through grant #10-P-98363-1 to the National Bureau of Economic Research as part of the SSA Retirement Research Consortium. The findings and conclusions expressed are solely those of the author(s) and do not represent the views of SSA, any agency of the Federal Government, or the NBER.