

## Political Risk versus Market Risk in Social Security

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Pay-as-you-go Social Security is typically characterized as a universal defined benefit pension program. Implicit in this characterization is a sense that the participant's investment in future benefits is somehow guaranteed, or safe from risk. This characterization of safety contrasts with that of personal accounts, which are subject to the acknowledged risk of stock and bond market fluctuations. The goal of this paper is to examine the risks actually posed by traditional pay-as-you go social security programs.

The study develops the concept of "political risk" as the possibility that some future legislature will change the financial provisions of the Social Security program from what it is today. But the paper makes clear that it is not so much the whim of politicians that creates the risk; but rather the underlying actuarial sustainability of the program itself. Future legislatures are forced to change the tax and benefit provisions of pay-as-you-go social security programs, when there are changes in the demographic and macroeconomic variables that support it. Changes in fertility rates, mortality rates, immigration rates and the growth rate of real wages all affect the financial balances in the program. And if the finances no longer balance over the long-term, then some kind of rebalancing must inevitably take place. That rebalancing is in essence the "political risk" that is explored in this study. Such adjustments undermine the idea that the benefits are "safe." In this paper, we carry out a detailed quantitative analysis of political risk in the U.S., as well as an overview of recent law changes in several European countries that demonstrate political risk more broadly across social security systems more generally.

For the U.S., we compute internal rates of return (IRRs) for various age groups under existing law in each year since 1939. (The IRR might be compared with the average annual rate of return on investment in a personal account.) We define political risk as the variation in IRR promised to Social Security participants under the law. We consider all law changes to the U.S. Social Security retirement program from 1939 to the present; as well as the changes that would be necessary to rebalance the long-term finances of the social security system today. These include a series of tax and benefit increases occurring between 1939 and 1972, a number of ad hoc benefit increases intended to compensate participants for inflation, the explicit (though flawed) indexation of benefits to inflation in 1973, tax increases and benefit taxation in 1977 and 1983 (the Greenspan Commission), and increased benefit taxation in 1994. All of these recent reforms reflect demographic changes being translated into program reforms.

In the empirical part of the paper, we study how these various legislative changes altered real IRRs for participants. We find a considerable amount of variation in IRRs through time for a given birth cohort, a finding that is inconsistent with the characterization of Social Security as safe. For example, participants experienced significant declines in their IRRs as a result of adjustments made to restore the system's solvency in 1983 and 1994. We also find that, if the system was brought into actuarial balance in 2005, younger cohorts would experience a decline in their lifetime IRR of approximately 0.8 percent. (This is risk that the politicians have yet to transfer to Social Security participants.)

The extent of political risk can also be explored in the context of social security systems outside the United States. In this study, we look at the history of tax and benefit changes to the programs in Germany, Italy France and Sweden.

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- In Germany at the end of the 1980s, policy makers realized that the existing replacement rate of 70 percent could only be maintained by raising the payroll tax from 19.5 to 40 percent by 2035. This prompted reform to reduce the indexation of benefits, increase the ages of eligibility for benefits, reduce the replacement rate and, most recently, index benefits to the dependency ratio, creating a “sustainability factor” in benefit computations.
  - In France, a study in the early 1990s showed that the contribution rate for the PAYGO system (then 17 percent for the private sector) would need to rise by 50 to 100 percent by 2040 to sustain the average replacement rate of 80 percent of net wages. This led to reduced pension indexation, an increased number of work years in the benefit computation formula, an increased career requirement for full benefits, and incentives for working longer.
  - In Sweden, the payroll tax rate needed to maintain the old benefit structure was projected to be almost double what it was in their former system. This led to sweeping reforms in the 1990s, completely replacing the traditional system of formula-based benefits with a two-pillar system consisting of a PAYGO notional defined contribution component, and a fully funded individual account system. The effect of switching to a combination of defined contribution accounts (notional and funded) means that the system now is automatically adjusted to changes in life expectancy through the annuitization of the accounts at retirement.
  - Italy’s pension faces financial problems because of its low fertility rate and a projected dependency ratio reaching 48 percent by 2030. Reforms were initiated there in 1992 and included an increase in the retirement age; an increase in the number of years of earnings used in the benefit computation; a shift from wage to price indexation of benefits; and an increase in the required career length for receiving a pension. These reforms collectively reduced the retirement wealth of participants by 25 percent. Subsequent reforms indexed benefits to life expectancy and abolished the guaranteed minimum pension.

One might wonder how political risk compares with the financial risk that participants would face with a system of individual accounts. In our previous work (Nataraj and Shoven 2003), we showed that a 60-40 stock-bond portfolio provides a mean lifetime IRR of 6.2 percent with a standard deviation of 2.03 percent. In this paper, using the time period between 1977 and 2004, and based on the U.S. Social Security program as it has evolved over time, the average IRR for an average earning single male in the 1960 birth cohort was 0.525 percent, while the standard deviation of the time series of IRRs was 0.8 percent.

Our broad conclusion is that Social Security participants face a significant amount of variation in the returns they get as a result of law changes. Law changes – necessitated by actuarial imbalances – pass demographic risk on to participants. There can be no doubt that the deal offered by Social Security has changed over the years. The debate over personal accounts, therefore, is not one of “safe” versus “risky” benefits, but one of portfolio choice.

The full working paper is available on our website, [www.nber.org/programs/ag/rrc/books&papers.html](http://www.nber.org/programs/ag/rrc/books&papers.html) as paper NB05-02.

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