

SOCIAL SECURITY REFORM

FINANCIAL AND
POLITICAL ISSUES
IN INTERNATIONAL
PERSPECTIVE

EDITED BY

Robin Brooks

Assaf Razin

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INTERNATIONAL PERSPECTIVE

Edited by

ROBIN BROOKS

International Monetary Fund

ASSAF RAZIN

~~Tel Aviv University~~



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Preface

As population aging has become increasingly acute in many countries, the debate over how to reform often creaking public pension systems has gathered momentum. In many cases, this debate has become politicized and the focus on some of the underlying economic issues has been lost. This volume hopes to redress some of this imbalance. It begins by examining the rationale behind why public pension systems were introduced originally – out of fear that individuals do not adequately save for retirement. It then systematically examines different aspects of reforming these systems. It covers the fiscal repercussions of reform, the implications of the Baby Boom on asset returns in the years ahead, the political economy of the reform process, and, finally, the risk-sharing implications that are inherent in reform. An important additional goal of this volume, besides highlighting some key economic issues inherent in reforming public pension systems, is to make these papers accessible to as wide an audience as possible: students, academics, and policy makers.

Many of the papers in this volume are previously unpublished and represent new, state-of-the-art research on topics relating to social security reform. Previously unpublished work includes the chapter by Fehr, Jokisch, and Kotlikoff; the chapter by Razin and Sadka; and the chapter by Lucas. We also would like to thank the publishers of those chapters that have been published elsewhere previously. Here, we would like to thank the *Review of Economics and Statistics* for allowing us to reprint the chapters by Abel and by Poterba; the Brookings Institution for allowing us to reprint the chapter by Laibson, Repetto, and Tobacman; the *American Economic Review* for the chapter by Brooks, the chapter by Diamond and Geanakoplos, and the contribution from Boeri, Börsch-Supan, and Tabellini. We also thank the Carnegie Rochester Conference Series on Public Policy for the chapter by Bohn and the chapter by Storesletten, Telmer, and Yaron.

Contributors

Andrew Abel (Wharton, University of Pennsylvania)
Tito Boeri (Bocconi University)
Axel Börsch-Supan (University of Mannheim)
Henning Bohn (University of California, Santa Barbara)
Robin Brooks (IMF)
Peter Diamond (MIT)
Hans Fehr (University of Würzburg)
John Geanakoplos (Yale University)
Sabine Jokisch (University of Würzburg)
Larry Kotlikoff (Boston University)
David Laibson (Harvard University)
Deborah Lucas (Northwestern University)
James Poterba (MIT)
Assaf Razin (Tel Aviv University)
Andrea Repetto (Universidad de Chile)
Efraim Sadka (Tel Aviv University)
Kjetil Storesletten (Stockholm University)
Guido Tabellini (Bocconi University)
Chris Telmer (Carnegie Mellon University)
Jeremy Tobacman (Harvard University)
Amir Yaron (Wharton, University of Pennsylvania)

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Introduction

In the coming decades, the population of the industrialized world is forecast to age dramatically. In the European Union, old-age dependency, defined as the ratio of the population aged 60 and older to those between ages 15 and 59, is projected to rise from 35 percent in 2000 to 66 percent in 2050. Within the European Union, aging is expected to be most pronounced in Germany, Italy, and Spain, where this ratio is forecast to rise to 71, 76, and 81 percent, respectively, by 2050. Aging trends are almost as severe in Japan, where old-age dependency is forecast to rise from 36 to 70 percent over the same period. In comparison, projected population trends in the United States look almost benign. The Census Bureau currently forecasts that the old-age dependency ratio will reach 47 percent in 2050, up from 27 percent in 2000.¹

These projections are raising doubts over the viability of public pension systems in industrial countries. The *Financial Times* of May 11, 2002, writes: "Pensions policy will come under increasing strain everywhere. In mainland Europe, where benefits are generous and pensions are not funded, governments will find it difficult to raise enough taxation to fulfill pension promises. The O.E.C.D. predicts that France, for example, will have to spend 33 percent more as a share of gross domestic product than it does now." The *Economist* of August 24, 2002, looks at another dimension of the financial burden: "On some estimates, by 2050, government debt could be equivalent to almost 100 percent of national income in America, 150 percent in the EU as a whole, and over 250 percent in Germany and France."²

Such doubts over the viability of public pension systems are creating momentum for reform. Most recently in the United States, the President's Commission to Strengthen Social Security was charged with investigating ways to restore the fiscal

¹ These numbers are taken from Brooks (2003), who reports global trends in youth and old-age dependency in greater detail.

² For additional discussion of the effects of population aging and globalization on the welfare state, see Razin and Sadka (2003).

soundness of Social Security and develop a workable system of personal retirement accounts. Since the Commission issued its final report in 2001, its recommendations have been hotly debated on both sides of the political spectrum. This debate has focused on three important issues. First, who will pay for the unfunded liabilities in Social Security? Will it be current generations, in the form of benefit cuts on retirees or tax increases on workers? What if the cost of these liabilities is financed through a rise in government debt, to be paid off by future generations? Second, what are the benefits and risks of different mechanisms for retirement saving – ranging from the government-run, pay-as-you-go model to individual accounts-based systems? With regard to government-run systems, what is the rationale for government involvement in the provision of retirement security in the first place? With regard to personal retirement accounts, are they welfare enhancing, by giving people otherwise unable to the opportunity to invest in private securities, which supposedly pay higher returns than pay-as-you-go systems? Or do they reduce welfare, by exposing individuals to risks they would not otherwise face? And, if they are indeed welfare reducing, are there guarantee or insurance arrangements that could reduce the risks of investing in private securities? Third, how politically viable are different reform proposals? How do they fare in the court of public opinion? And, how compatible are they with institutional constraints – rigid balanced-budget rules such as the Stability and Growth Pact in the European Union come to mind – that make no exceptions for structural changes in public pension systems?

The rate-of-return argument made by the proponents of individual accounts-based systems – that such systems would yield higher returns on contributions than existing pay-as-you-go systems – has already come under scrutiny by, for example, Geanakoplos, Mitchell, and Zeldes (1998). In Chapter 10 of this book, Razin and Sadka, based on Krugman (2002), show that the rate-of-return argument is flawed. They put it like this:

Imagine an overlapping-generations model with just one young working person and one old retired person each period, with each individual living for two periods. Suppose there is a pay-as-you-go pension system by which the worker contributes one euro to finance the pension benefit of one euro paid to the retiree. Each young person contributes one euro when young and working and receives one euro upon retirement. Evidently, the young person earns a zero return on her contribution to the pay-as-you-go security system. If instead the young person were to invest her one euro in an individual account, she would earn a real market rate of return of, say, 100 percent, allowing her a pension of two euros at retirement. Is this young person better off, taking into account the transition from the pay-as-you-go pension system to the individual accounts-based system? Not if the government wishes to honor the existing “social contract” or political norm to pay a pension benefit of one euro to the old at the time of the transition. In order to meet this liability, the government could issue debt of one euro. The interest to be paid by the government on this debt at a market rate of 100 percent will be one euro in each period, starting from the next period ad infinitum. Hence the young person will be levied a tax of

one euro in the next period when old, to finance this interest payment. Thus, her net-of-tax balance in the individual account will only be one euro, implying a zero net-of-tax return in the individual account; the same return as in the pay-as-you-go system. Now, suppose that the individual invests the one euro in equity markets and gets a better return than the 100 percent that the government pays in interest? If capital markets are efficient, the higher equity return (relative to the government bond rate) reflects nothing other than a risk premium. That is, the equity premium is equal to the risk premium through arbitrage. Therefore, equity investment offers no gain in risk-adjusted terms over government bonds. If capital markets are inefficient, then the government can, as a general policy, issue debt in order to invest in equity markets, irrespective of the issue of replacing social security by individual retirement accounts.

Although it may now be well understood that simple rate-of-return comparisons of different retirement systems can be misleading, many open questions regarding the politics and finance of reforming Social Security remain. This volume reexamines the current debate over Social Security reform from the perspective of the three key issues outlined previously: (i) who will pay for the unfunded liabilities in Social Security?; (ii) what are the benefits and risks of the different mechanisms for retirement saving – ranging from the government-run, pay-as-you-go model to individual accounts-based systems?; and (iii) how politically viable are different reform proposals, both in the court of public opinion and given institutional constraints, such as rigid balanced-budget rules, that may impede reform? The remainder of this introductory chapter describes how this collection of papers addresses these questions.

The first part of the volume addresses who will pay for the unfunded liabilities in Social Security. In Chapter 1, Fehr, Jokisch, and Kotlikoff develop and simulate a new dynamic general equilibrium life-cycle model capable of studying the interdependent demographic transitions in the United States, Japan, and the European Union. The model extends previous studies, such as Attanasio and Violante (2000) and Brooks (2003), by including international trade and investment but also by incorporating immigration, age-specific fertility, life-span extension and uncertainty, and unintended bequests. The simulations show that aging will have a dramatic negative impact on developed world economies. Specifically, the model predicts substantial crowding out of capital as a result of major increases in payroll tax rates that are needed to pay for promised retiree benefits. This crowding out leads to a roughly one-fifth reduction in real wages throughout the developed world as well as significant increases in real interest rates. The deterioration in the macroeconomic climate of the developed world makes the welfare losses experienced by current middle-aged, young, and future generations significantly worse.

The authors find that immigration proves to be a false elixir. Even an immediate and sustained doubling of immigration – an extreme response by most policy maker's standards – does little to mitigate fiscal stresses in developed countries.

This is because of three factors. First, dependency ratios still rise dramatically. Second, most immigrants arrive with little human capital, so that their contribution to effective labor supply is limited. Third, because benefits are provided on a progressive basis and immigrants are disproportionately low-wage workers, immigrants accrue disproportionately greater claims to old-age benefits than do native workers.

Instead, Fehr, Jokisch, and Kotlikoff argue for paying off the accrued liabilities of government pension systems using a consumption tax. Such a policy would impose modest welfare losses on current generations, including today's middle class and high-income elderly. But it would protect today's poor elderly because the real value of pension and health benefits are protected against price changes caused by consumption taxation. It also would preclude what appears to be the most likely policy alternative – highly regressive payroll tax increases and old-age benefit cuts.

In Chapter 2, Bohn uses a very different approach to address the same question. With the population rapidly aging in the United States, he explores if economic and political factors will cause policy makers to renege on obligations to take care of retirees who previously contributed to Social Security. Focusing first on economic factors, he examines the allocational implications of an aging population and of rising medical costs. He concludes that aging actually has positive implications for the viability of Social Security – increasing the savings rate, wages, and the capital-labor ratio – and that an efficient allocation of resources also will likely display a growing gross domestic product (GDP)-share of medical spending. Turning to the political dimension, Bohn uses an intertemporal model of Social Security to explain why working-age voters can rationally expect future benefits in exchange for their current transfers to retirees. He models the intertemporal link as a repeated voting game with trigger strategies. To support Social Security as a sequential equilibrium, it has to be the case for the median-age voter that the present value of future benefits exceeds the value of payroll taxes until retirement. In a partial equilibrium setting, he finds that the net present value of Social Security is positive for the median voter (age 45) for a variety of specifications. He also argues that general equilibrium arguments provide additional support for Social Security, because a vote against Social Security would raise the capital-labor ratio and reduce interest rates, making private saving a less attractive alternative to Social Security. In contrast to Chapter 1, Bohn finds substantial economic and political evidence in favor of the viability of Social Security. Why this difference? Chapter 1 presents a purely economic analysis, devoid of political considerations. Chapter 2 focuses on the political dimension. Of course, in reality, these two dimension will interact and the true answer to the question of who will pay for the unfunded liabilities in Social Security will likely include aspects of both scenarios.

The second part of the volume turns to the second question. It asks what rationale there is for government involvement in the provision of retirement security? What considerations drove the introduction of public pension systems in

the first place? In Chapter 3, Laibson, Repetto, and Tobacman explore hyperbolic discounting as a possible reason for undersaving while young. Such behavior typically involves an inconsistency whereby agents at birth determine an optimal consumption path. As they advance through the life-cycle, however, they revise this initial consumption path and consume too much ahead of retirement. For example, Bernheim (1995) examines household survey data and finds that there is a 10 percent gap (as a share of income) between households' targeted saving and actual saving rates. Hall (1998) illustrates hyperbolic discounting in a simple three-period model, where the individual is portrayed as self 1, self 2, and self 3 in the three periods. As Hall explains, there is only one inconsistency in this model: self 1 weights utility in periods 2 and 3 equally, whereas self 2 puts greater weight on period 2 than on period 3, as in hyperbolic discounting. In the model, self 3 has a passive role, consuming simply whatever wealth earlier selves have left to it. Self 2 takes the wealth that self 1 leaves and divides it between consumption in periods 2 and 3. Self 1 considers all available wealth and thinks through the behavior of self 2 in the course of deciding how much to consume in period 1 and how much to leave to self 2. Consequently, consumption in this model declines over time, illustrative of a tendency to spend early in life rather than save. Now suppose that self 1 can commit to future levels of consumption. This would take a mechanism where self 1 can set aside some wealth that is inaccessible to self 2 but is available to self 3 – pretty much the effect of a 401(k) plan. The model with commitment generates lower consumption in period 2 and higher consumption in period 3. The mechanism of commitment, therefore, results in more midlife saving, whereas without commitment, the individual undersaves in middle age. Consistent with this simple example, Laibson, Repetto, and Tobacman show that life-cycle consumption and asset accumulation patterns observed in the data are consistent with such hyperbolic preferences. In addition, they argue that consumers with such preferences are willing to give up some fraction of their annual income to induce government to implement optimal revenue-neutral saving incentives. Such commitment devices could amount to defined-contribution pension schemes with early withdrawal penalties, which would be associated with higher national savings.³

Of course, even if in reality agents do not provide adequately for retirement, this still leaves open the question of what kind of mandatory retirement system is optimal.

³ In addition to the realization that individuals may undersave when young, another factor behind the introduction of public pension systems is the notion of intergenerational risk-sharing, a point made by Gordon and Varian (1988), for example. They examine the role of government debt and tax-transfer policies that improve the allocation of risk between generations, based on the notion that markets fail to allocate risk between two generations efficiently whenever the two generations are not both alive prior to the occurrence of a stochastic event. This implies that government policies transferring risk between generations have the potential to create first-order welfare improvements. Gordon and Varian provide a model that gives a non-Keynesian justification for the debt-finance of wars and recessions, as well as an added rationale for social security-type tax-transfer schemes that aid unlucky generations – for example, the Depression generation – at the expense of luckier generations.

The third part of the volume discusses the benefits and risks of different mechanisms for retirement saving – ranging from the government-run, pay-as-you-go model to individual accounts-based systems. In Chapter 4, Diamond and Geanakoplos explore the general equilibrium impact of Social Security portfolio diversification into private securities, either through the trust fund or private accounts. Their analysis depends critically on heterogeneities in saving, production, assets, and taxes. Social Security diversification is likely to change the rate of interest, requiring higher income taxes to pay the higher coupons on government bonds. However, limited diversification is found to only weakly increase interest rates, reduce the expected return on short-term investment (and the equity premium), decrease safe investment, and increase risky investment. More generally, Social Security diversification creates the potential for welfare improvements. But, the effects on aggregate investment, long-term capital values, and the utility of young savers hinge on assumptions about technology. Aggregate investment and long-term asset values can move in opposite directions.

Chapter 5 by Lucas is motivated by the concern that existing public pension systems will be unable to pay benefits to a rapidly aging population without sharp tax increases. Also, it is motivated by the prospect of higher average returns on stocks than on government securities. Both aspects are drawing the attention of policy makers worldwide to the option of investing public pension assets in stocks. On the one hand, including stock market investments in public pension plans could improve risk-sharing within and between generations and could perhaps lead to faster market development in some countries. On the other hand, it also could result in excessive risk-taking, higher transactions costs, and a false sense of increased financial security. This chapter assesses these issues, with an emphasis on the considerations that are of special importance to developing markets. A contrast is drawn between the demographic outlook in East Asia and the major industrialized countries. Some lessons are drawn from the reform experience in Chile and elsewhere in Latin America.

Lucas argues that the allure of using the higher average rates of return on stocks to offset demographic pressures fades when the implications of such an investment strategy are examined more closely. Fundamentally, demographic pressures only can be eased by higher rates of economic growth, which pension policy affects primarily through its influence on savings rates. Switching a fixed amount of investment from government bonds to stocks can be expected to have, at most, a small effect on capital formation and growth.

In Chapter 6, Storesletten, Telmer, and Yaron argue that an important aspect of the current U.S. social security system is the tradeoff between the risk-sharing it provides and the distortions it imparts on private decisions. They focus on this tradeoff as it applies to labor market risk and capital accumulation. Specifically, they compare the current U.S. system to a particular proposal put forth in 1996 by the federal Advisory Council on Social Security (1996). They also examine the merits of abolishing social security altogether. The authors find that, absent

general equilibrium effects, the risk-sharing benefits of the current system outweigh the distortions associated with either the alternative or a system of privately administered pensions. However, once they incorporate equilibrium effects, the interaction among the social security system, private-savings decisions, and the means with which the government finances its nonpension expenditures results in a significant welfare benefit being associated with either reform or abolition. These welfare gains arise despite the fact that they explicitly incorporate the "social security debt:" the social cost of meeting obligations associated with the current system.

The fourth part of the volume investigates the benefits and risks of different mechanisms for retirement saving from yet another angle. It asks to what extent financial markets will be adversely affected when the Baby Boomers retire and how individuals fare under different pension systems in the event of a "market meltdown"? This part of the volume comes against the background of several articles in the popular financial press that have linked the rise in U.S. stock prices in the 1990s to the growing demand for financial assets as the Baby Boomers begin to save for retirement. These accounts often warn that the Baby Boomers may earn returns on their retirement saving far below historical returns because they will have to sell their financial assets to a smaller generation of young investors. This part contains three articles that examine the relationship between asset returns and demographic change.

From the perspective of social security reform, this question is important for two reasons. The building momentum for privatizing Social Security raises the question of how the transition should be financed. From an *ex post* perspective, a better understanding of which generations benefit from the asset market effects of the Baby Boom and which generations lose is key for the current policy debate over who should pay for the transition. From an *ex ante* perspective, some argue that defined-benefit (DB) Social Security may be optimal in terms of intergenerational insurance because it can offset movements in wages and asset returns that disadvantage large cohorts, by taxing smaller cohorts more heavily. In fact, Bohn (2001) finds that wage and asset return effects may be so large that, even with a DB system the size of Social Security and Medicare, the Baby Boomers are worse off than smaller cohorts around them.

Chapter 7 by Brooks explores the quantitative impact of the Baby Boom on stock and bond returns. It augments a real business cycle model with overlapping generations and a portfolio decision over risky capital and safe bonds. The model has two exogenous sources of uncertainty, technology shocks and population growth, and is used to simulate the asset market effects of recent changes in the U.S. population structure. His results suggest that, although the Boomers will likely earn returns on retirement saving about 100 basis points below current returns, they will nonetheless be better off in terms of lifetime consumption than their parents or children. This is because asset returns move in Boomers' favor during their working lives and because they have relatively few children, which boosts

their consumption and ability to save early on. Together, these effects outweigh the impact of poor asset returns in retirement. This result questions the apparent political consensus to exempt pension benefits of those retiring soon, some of the older Baby Boomers among them, from reforms. In addition, because the Boomers in the model are better off even in a specification without DB Social Security, the welfare loss from the crowding out private capital formation by such a system may in practice outweigh the need to offset movements in the capital-labor ratio that disadvantage large cohorts.

Poterba in Chapter 8 provides empirical evidence to support this result. He finds little evidence of a robust empirical relationship between real returns on financial assets and demographic change in Canada, the United Kingdom, and the United States. He attributes this result to two factors. First, the small effective number of observations – demographic change is a very low frequency phenomenon – limits the statistical power of his regressions. Second, he argues that data on wealth accumulation over the life-cycle shows that agents do not dissave dramatically in retirement. As a result, he argues that there will be no “market meltdown” when the Baby Boomers retire.

In contrast, Abel in Chapter 9 argues that the Baby Boom may cause substantial movements in the real price of capital, even if agents have a bequest motive. He develops a rational-expectations, general-equilibrium model with a bequest motive. In this model, the Baby Boom increases stock prices, and stock prices are rationally anticipated to fall when the Baby Boomers retire, even though consumers continue to hold assets throughout retirement. The continued high demand for assets by retired Baby Boomers does not attenuate the fall in the price of capital.

Why do Chapters 7 and 9 come to such different conclusions? Brooks presents a model with four overlapping generations, whereas Abel uses a two-period overlapping generations model. As the number of periods rises, more generations trade in financial assets, which tends to dampen the effects of a given demographic shock on asset returns. This is one reason why Chapter 7 finds more modest asset market effects than Chapter 9. Another reason is that Abel uses a model with convex adjustment costs, which generate an endogenous price of capital, whereas Brooks does not. As a result, the price of capital in Abel’s analysis can change over a demographic shift, whereas it is fixed in the analysis by Brooks. Both chapters thus offer very different modeling approaches and the true impact of demographic change on financial markets will likely incorporate aspects of both.

Finally, the fifth part of the volume asks how politically viable different reform proposals are? How do they fare in the court of public opinion? And how compatible are they with institutional constraints – rigid balanced-budget rules such as the Stability and Growth Pact in the European Union come to mind – that make no exceptions for structural changes in public pension systems? In Chapter 10, Razin and Sadka follow up on the premise that aging can tilt the

political power balance toward downscaling the welfare state; see, for instance, Razin, Sadka, and Swagel (2002). One of the well-publicized proposals on how to reduce the size of the welfare state is to shift from pay-as-you-go national pensions to individual retirement accounts. They develop a simple political-economy model, with which they analyze how aging can be a driving force behind such reform. They also examine how rigid balanced-budget rules (e.g., the Stability and Growth Pact in the European Union) that do not make exceptions for fundamental structural changes in social security can impede this reform.

In Chapter 11, Boeri, Börsch-Supan, and Tabellini attempt to understand the political-economy feasibility of social security reform by analyzing citizens' opinions on different aspects of the welfare state and its redistributive programs. They focus specifically on the German and Italian public pension systems and report the results of a survey conducted in these countries in the spring of 2000 and the fall of 2001. They describe how informed the citizens of Germany and Italy are and present opinions of these citizens on various reform options. They find that reforms are unsuccessful in two respects: they have made people aware of what they might lose but not of potential gains they may derive.

Robin Brooks (International Monetary Fund) and Assaf Razin (Tel Aviv University, Cornell University, NBER, CEPR and CESifo)

November 3, 2003

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