

## Privatizing Social Security in the United States: Why and How

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Privatization of social security is spreading throughout the world. Chile, Peru, Argentina, England, Sweden, and Australia have already privatized, and Bolivia, Mexico, and Italy are likely to join them shortly. In the United States, there is growing interest among politicians, the public, and academics in privatizing social security.<sup>1</sup> Senators Alan Simpson and John Kerry have called for the partial privatization of the U.S. system, and former presidential candidate Steven Forbes has called for the complete privatization of the system.

Is privatizing social security a good idea? Is it something the United States should do? What would it mean for the economy? Who would benefit, and who would lose? Is there a simple way to privatize the U.S. system? This chapter attempts to answer these questions. It points out that privatizing social security has the potential for increasing economic efficiency, raising living standards, and improving the intra- and inter-generational distribution of resources. Whether it does so depends on the nature of the system being privatized and the manner in which privatization occurs.

To make this point clear, section 6.1 plays devil's advocate in arguing that privatizing social security may represent little more than a shell game in which the government simply relabels its fiscal receipts and payments, leaving underlying economic conditions unchanged. Chile's privatization is described here to illustrate the relabeling of fiscal variables, although the Chilean privatization appears to represent more than just a relabeling of existing fiscal arrangements.

Section 6.2 responds to section 6.1 by pointing out that at least in the United States, privatizing social security would represent not just a change in form but also a change in economic substance. This section also points out a number of fundamental economic problems associated with the U.S. social security system, all of which could be remedied through

privatization. These problems include labor supply distortions, the capricious inter- and intragenerational distribution of resources, the lack of information and uncertainty surrounding individuals' future social security benefits, and the difficulty of sustaining the system through the demographic transition.

Section 6.3 examines one of these issues in more detail: the degree to which privatizing social security can reduce the distortion of labor supply and thereby improve economic performance and overall economic well-being. Specifically, I simulate the Auerbach-Kotlikoff dynamic life cycle simulation model (the AK model) to suggest the potential welfare changes and efficiency gains from privatizing a pay-as-you-go social security system in a stylized economy. The distinction between welfare changes and efficiency gains turns on whether initial generations are fully compensated for any economic injury associated with privatization. In the calculation of welfare changes, no compensation is provided, whereas full compensation is provided in the calculation of efficiency gains.

The results indicate that with the right initial conditions and the right choice of fiscal instruments during the transition, privatization can significantly reduce labor supply distortions and thereby raise economic efficiency. But if the initial conditions are not right or inappropriate fiscal instruments are used during the transition, privatization can end up lowering economic efficiency.

Section 6.4 considers the requirements for successful privatization of the U.S. social security system. It points out that a wholesale adoption of the Chilean formulation is not likely to work in the United States and offers instead a simple scheme for privatizing the U.S. system, called the Personal Security System. Section 6.5 considers its advantages and disadvantages.

### 6.1 Is Privatizing Social Security Just a Shell Game?

An evaluation of whether privatizing social security represents a fundamental change in policy or simply a relabeling of existing policy begins with the four features that typically arise in social security privatizations: (1) the replacement of payroll taxation with mandatory contributions to private pension accounts, (2) continued payment of social security benefits to current retirees (those collecting benefits at the time of the privatization), (3) the gradual phase-out of social security benefits for future retirees, and (4) a method of financing social security benefits during the transition to a completely privatized system.

Each of these elements is present in Chile's privatization, although not necessarily described in these terms. For example, existing social security beneficiaries continued to receive their benefits, but existing workers were given recognition bonds whose values were purported to equal the present value of the claims to future social security benefits that workers had accrued under the existing system.<sup>2</sup> The recognition bonds come due at retirement. Hence, although it used different language ("payment of principal plus interest on recognition bonds" rather than "social security benefits"), Chile in effect chose to provide social security income to existing workers that would phase out to zero for new workers who had accrued no benefits under the old system. Chile's method of financing social security benefits (including paying interest and principal of the recognition bonds) during the transition involves deficit finance (although no one in the Chilean government went out of his way to make this point clear). When it began to privatize, Chile was running large annual budget surpluses. With privatization, these surpluses were substantially reduced. The result was equivalent to Chile's leaving its budget surplus intact but explicitly borrowing to cover the payment of social security benefits during the transition.

At a quick glance, Chile's social security's privatization appears to represent simply a clever shell game. First, it left existing retirees in exactly their preprivatization position. Second, it transformed an implicit liability to pay existing workers their accrued social security benefits into an explicit liability to pay them principal plus interest on recognition bonds, all of which amounts, in the main, to simply a change in language. Third, it transformed the pay-as-you-go system's ongoing implicit tax on workers into an explicit tax. The implicit tax refers to the fact that compulsory contributions to a mature pay-as-you-go social security systems earn a below-market rate of return—the growth rate of the economy. In permitting workers to contribute to private pensions, Chile let them earn a market rate of return on their retirement contributions but hit them with higher explicit general revenue taxes to service the explicit debt issued to meet benefit payments to existing retirees and the recognition bonds provided to existing workers. Assuming initial older generations are not forced to share the burden of servicing the additional explicit debt as well as recognition bonds, the explicit tax hitting current and future workers will be just as large as the implicit tax would have been.

Following the money reinforces the impression of a shell game. Consider the money taken from young Chilean workers in the form of payroll taxes and handed to old retirees as social security benefits. Under privatization, the same money is taken from young workers but is placed in

private pension funds. These pension funds, however, immediately hand back the money to the government in exchange for government bonds. The government then takes the money and hands it over to the old retirees as social security benefit payments. When workers retire, they receive principal plus interest payments from the pensions based on their pension's investment in government bonds. But they are forced to hand back some of this money to the government as taxes levied to pay interest on this same government debt. To a Martian observing from outer space the net flow of money from young workers and old retirees to the government, nonprivatized and privatized social security regimes would look identical.

Now one might object that certain elements of privatization, such as the fact that workers receive a variable rate of return on their private pension contributions, make the privatized system inherently different from its pay-as-you-go social security predecessor, which pays a potentially safer rate of return determined by the economy's growth rate. But such objections may not withstand close scrutiny. Under the Chilean system, workers do receive a random rate of return on their private pension contributions. But since these contributions are invested in government bonds, the variability in their return depends on the variability in the return paid on government bonds. Note that the workers also have to pay taxes to cover interest payments on the additional government bonds (including recognition bonds) issued in the course of privatization. If the interest rate paid on government bonds is high, taxes will be high; if they are low, taxes will be low. These variable taxes effectively represent a short position in government bonds in workers' portfolios that exactly hedge their increased holdings, through their pension funds, of risky government debt, leaving them in the privatized system exposed to no greater investment risk than under the original pay-as-you-go system. This argument assumes that workers will invest their additional pension contributions in government bonds or encourage their pension plans to do so. But this is precisely the outcome that should arise in equilibrium. Assuming workers were optimally investing their portfolios prior to the privatization, the postprivatization distribution of risks ends up identical to the preprivatization distribution of risks.

## 6.2 Substantive Aspects of Privatizing Social Security

First impressions notwithstanding, Chile's and other countries' privatizations of social security may produce fundamental economic changes along a number of dimensions. Privatization may reduce labor supply distur-

tions, alter the inter- and intragenerational distribution of resources, leave households at greater risk of outliving their resources during their retirements, and alter the extent of intergenerational risk sharing.

### *Labor Supply Distortions*

Suppose the preprivatized system provides social security benefits unrelated to a worker's past social security contributions (or perceived to be unrelated). Then social security's entire payroll tax will represent a distorting marginal tax on labor supply. Since privatizing social security eliminates the payroll tax, it eliminates this distortion.

Distortions of economic decisions rise with the square of the total effective marginal tax on the decision, so the contribution of the payroll tax to distorting labor supply depends on the size of marginal income taxes, as well as other effective marginal labor taxes. In the United States, workers who earn less than social security's covered earnings ceiling (currently \$62,500) are subject to the full 15.3 percent marginal social security payroll tax.<sup>3</sup> Most of these workers are likely to be in the 15 percent federal marginal income tax bracket. They are also likely to face a 5 percent state marginal income tax and state sales taxes, as well as federal excise taxes, which together effectively tax their labor earnings at about 5 percent.

In combination, these non-social security marginal taxes total 25 percent. The 15.3 percent U.S. social security payroll tax rate raises the total effective marginal tax rate on labor supply from 25 percent to 39 percent once one takes into account the fact that half of the payroll tax contribution (the employer's contribution) is deductible from the federal income tax. Now 0.25 squared equals 0.0625, and 0.39 squared equals 0.1521. Since the distortion of labor supply is proportional to the square of the total effective marginal labor tax rate, the U.S. social security payroll tax may be raising labor supply distortions of low-income workers by 143  $\left(\frac{0.1521}{0.0625} - 1\right) \times 100$  percent even though it raises the total effective marginal labor tax rate by only 56  $\left(\frac{0.39}{0.25} - 1\right) \times 100$  percent.<sup>4</sup>

### **The Linkage at the Margin of Benefits to Earnings**

This finger exercise is striking, but it may overstate social security's actual distortion of labor supply and the efficiency gains from privatization. One reason is that social security benefits are tied for many American workers to additional labor earnings. If such workers understand this linkage (a big if), their total effective marginal tax rate will be reduced by the size of this marginal subsidy.

In thinking about marginal benefit-tax linkage in unfunded social security systems, one's first inclination might be that this linkage is governed by the difference between the economy's real return to capital and its growth rate. Since pay-as-you-go social security pays, on average, a return equal to the economy's growth rate in the long run and since workers could otherwise receive a return equal to the economy's real return to capital if they could save their social security contributions on their own, it might seem impossible to provide workers with a dollar back in benefits (measured in present value) for each dollar they contribute in taxes—that is, to provide full benefit-tax linkage. But what social security pays out on average in exchange for additional social security contributions is not necessarily related to what it pays out on the margin, and it is marginal, not average, social security benefit-tax linkage that matters for understanding social security's contribution to labor supply distortions. Indeed, at the margin, one can potentially produce greater than dollar-for-dollar benefit-tax linkage with sufficiently high inframarginal taxation.

In the United States, marginal benefit-tax linkage varies enormously across the population. Many secondary earners in two-earner couples and all nonworking spouses in single-earner couples collect dependent retirement and survivor benefits based solely on their spouse's earnings histories. Consequently, they receive zero additional benefits in exchange for their marginal payroll tax contributions to social security.<sup>5</sup> The same is true for workers under age twenty-one since their earnings are not included in the calculation of average monthly earnings for purposes of determining retirement benefits. On the other hand, benefit-tax linkage for many primary earners in two-earner couples is significant.

Table 6.1 presents net marginal tax rates on social security contributions, taking into account benefit-tax linkage. These data were provided by Andrew Samwick based on a benefit-calculating program developed in Feldstein and Samwick (1992).<sup>6</sup> The calculations assume a 6 percent real rate of discount, a 1.2 percent rate of real wage growth, and a 3.5 percent rate of inflation and consider the net rate of social security benefit taxation arising from a permanent increase in monthly earnings by \$1. The table considers six different cases: (1) a single very low-earning female who, at the margin, is in the 90 percent bracket of the social security benefit formula (a dollar more of average indexed social security monthly earnings leads to ninety cents more in social security benefits) and faces no federal income taxation of her benefits; (2) a single high-earning male who is in the 15 percent bracket of the social security benefit formula and pays federal income tax on 85 percent of his social security benefits at a

**Table 6.1**  
 Net marginal OASI tax rate on \$1 rise in monthly wages (percentages)

Single female in 90 percent benefit bracket who faces no federal income tax		Single male in 15 percent benefit bracket who faces 85 percent benefit taxation at a 33 percent rate	
Age in 1995	Net Tax Rate	Age in 1995	Net Tax Rate
	5	25	10
25	3	30	10
30	1	35	10
35	-1	40	10
40	-3	45	10
45	-5	50	10
50	-8	55	9
55	-12	60	9
60			
Husband in single-earner couple in 90 percent social security benefit bracket who faces no federal income tax		Husband in single-earner couple in 15 percent social security benefit bracket who faces federal income taxation of 85 percent of benefits at a 33 percent rate	
Age in 1995	Net Tax Rate	Age in 1995	Net Tax Rate
25	2	25	10
30	-0	30	10
35	-2	35	9
40	-6	40	9
45	-9	45	9
50	-12	50	9
55	-16	55	8
60	-23	60	8
Secondary earner collecting benefits based solely on spouse's earnings record		Very high earner (earning above social security's earnings ceiling)	
Age in 1995	Net Tax Rate	Age in 1995	Net Tax Rate
25	11	25	0
30	11	30	0
35	11	35	0
40	11	40	0
45	11	45	0
50	11	50	0
55	11	55	0
60	11	60	0

Source: Calculations by Andrew Samwick.

33 percent rate; (3) a married male in a single-earner couple who is in the 90 percent social security benefit bracket and faces no federal income taxation of his benefits; (4) a married male in a single-earner couple who is in the 15 percent marginal social security benefit bracket and pays federal income taxes in old age on 85 percent of his social security benefits at a 33 percent rate; (5) a secondary-earning spouse, whose earnings are sufficiently low that he will collect benefits based solely on his spouse's earnings record; and (6) a very high earner who earns more than the covered earnings ceiling.

The net tax rates reported in the table consider only old age and survivors insurance (OASI) benefits and should be compared with the 11.2 percent OASI payroll tax. Negative values refer to subsidies. The table shows three things. First, it confirms that marginal OASI net tax rates differ greatly across different Americans. For example, at age fifty, the table's low-earner, single-earner husband faces a 12 percent social security subsidy, whereas a high earner (in the 15 percent benefit bracket), single male age fifty faces a 10 percent marginal tax. Second, OASI net tax rates decline, often substantially, over the life cycle. Consider again the low-earner, single-earner husband. His net tax rate falls from 2 percent to -23 percent between ages twenty-five and sixty. The reason for the decline in net tax rates with age is that the closer one gets to collecting marginal benefits arising from additional labor earnings, the less severe is the discounting of those benefits.

Third, as one goes from low- to high-earner households earning less than social security's covered earnings ceiling, net marginal tax rates rise substantially. For example, there is a 15 percentage point spread between the 5 percent subsidy facing fifty-year-old low-earning, single males and the 10 percent tax facing fifty-year-old high-earning, single males. On the other hand, once one passes the covered earnings ceiling, the marginal OASI net tax drops to zero. Workers earning more than social security's covered earnings ceiling face zero marginal OASI payroll taxation and also receive no marginal social security benefits. For this large group of workers, social security does, however, represent a substantial inframarginal tax. Indeed, it is this large inframarginal tax on high earners that is used to provide low earners as a group with low or negative marginal OASI net tax rates and average rates of return on their contributions that exceed the economy's growth rate.

Do workers whose benefits are linked at the margin to additional earnings understand the linkage? We do not know. However, we do know that correctly assessing the linkage requires knowledge of intricate OASI



benefit provisions and the ability to make sophisticated actuarial calculations. Since very few workers have such knowledge or actuarial background, the vast majority presumably are guessing about the degree to which their benefits are linked at the margin to their additional earnings. If they are over assessing the degree of linkage, the existing social security system may be less distortionary than it appears. On the other hand, if they are underassessing the degree of linkage, the opposite will be true. In this case, privatizing social security can be beneficial by simply making clear that the true rate of marginal taxation of labor supply is less than the perceived rate.

### **The Optimal Second-Best Tax Structure**

A second reason that the simple efficiency calculation presented above may overstate the gains from privatization is that the tax used to finance transitional social security benefits (including the servicing of any additional debt issued in the course of privatization) may itself distort labor supply, as well as other economic choices. For example, if income taxes are used as the transition financing instrument, both labor supply and saving decisions will be distorted. Thus, whether privatization ends up, on balance, reducing tax distortions depends on whether privatization moves the economy closer to its second-best tax structure.

The second-best tax structure depends not only on the choice of what base to tax but also on the distribution of inframarginal and marginal taxes given the choice of tax bases. Although the literature on optimal redistributive taxation has not seemed explicitly to have considered social security net taxation, it is clear that this form of taxation can play an important role in achieving the optimum. It is also clear from table 6.1 that the current structure of marginal net social security taxation has a number of anomalous features that may be very hard to justify as part of an optimal second-best redistributive tax structure. From this perspective, social security's privatization can be viewed as an opportunity to improve the structure of inframarginal and marginal taxation.

### ***Privatization and the Intra- and Intergenerational Distributions of Resources***

Table 6.2 reports lifetime net tax payments for different household types belonging to different cohorts. The table's data, provided by Gene Steuerle, differ from similar estimates reported in Steuerle and Bakija (1994) because they incorporate a 6 percent rather than a 3 percent

**Table 6.2**  
Net lifetime OASI taxes (age 65 actuarial value, thousands of 1993 dollars, 6% discount rate)

Year born	Cohort age 65	Couples											
		Single male			Single female			One earner			Two earners		
		Low	Avg	High	Low	Avg	High	Low	Avg	High	Low/Low	Avg/Low	High/Avg
1875	1940	-7	-9	-14	-8	-12	-18	-11	-15	-23	-15	-18	-27
1885	1950	-13	-15	-16	-19	-22	-24	-25	-31	-36	-32	-35	-39
1895	1960	-16	-20	-15	-26	-34	-30	-40	-55	-54	-43	-53	-50
1905	1970	-13	-4	11	-27	-23	-10	-55	-64	-60	-46	-46	-23
1915	1980	8	40	74	-6	17	45	-52	-54	-44	-23	-6	59
1925	1990	45	123	183	34	106	160	-19	16	45	44	95	230
1935	2000	94	235	382	84	220	365	27	120	228	144	253	535
1945	2010	142	342	664	132	328	649	71	222	495	237	407	917
1955	2020	165	397	949	155	383	937	89	268	750	288	483	1240
1965	2030	194	463	1191	184	450	1180	112	323	971	339	570	1533
1975	2040	208	498	1278	196	483	1264	121	351	1047	364	618	1655
1985	2050	229	552	1411	216	533	1393	135	391	1160	406	687	1834

Source: Calculations by Gene Steuerle.

real discount rate.<sup>7</sup> The households under consideration are single males, single females, single-earner married couples, and two-earner married couples. Low, average, and high past and projected levels of earnings are considered. Average earnings refers to the average level of social security earnings. High earnings refers to social security's maximum level of covered earnings, and low earnings refers to a level of earnings equal to 45 percent of average earnings. For 1993, low, average, and high earnings were \$11,000, \$24,444, and \$60,000, respectively.

As the table shows, pay-as-you-go social security has produced an enormous transfer of resources from current young and, by implication, future American cohorts to cohorts who are now old or are already deceased. The system also redistributes substantial sums from the lifetime poor to the lifetime rich, from males to females, from those who are unmarried to those who are married, and from two-earner couples and singles to single-earner couples. One caveat here is that the table ignores differences by income in survival probabilities. Since the poor have shorter life expectancies than the rich, the table overstates the extent of social security system's intragenerational redistribution.

Consider current forty year olds who were born in 1955 and will be age sixty-five in 2020. For males in this cohort with low earnings, the lifetime net loss from being forced to participate in pay-as-you-go social security is equivalent to arriving at age sixty-five with \$165,000 less in assets—an enormous sum for someone who is now earning only \$11,000 or so per year. For a high-earning single forty-year-old male, the net loss totals \$949,000! For single females, the corresponding losses are about \$10,000 smaller because females have longer life expectancies than do males. Next consider a forty-year-old single-earner couple whose single earner has low earnings. This couple's net tax is \$89,000, which is \$76,000 less than that of the low-earning single male who pays exactly the same taxes. It is less than one-third the \$288,000 loss experienced by the same-aged two-earner couple in which both spouses are low earners, and it is less than a twelfth of the \$1.24 million loss experienced by the same-aged two-earner couple in which one spouse is a high earner and one spouse is an average earner.

### **Would Privatization Alter the Inter- and Intragenerational Distribution of Resources?**

The privatization of social security in the United States in all likelihood would significantly alter both the country's inter- and intragenerational distributions of resources. One reason the intergenerational distribution

of resources would likely change involves the choice of the tax used to finance social security benefits during the transition. If, for example, a federal retail sales tax were used as the financing mechanism, those who were old at the time of the reform would, as a group, end up facing a higher remaining lifetime net tax burden than they would absent the reform.<sup>8</sup> Another reason involves deficit delusion. If, in the course of privatization, the implicit liability to pay social security benefits to existing retirees and current workers were made explicit through, for example, the issuance of recognition bonds, the level of official U.S. debt would roughly triple. The reaction of the general public, the financial markets, and the politicians to this change in fiscal nomenclature would likely be to adopt a more conservative course of fiscal policy than would have occurred with the preprivatization labeling of fiscal obligations. A more conservative course of fiscal policy would, in turn, likely mean that the initial elderly would face larger net taxes over the remainders of their lifetimes and that young and future generations would consequently face smaller net taxes over their course of their lives.

The intragenerational distribution of resources would almost surely be altered as well by privatization. Take, as an example, the Personal Security System proposed in section 6.5. This proposal features earnings sharing between spouses, that is, married workers' mandatory contributions to private pensions would be split fifty-fifty between themselves and their spouse and deposited in separate accounts—one for each spouse. Single-earner couples who receive dependent benefits free of any additional contribution under the current system would find they are no longer so advantaged. Rather than receiving roughly one and a half times the amount of retirement income per dollar contributed that single individuals as well as two-earner couples in which the spouses have roughly equal earnings receive, single-earner couples would receive the same total retirement income per dollar contributed.

Other capricious forms of intragenerational redistribution arising under the current system would also be eliminated. Consider two workers, A and B, who have the same present value of lifetime earnings, but A earns relatively more of his lifetime earnings when young. As table 6.1 indicates, the current social security system penalizes early earners relative to late earners because it fails to credit fully early earners with the fact that they pay their payroll taxes earlier and consequently pay more payroll taxes when measured in present value.<sup>9</sup> In a privatized system, contributions would earn the market rate of return, so that a dollar contributed

at, say, age thirty would have more years to cumulate than a dollar contributed at, say, age forty-five, leaving contributors indifferent as to the timing of their contributions.

Another channel through which privatization would likely change the intragenerational distribution of resources involves bequests. If, as seems likely, privatization would reduce the degree of annuitization of the resources of the elderly, the elderly will end up leaving more bequests than would otherwise be the case.<sup>10</sup> The percentage increase in bequests would likely be greater for poor, low-income, and middle-income elderly households than it would for rich elderly households for whom social security benefits are small compared to their nonannuitized resources (their net wealth). Thus, privatization would reduce to some extent the inequality within a cohort in the receipt of inheritances.

### **Information**

Another major problem with the current U.S. social security system is that workers receive no information about the size of their likely future social security benefits. In contrast, under a privatized system, workers would receive retirement account statements on a routine basis. Admittedly, workers can request a social security benefit calculation from the Social Security Administration, but few do so.

The failure of the social security system to provide benefit information may be changing. According to my understanding, the Social Security Administration is planning in the near future to distribute earnings statements and estimates of future benefits to the entire U.S. workforce annually. Unfortunately, this statement, like the current statement, will, it appears, contain assurances from the social security commissioner to the effect that workers can rely on receiving their benefits when they reach retirement. This badly misstates the facts. Social security's long-term finances are in worse shape now than prior to 1983 when the Greenspan Commission announced that it had resolved the system's long-term financing problem. According to the most recent *Social Security's Trustees' Report*, under intermediate assumptions, a 2.2 percentage point immediate and permanent increase in the payroll tax rate is needed to close the seventy-five-year social security old age and survivors disability insurance (OASDI) deficit. The comparable 1983 figure was 1.9 percentage points. Under pessimistic assumptions, a 5.7 percent point immediate and permanent OASDI tax increase is needed. (Recent experience suggests that the

pessimistic projections may provide a better forecast of the future than the intermediate projections.)

Since social security has been declared off the table by our political leaders, it is not likely that payroll taxes will be raised any time soon. But the longer one waits, the higher is the requisite tax hike, assuming, that is, that tax increases, rather than benefit cuts, are ultimately used to shore up the system. Indeed, the *Trustees' Report* suggests that OASDI payroll taxes will need to rise by over 4 percentage points under intermediate assumptions and over 8 percentage points under pessimistic assumptions if the government waits until the Social Security Trust Fund is depleted before taking action. In considering the likelihood of such large future OASDI tax increases, one needs to take into account Medicare's long-term deficit. According to the Medicare Trustees, health insurance (HI) tax rate needs to rise immediately by roughly 5 percentage points under intermediate assumptions and by roughly 10 percent under pessimistic assumptions to achieve seventy-five-year actuarial balance. Is it likely that OASDI payroll taxes will double at some point in the not-too-distant future without there being any cuts in social security benefits? The answer is surely no. Indeed, baby boomers could well experience sharp reductions in their social security benefits when they retire. Nothing in the soon-to-be issued social security benefit statements will, however, indicate that current workers' future social security benefits are threatened by the OASDI and HI long-term deficits.

Apart from providing workers misleading information that may lull them into a false sense of security and lead them to undersave, the U.S. government is leaving unresolved how it will deal with social security's long-term deficit. This uncertainty does not reflect aggregate risk, which cannot be diversified. On the contrary. The significant fiscal stress facing social security at the beginning of the next millennium is predictable. Leaving uncertain exactly who will be forced to deal with social security's pending fiscal crisis has a real economic cost. Today's workers presumably would be willing to pay a fair amount to find out right now whether they will suffer substantial social security benefit cuts when they reach retirement or whether their benefits will be fully paid, notwithstanding the likely need to levy sky-high payroll taxes on the next generation. Privatization offers a way of resolving this uncertainty, at least with respect to retirement income. In specifying the tax to be used to finance social security benefits during the transition, privatization lets everyone know today the amount they can expect to contribute to resolving this aspect of the

nation's long-term fiscal problems. The act of privatization may also send a subtle but important message: that each of us must take personal responsibility for saving for and otherwise managing our retirements.

### *Life Span Insurance and the Annuitization of the Elderly*

The privatization of social security is likely to reduce the resource annuitization of the elderly and, consequently, the degree to which they are insured against outliving their resources. The U.S. social security system provides benefits in the form of real annuities, and because it pools together virtually all members of each cohort, it implicitly provides its annuities at actuarially fair rates with respect to each cohort taken as a whole. A privatized social security system would find it difficult to match this performance for four reasons. First, since private insurance companies are unable to hedge the risk of unexpected inflation, they are unable to market real (indexed) annuities. Second, since private insurance companies cannot compel the public to purchase their annuities, they face the problem of adverse selection. Third, since private insurers need to market and advertise their annuity products and since they cannot capture the economies of scale associated with selling to the entire market, they would likely operate at higher administrative costs than the Social Security Administration. Fourth, unlike the government, which can adjust to unexpected increases in longevity by raising payroll taxes or making other fiscal adjustments that do not involve reducing social security benefits, private insurers need to maintain substantial reserves to deal with unexpected increases in the longevity of their annuitants. Their annuities typically involve a fairly low guaranteed rate of return with a variable dividend that depends on market conditions, including the insurers' actuarial experience.

The first of these concerns—the inability of insurance companies to market real annuities—could be avoided by having the government issue indexed debt, which insurance companies could then purchase to hedge their liabilities to pay real annuities. Indexed debt is issued by a number of countries. It does limit a country's ability to renege on its nominal debt and other nominal liabilities by inflating, but this should be counted as a plus.

The second concern—the problem of adverse selection—could be reduced in a privatized social security system by requiring all participants to spend their accumulated retirement accounts on annuities at a particular

age, say, age sixty-five, and also by requiring insurers to sell annuities on equal terms to all those seeking to purchase them. Alternatively, the government could abandon the goal of annuitizing the elderly and simply ensure that the elderly do not spend down their retirement accounts too fast a rate.<sup>11</sup> For example, the U.S. government could adopt the Chilean government's stipulation that a retiree can withdraw in a given year only one  $n$ th of those funds in his retirement accounts that are not annuitized, where  $n$  stands for the retiree's remaining life expectancy.

The third concern—administrative costs—is probably a somewhat smaller one for the United States than it would be in other countries. The reason is that the United States has a well-developed private defined contribution pension system (i.e., 401k, 403b, IRA, SRA, and Keogh accounts). The typical annual fees for managing these accounts appear to range from 0.5 to 1.5 percent of assets—fairly high. One way that the administrative fees for managing privatized social security accounts could be reduced would be to restrict the type of funds in which participants could invest. For example, the government could mandate that half of compulsory retirement contributions be invested in a U.S. equity index fund (e.g., the S&P 500), that one-quarter be invested in a foreign equity and bond index fund, and that one-quarter be invested in a U.S. government and private index bond fund. Competition to provide these standardized products presumably would lead to substantially smaller management fees since no real asset management would be required. Also, since the products being sold would be essentially identical, there would be little advantage in advertising.

The fourth concern—variable annuity returns with low guaranteed payouts—is more a concern about form than substance. The risk of unexpected increases in longevity confronts the existing social security system, just as it would confront a privatized system. The government's response to greater-than-expected longevity of its social security annuitants is, it appears, not to reduce the benefits of current retirees but rather to raise payroll and other taxes, including federal income taxation of social security benefits. Assuming the intragenerational and intergenerational distribution of the burden of the government's dealing with unexpected longevity is the same as that which would prevail under a privatized system, the government is, in effect, also providing the same low-guarantee, variable annuity that the private market would provide—just one that is packaged differently, as the combination of a certain annuity together with uncertain taxes.



### *Economic Uncertainty*

Another way that privatization could substantively alter the economy is by changing the riskiness of old age consumption. Pay-as-you-go social security effectively introduces a new asset into the economy, one whose return equals, after a transition period, the growth rate of earnings in the economy. Even if the average growth rate of earnings is less than the average rate of return on capital, participants in social security may be better off because the variability of the growth rate of earnings is less than the variability of the return to capital.

To see this, consider the long run of a very simple model in which each generation lives for two period, works only when young, earning a wage  $W$  (which I will assume is invariant to the introduction of social security), and consumes only when old. Let  $r$  stand for the random rate of return on capital and  $g$  stand for the random population growth rate (labor productivity growth is assumed to be zero). In the absence of pay-as-you-go social security, old age consumption is given by  $W(1+r)$ . In the presence of pay-as-you-go social security, old age consumption is given by  $(W - T)(1+r) + T(1+g)$ , where  $T$  is the compulsory social security tax.

Clearly if the expected value of  $g$  is less than the expected value of  $r$ , the expected value of old age consumption will be reduced by social security. On the other hand, being able to invest in an asset paying  $g$  by making tax payments to social security when young permits participants to diversify their asset portfolio. The potential to use this asset to diversify the riskiness of consumption when old will, of course, be enhanced if  $r$  and  $g$  are negatively correlated. But the potential ability to diversify risk in this manner does not necessarily imply that pay-as-you-go social security raises the welfare of those living in the long run. The reason is that the disadvantage of being forced to invest in an asset with a lower expected return may outweigh the diversification advantage. In this regard, it is worth noting that in the United States, the average real rate of return to investing in capital appears to be roughly three times larger than the average growth rate of earnings.

If the growth rate of earnings were certain and the U.S. economy offered a safe asset in which to invest, one could compare the growth rate of earnings with the safe rate of return to determine whether pay-as-you-go social security would raise or lower the well-being of those alive in the long run (again ignoring general equilibrium effects on long-run factor prices). But those are two big ifs. Earnings growth is definitely not certain

in the United States or any other country. Moreover, unlike some countries that issue indexed bonds, the United States does not issue a safe asset. The three-month U.S. Treasury bill rate is often referred to as a risk-free rate, but this ignores the fact that inflation, even three months ahead, is not perfectly predictable, making the real return on this security risky.<sup>12</sup>

Given the riskiness of the growth rate and the lack of a risk-free asset, there is no simple way to determine whether the diversification value of participating in pay-as-you-go social security is worth the price of receiving, on average, a lower return. And, unfortunately, there are not, to my knowledge, any empirical studies that have tried to address this question by specifying how households view risk and how the distribution of  $g$  compares and covaries with the distribution of  $r$ .

### *Intergenerational Risk Sharing*

A final issue in considering the pluses and minuses of privatizing social security is the extent to which an existing pay-as-you-go social security system is part of a broader government scheme to share risks across generations.<sup>13</sup> If it is, the act of privatizing social security may alter the degree of intergenerational risk sharing. Consider again our model in which each person pays social security taxes when young. Now assume that there is no population growth, but that labor productivity each period is random, taking on either a high or a low value. Given a proportional social security tax rate, the amount of social security taxes collected each period depends on that period's labor productivity. Furthermore, since social security is, let us assume, a pay-as-you-go program, the level of benefits will be low if labor productivity is low and high if labor productivity is high. This means that social security helps the contemporaneous young and old share risk. When times are bad for the young and their wage earnings are low, the elderly receive smaller social security benefits, and vice versa when times are good. Indeed, we can describe this arrangement as one in which the young always pay the taxes associated with the high-productivity outcome to the contemporaneous old but receive a payment back from the elderly when productivity is low. This way of describing things views the elderly as providing the contemporaneous young with earnings insurance.

This example suggests that to evaluate the impact on the well-being of future generations of the elimination of pay-as-you-go social security requires understanding the nature and degree of risk-sharing arrangements in the existing system. Actually, there is a growing body of em-

empirical evidence concerning intergenerational risk sharing in the United States (Abel and Kotlikoff 1994, Altonji, Hayashi, and Kotlikoff 1992; Hayashi, Altonji, and Kotlikoff 1996). As it turns out, this evidence provides remarkably little support for the proposition that social security or other fiscal institutions are pooling risks across generations.

### 6.3 Simulating the Macroeconomic Effects, Welfare Changes, and Efficiency Gains from Social Security Privatization

This section<sup>14</sup> reports the results of four social security privatization simulations of the AK model.<sup>15</sup> In these simulations, social security benefits are phased out slowly over time. However, the social security payroll tax is immediately permitting workers to save privately the money they would otherwise have contributed to social security. The simulations differ with respect to the method of financing social security benefits during the transition. Specifically, I consider paying for social security benefits during the transition through a consumption tax, raising the extant progressive income tax, or using deficit finance for five years and then raising either consumption or progressive income tax rates to pay not only for remaining annual social security benefits but also for interest on the accumulated government borrowing in the first five years of the transition.

#### *The AK Model*

The AK model calculates the time path of all economic variables in its economy over a 150-year period. The model has fifty-five overlapping generations. Each agent lives for fifty-five years (from age twenty to age seventy-five). There are three sectors: households, firms, and the government. Households (adult agents) decide how much to work and how much to save based on the after-tax wages and after-tax rates of return they can earn in the present and the future on their labor supply and saving, respectively. The work decision involves not only deciding how much to work in those years that one is working but also when to retire. The AK model's consumption and leisure preferences underlying these decisions were chosen in the light of evidence on actual labor supply and saving behavior.

As agents age in the model, they experience a realistic profile of increases in wages. This age-wage profile is separate from the general level of wages, the time path of which is determined in solving the model.

Fiscal policies affect households by altering their after-tax wages, after-tax rates of return, and, in the case of consumption taxes, after-tax prices of goods and services. The model is equipped to deal with income taxes, wage taxes, capital income taxes, and consumption taxes. It is also able to handle progressive as well as proportional tax rates. Finally, and most important for this study, the model includes a pay-as-you-go social security system in which the perceived linkage between taxes and benefits can be set at any desired value.

All agents are assumed to have the same preferences, so differences in behavior across agents arise solely from differences in economic opportunities. Since all agents within an age cohort are assumed to be identical, differences in economic opportunities are present only across cohorts. In this study, the model's population growth rate is set at a constant 1 percent rate, with the population of each new cohort being 1 percent larger than that of the previous cohort.

The AK model's production sector is characterized by perfectly competitive firms that hire labor and capital to maximize their profits. The production relationships that underlie firms' hiring decisions and their production of output are based on empirical findings for the United States. The government sector consists of a treasury that collects resources from the private sector to finance government consumption and an unfunded pay-as-you-go social security system that levies payroll taxes to pay for contemporaneous retiree benefit payments. There is no money in the model, and thus no monetary policy. There is, however, government debt, and the model can handle deficit-financed reductions in payroll and other taxes. It can also handle gradual phase-ins of one tax for the other. Finally, the model contains a lump-sum redistribution authority (LSRA)—a hypothetical governmental agency that can use lump-sum taxes and transfers to redistribute among generations alive at a point in time as well as those who will be born in the future. The LSRA can be used (switched on) to study the pure economic efficiency effects of particular policy changes.

Although the model handles a great number of complex processes, it leaves out large portions of reality. The model's agents are heterogeneous only with respect to their age. There are no welfare recipients or millionaires, whose saving and work behavior might differ dramatically from that of the model's agents. The model does not include saving for purposes other than retirement, such as bequests. Nor does the model incorporate uncertainty with respect to either individual or macroeconomic outcomes. These and other omissions suggest viewing the model's results cautiously.

### *Model Calibration*

The preprivatization economy features a progressive income tax that finances government consumption equal to 20 percent of output, a 12 percent social security payroll tax, zero linkage between social security benefits and taxes, zero initial official government debt, a 1 percent population growth rate, zero technological change, a Cobb-Douglas production function, and a Consumer Expenditure Survey (CES) utility function in consumption and leisure with intertemporal and intratemporal elasticities of substitution of 0.25 and .8, respectively, and a time preference rate of 1.5 percent.

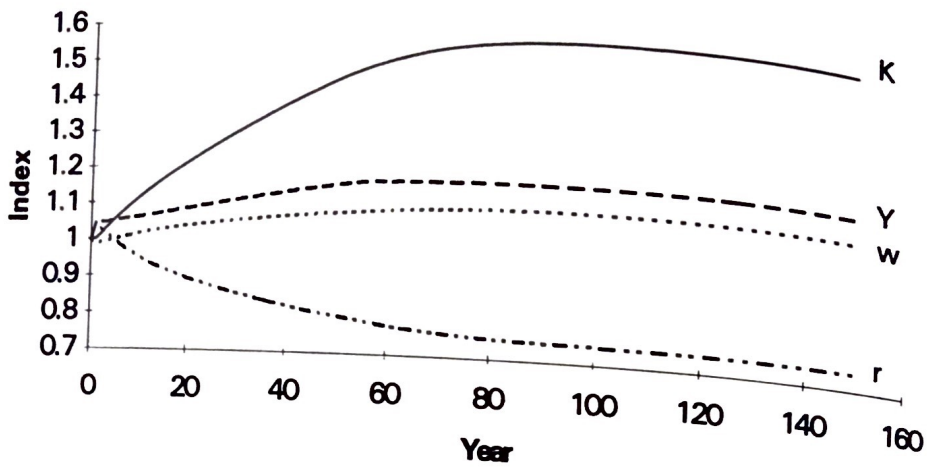
The simulation phases out social security benefits in a linear manner over a forty-five-year period. This phase-out period starts eleven years after the payroll tax is eliminated, thus permitting all beneficiaries at the time of the reform to collect all their benefits. Social security benefits during the transition are financed by a proportional consumption tax, a progressive income tax, or initial deficit finance coupled with subsequent increases in either proportional consumption tax rates or progressive income tax rates. For each case, we present results in which the welfare (utility) of initial generations is allowed to change in response to the privatization, as well as results in which the welfare of initial generations is held constant. In the latter simulations, the government uses lump-sum taxes and transfers to redistribute across generations during the transition so as to leave all generations alive at the time of the transition with precisely the same utility they would have enjoyed absent privatization and equalize the utility of all generations born after the policy is initiated.

### *Simulation Results*

Figures 6.1 and 6.2 consider the case of using a proportional consumption tax to finance social security benefits during the transition. Figure 6.1's simulation does not compensate initial generations for any policy-induced changes in their welfare, whereas figure 6.2's simulation provides full compensation. The top panel of figure 6.1 (and all other figures) shows macroeconomic policy effects. The bottom panel shows welfare effects.

As the top panel in figure 6.1 makes clear, the privatization of social security can have major macroeconomic effects. In this simulation, there is a 50 percent long-run increase in the economy's capital stock, a 16 percent increase in output, and a 10 percent increase in the real wage. In addition, the real interest rate falls by almost 300 basis points. These

### MacroEffects



### Remaining Lifetime Utility

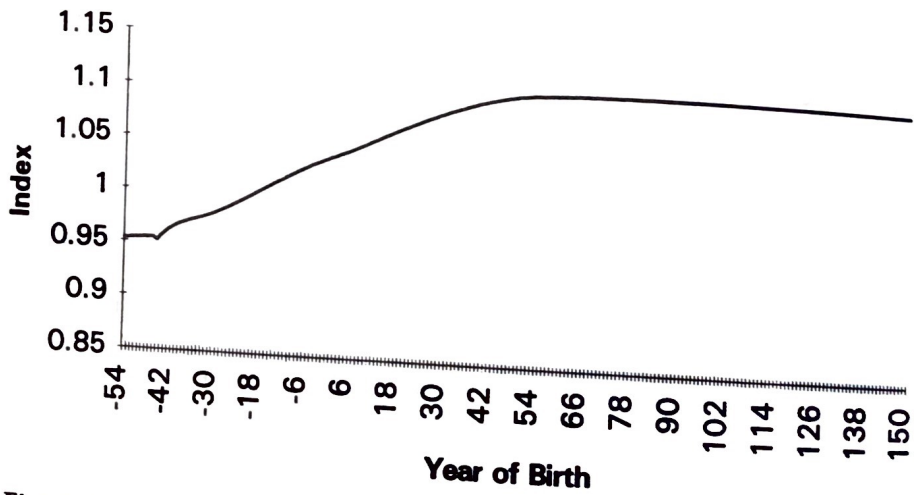
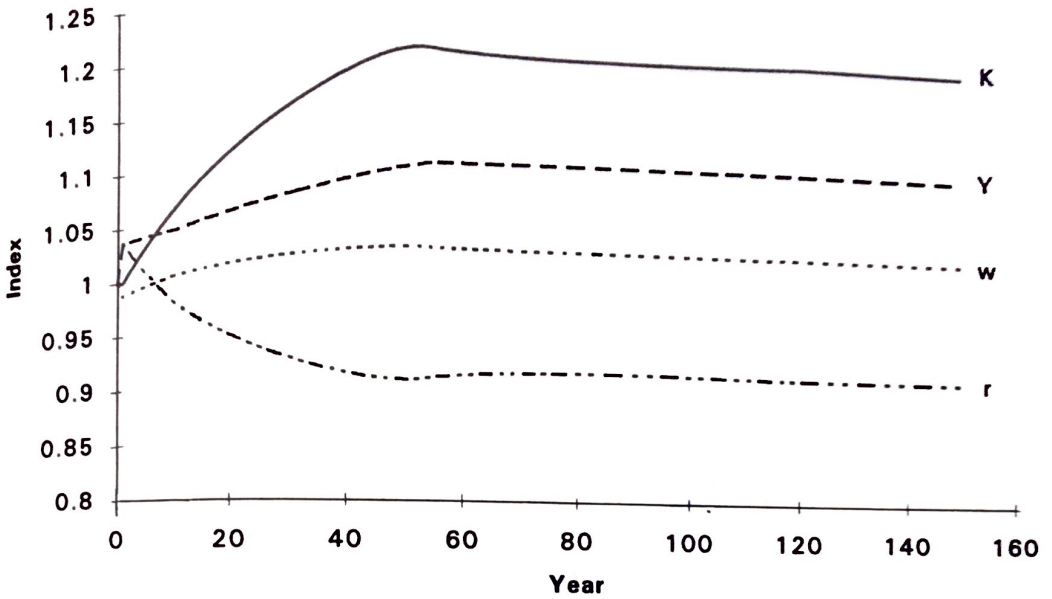
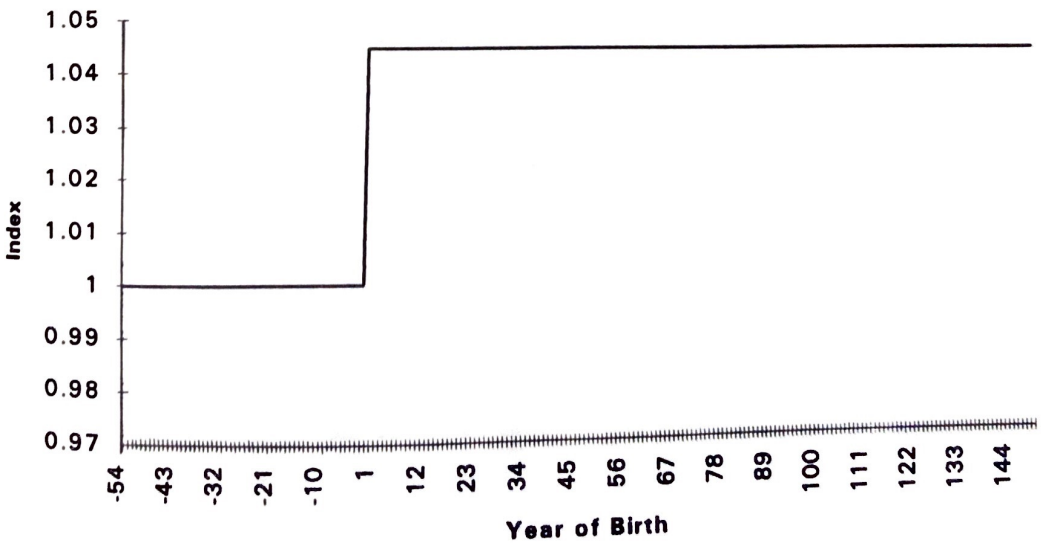


Figure 6.1 Proportional consumption tax finance of benefits, progressive income tax finance of general revenues.

**MacroEffects**



**Remaining Lifetime Utility**



**Figure 6.2**  
 Proportional consumption tax finance of benefits, progressive income tax finance of general revenues, Welfare of Living Generations Constant.

macroeffects generate about a 10 percent increase in the welfare of generations born in the postprivatization long run. For older generations alive at the time of the reform, the story is different. Most of these generations lose as a result of privatization; they experience a decline in their remaining lifetime utility. For example, the oldest cohort alive at the time of the reform—the one born fifty-four years prior to the reform—experiences a 5 percent decline in remaining lifetime utility, where utility changes are measured in terms of the percentage change in remaining lifetime consumption and leisure needed, in the old steady state, to produce the same level of utility arising under privatization. The reason the initial elderly are made worse off is clear: they are forced to pay consumption taxes, which limits the amount of consumption they can finance out of their remaining lifetime resources.

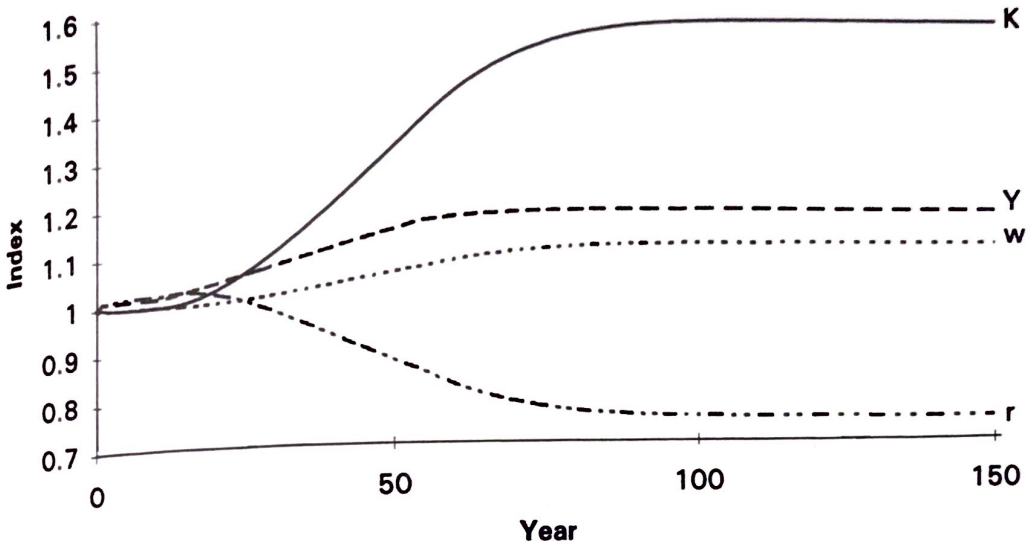
As figure 6.2 shows, the gains to the long-run winners from social security are large enough to compensate the initial losers and consequently end up with a Pareto improvement in which all those initially alive are unaffected by the reform and all those born after the reform experience a 4.5 percent increase in their welfare compared with the status quo. Although 4.5 percent is less than 10 percent, it still represents a substantial improvement in the well-being of future generations. The compensated privatization produces not only smaller long-run welfare improvements but also smaller long-run macroeconomic effects. The intuition here is that compensating initial older generations permits them to consume more, which lowers national saving, capital accumulation, and transitional output growth.

Figures 6.3 and 6.4 raise progressive income tax rates, rather than consumption tax rates, to finance social security benefits during the privatization transition. The uncompensated simulation results are roughly similar to those arising when consumption taxation is used to finance transitional benefits. On the other hand, the compensated welfare gain to those alive after the reform is much smaller: only about 1.7 percent compared with 4.5 percent in the case of consumption tax finance. The reason is that progressive income tax finance entails much higher marginal tax rates during the privatization transition and therefore much greater economic inefficiency.

Figures 6.5 and 6.6 use consumption taxation to finance transitional social security benefits but delay raising consumption tax rates until the sixth year after the reform is implemented. Hence, during the first five years of privatization, the government borrows to pay for social security benefits. As a comparison of figures 6.1 and 6.5 shows, the additional



**MacroEffects**



**Remaining Lifetime Utility**

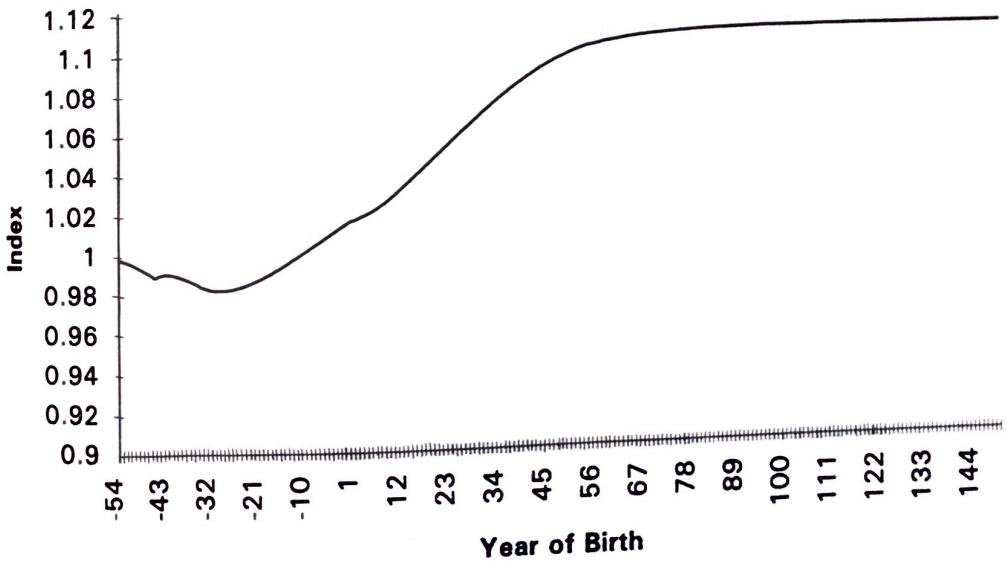
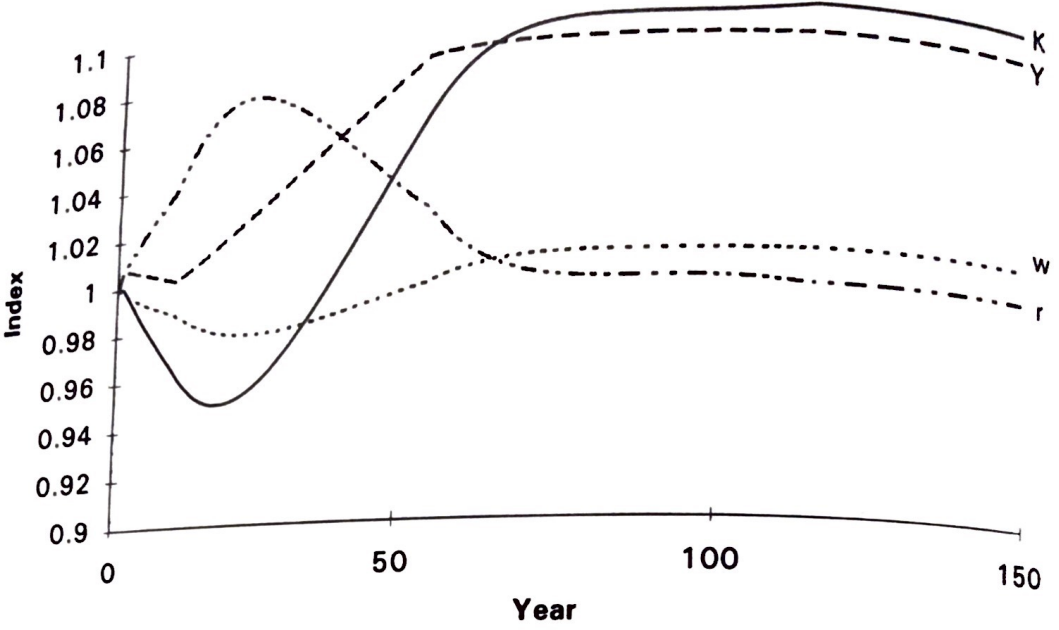


Figure 6.3  
Progressive income tax finance of benefits.

### MacroEffects



### Remaining Lifetime Utility

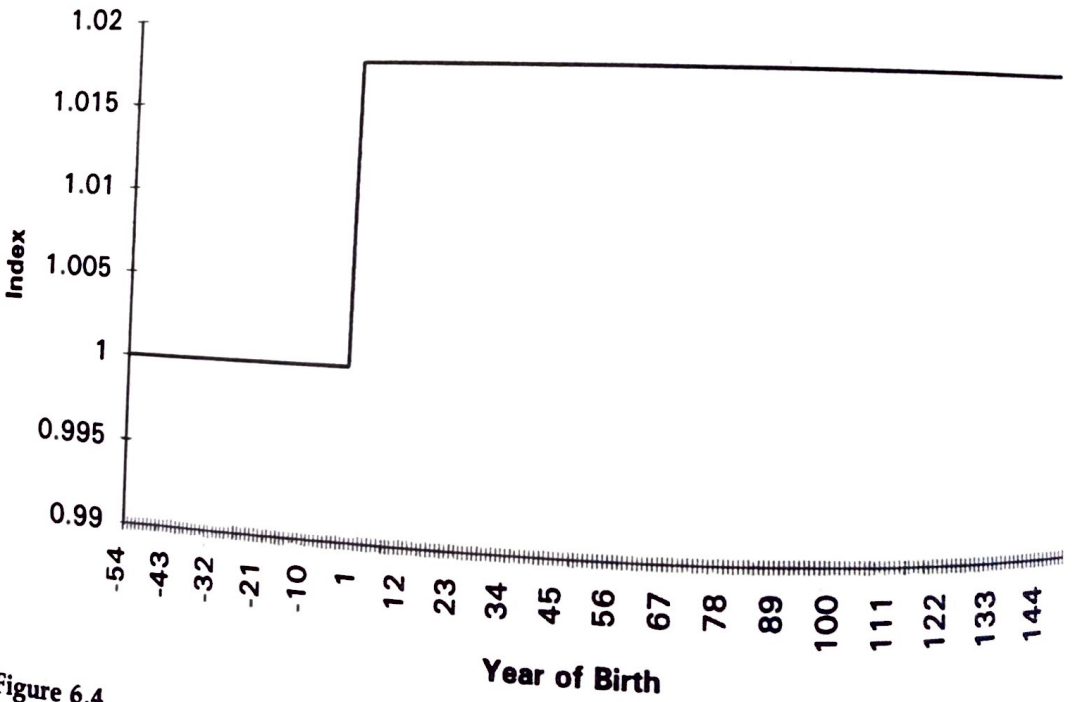
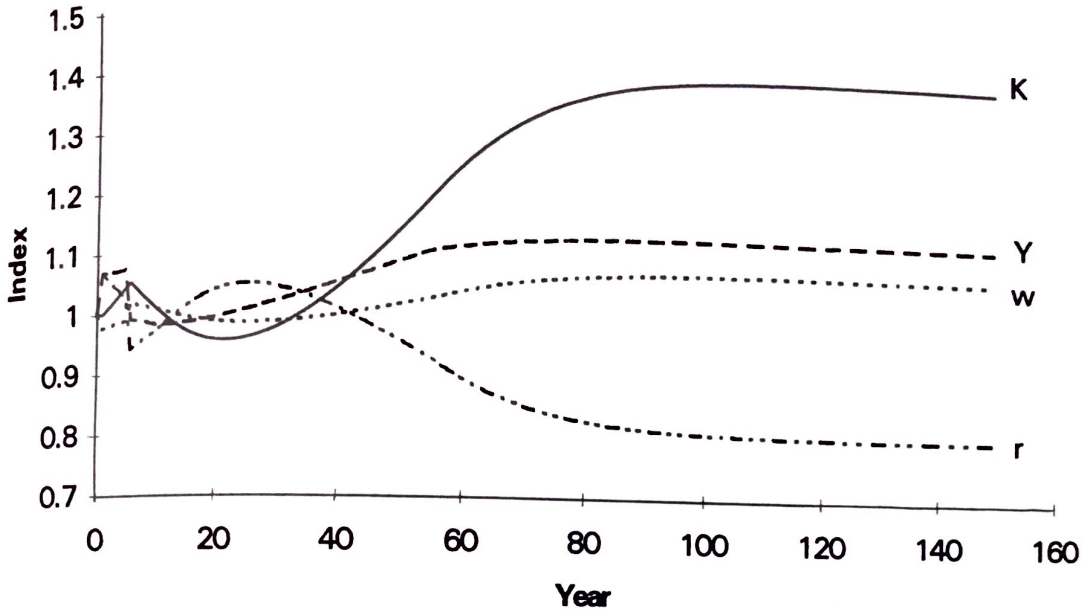


Figure 6.4  
 Progressive income tax finance of benefits, welfare of living generations constant.

### MacroEffects



### Remaining Lifetime Utility

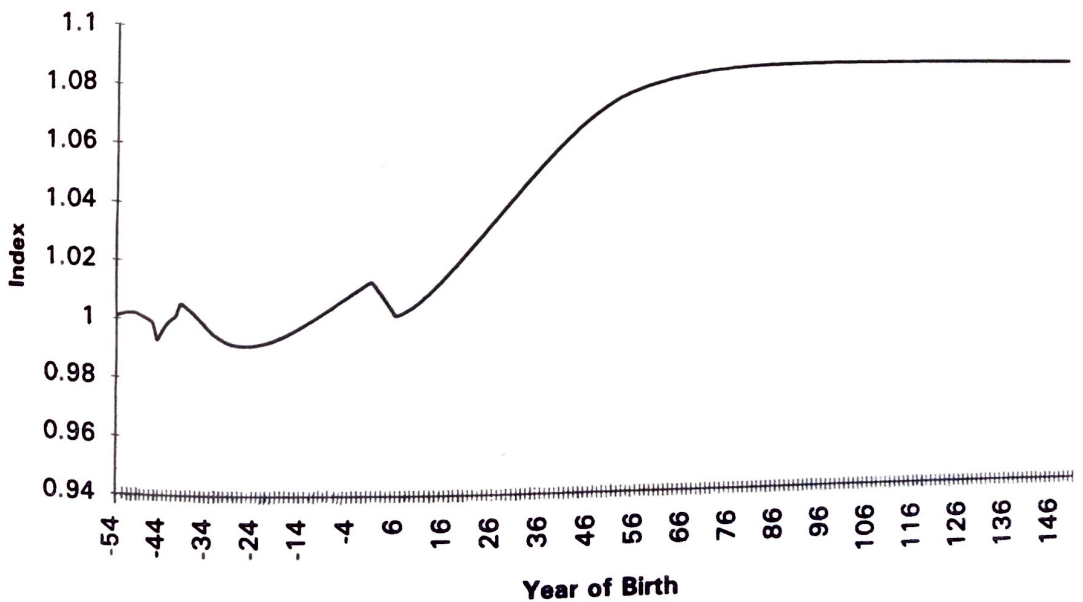
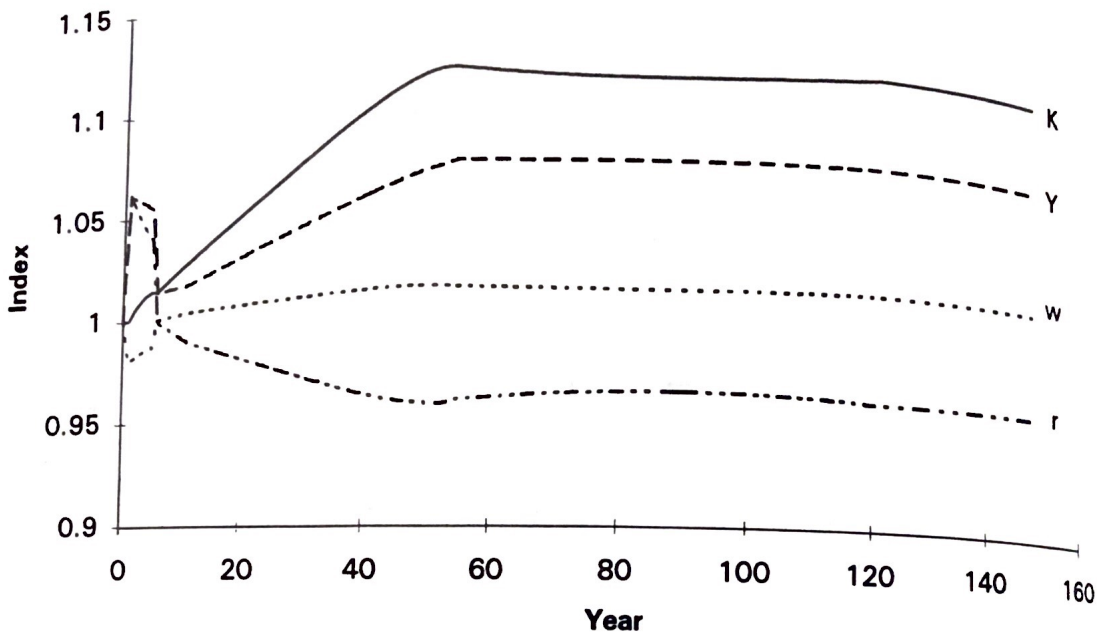


Figure 6.5 Proportional consumption tax finance of benefits, progressive income tax finance of general revenues, five-year debt finance.

### MacroEffects



### Remaining Lifetime Utility

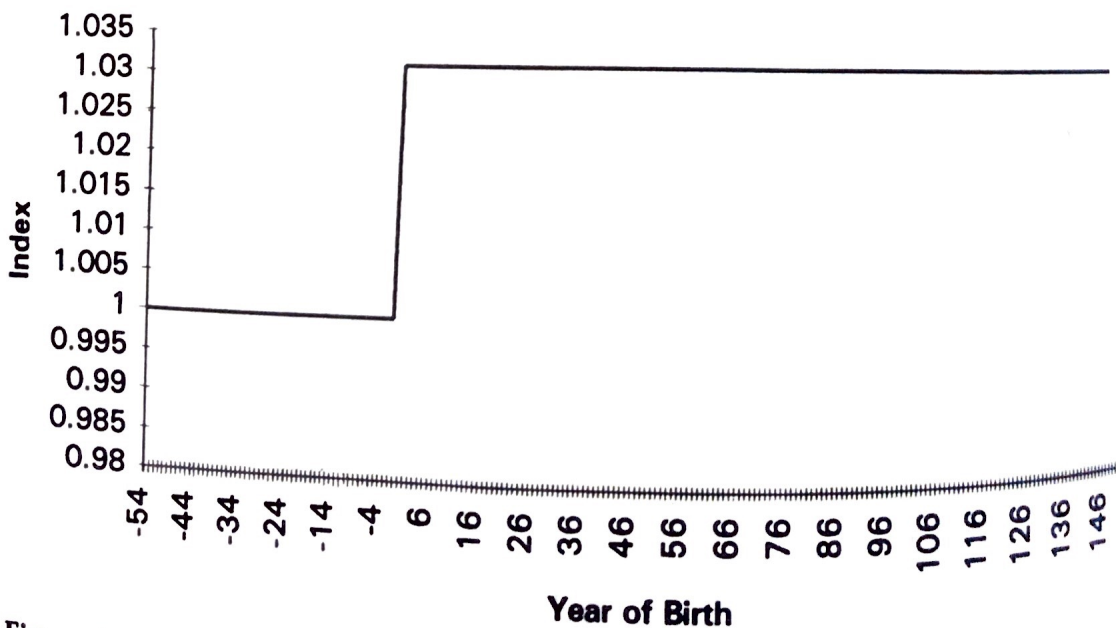


Figure 6.6 Proportional consumption tax finance of benefits, progressive income tax finance of general revenues, five-year debt finance, Welfare of living generations constant.

crowding out of saving arising from the short-term deficit finance in this transition leads to much smaller long-run increases in the capital stock, output, and real wage. The compensated long-run welfare gain is also smaller: about 3 percent rather than 4.5 percent. Note that in the uncompensated transition (figure 6.5), the use of deficit finance mitigates the reduction in welfare of initial older generations.

The final simulations, shown in figures 6.7 and 6.8, repeat the simulations of figures 6.3 and 6.4, in which progressive income taxation is used to finance transitional benefits but also incorporate five years of deficit finance. Again, both the long-run macroeconomic improvements and welfare gains are reduced by the deficit finance. On the other hand, the short-run loss in welfare for initial older generations is reduced in the uncompensated simulation. Indeed, the bottom panel of figure 6.7 indicates that using deficit finance plus progressive income taxation to finance transitional benefits generates close to a Pareto improvement.

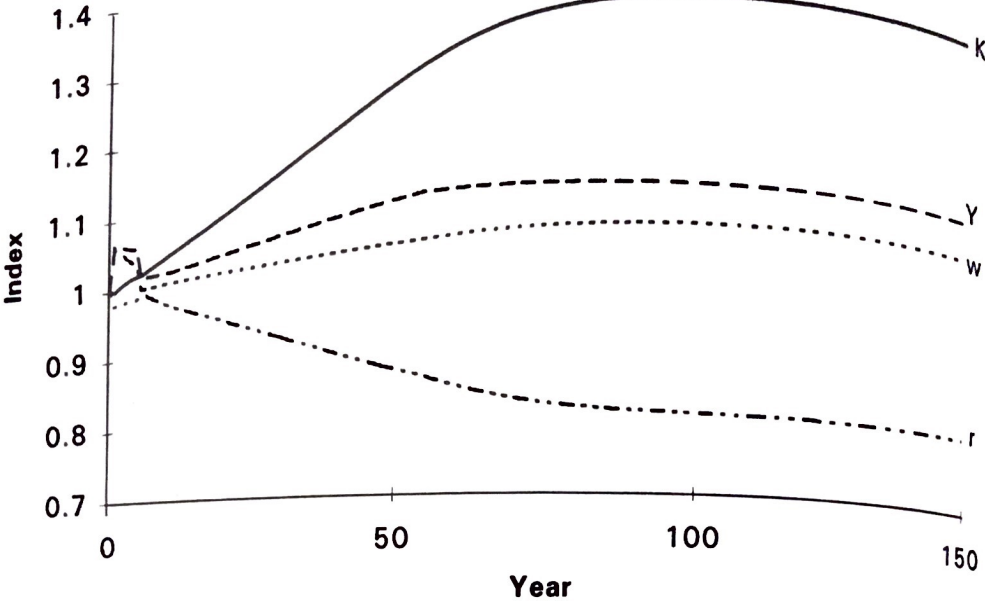
Although these simulations are suggestive, much more detailed simulations are needed to evaluate the efficiency gains from privatizing the U.S. system. Such simulations would include income and demographic heterogeneity across households. They would also model the current system in sufficient detail to produce, as an initial condition, the structure of net marginal social security tax rates reported in table 6.1.

#### **6.4 A Practical Guide to Privatizing Social Security in the United States**

In my view, the key to successfully privatizing social security in the United States is to make it clear, simple, universal, and fair. Clarity and simplicity rules out much of the Chilean approach. To be precise, it rules out providing recognition bonds to existing workers because their calculation would entail using a complex formula that workers would not understand and consequently would likely mistrust. It also rules out using Chile's complicated and counterproductive method of regulating private pension funds. Finally, it rules out Chile's approach of privatizing not only retirement saving but also the purchase of life insurance and disability insurance.

The criterion of universality argues against Chile's choice of making privatization voluntary. In the United States, allowing the public to opt out of social security on a voluntary basis would lead to adverse selection in which the federal government would end up stuck with high-cost participants (those expecting to live longest). It would also require each

### MacroEffects



### Remaining Lifetime Utility

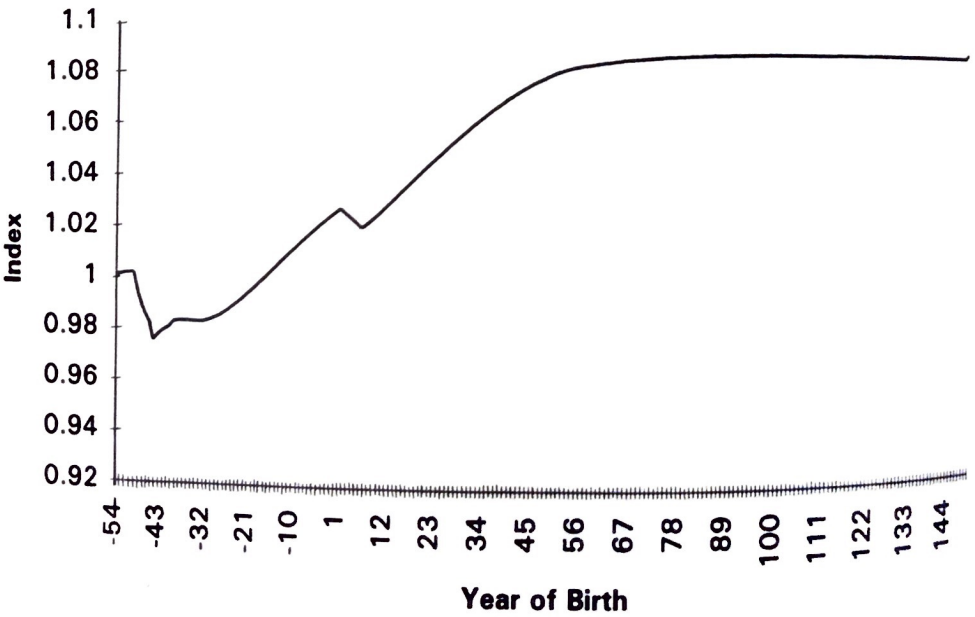


Figure 6.7  
Proportional consumption tax finance of benefits, five-year debt finance.

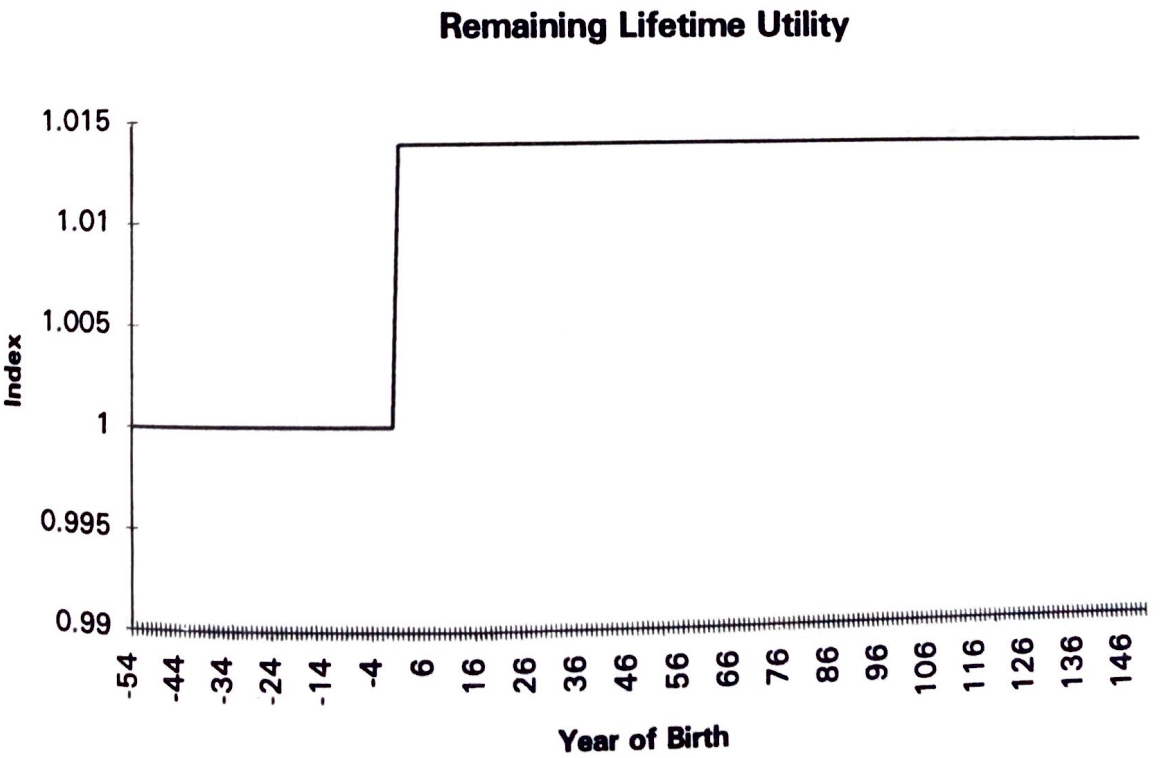
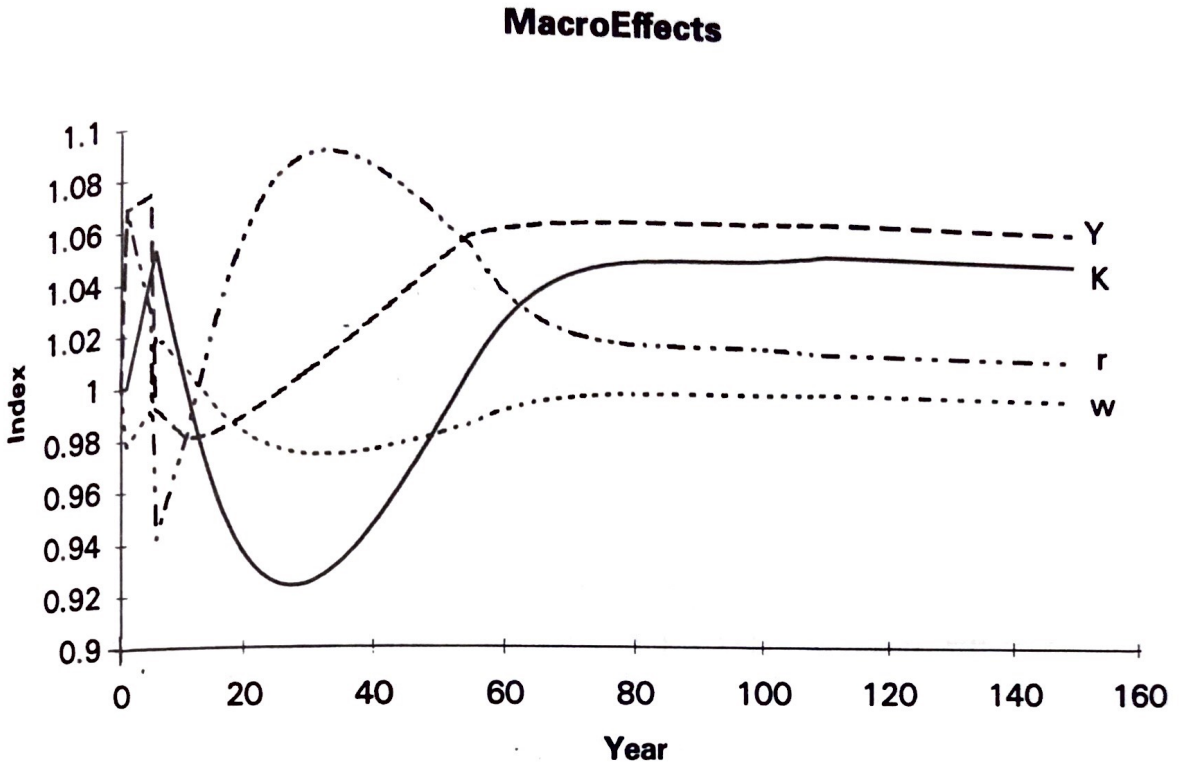


Figure 6.8 Proportional consumption tax finance of benefits, five-year debt finance, welfare of living generations constant.

worker to make a complicated actuarial decision concerning the advantages and disadvantages of opting out of the old system. Workers who chose not to switch would worry that they were making a mistake and were losing out to financially more sophisticated members of society. Workers who chose to switch would also wonder whether they had made the right choice or had been bamboozled out of their benefits by shrewd government officials.

Americans' perception of fairness also seems to rule out the Chilean approach to redistribution. This perception appears to require more progressivity in the provision of retirement income than simply providing all workers with a minimum guaranteed level of retirement income.

In contrast to the Chilean approach, the personal security system (PSS) is clear, simple, and universal. It is also fair in the way that most Americans apparently define the term. PSS has four features. First, it privatizes all contributions to old age insurance (the OAI part of OASDI), but *only* contributions to old age insurance. Thus it leaves unchanged those contributions made to and benefits received from the survivors and disability portions of social security. Second, for married workers, the OAI contribution (68 percent of the OASDI total) is split fifty-fifty between each spouse; that is, PSS has earnings sharing. These contributions are matched, on a progressive basis, with government contributions and are then invested by workers and their spouses in 401(k), 403(b), IRA, SRA, or Keogh accounts and are subject to the same tax treatment, survivor provisions, and investment regulations as these accounts. Third, after the reform begins, social security retirement (OAI) benefits are calculated by filling in zeros in the earnings records of all social security participants for years after the transition begins. This ensures that initial beneficiaries receive their full benefits, that existing American workers receive their full accrued benefits, and that young Americans entering the workforce end up with no OAI benefit claims.<sup>16</sup> The reduction in benefits across generations is smooth; they are not "notch babies." Fourth, a federal retail sales tax or a value-added tax is used to finance transitional benefits.

The proposal would improve benefit-tax linkage, enhance survivor protection, eliminate, at the margin, the egregious subsidization of single-earner couples documented in table 6.2, offset somewhat the enormous ongoing transfer of resources from the young to the old (see Kotlikoff 1992), provide much better divorce protection to nonworking spouses, and eliminate the substantial uncertainty surrounding the manner in which we are going to resolve social security's long-term funding problem. It



would also make the progressivity of the system transparent. All participants would understand the nature of the government's matching contribution and the fact that low contributors were being favored relative to high contributors.

The most serious concern with the proposal is its potential reduction in life span insurance. Because of adverse selection, it may prove quite difficult for households to purchase reasonably priced nominal annuities when they reach retirement, let alone real annuities. The size of this loss may, however, be offset by implicit family annuity arrangements (see Kotlikoff and Spivak 1981). The government could also ease the problem by issuing indexed debt and requiring the purchase of annuities at, say, age sixty-five. Another concern is that households would invest their PSS contributions poorly. One remedy here is financial education. Bernheim (1995) suggests that financial decisions may be highly responsive to financial education. Another remedy is forcing contributors to invest in large, diversified index funds. A third concern is the cost of administering PSS contributions. However, since PSS contributions can be made to existing accounts, marginal administrative costs may be smaller than the average costs examined by Diamond and Valdes-Prieto (1994). These costs may also come down over time in the light of competition to provide PSS participants with fairly homogeneous index funds. A fourth concern is that redistributing between workers based, in effect, on their annual earnings (since this determines their annual contribution) is less desirable than redistributing to them based on their lifetime earnings. True. But this seems a small price to pay compared with the value of being able to make transparent the system's actual method of redistribution.

## 6.5 Conclusion

At first glance, privatizing social security may seem to represent something of a shell game, but closer examination suggests that privatizing social security can have important real effects. In the United States, privatizing social security would tighten actual as well as perceived benefit-tax linkage and substantially reduce labor supply distortions. It would also eliminate significant intragenerational inequities, including the differential treatment of one- and two-earner couples. Finally, privatization would clarify, once and for all, how our nation will deal with social security's long-term financing crisis.

Although privatizing social security is a hot academic topic, its success in the policy arena will depend on its clarity, simplicity, inclusivity, and

fairness. The Personal Security System is clear, simple, inclusive, and fair. Like all other policy proposals, it has its weaknesses. Nonetheless, it seems well worth a try.

## Notes

This chapter benefited from discussions with Alan Auerbach, Peter Diamond, Martin Feldstein, Ned Gramlich, Andrew Samwick, and John Shoven. I also thank Andrew Samwick and Gene Steuerle for providing key data.

1. Recent academic work on privatization of social security includes Arrau (1990), Arrau and Schmidt-Hebbel (1993), Raffelheuschen (1993), Diamond and Valdes-Prieto (1994), Steuerle and Bakija (1994), the World Bank (1994), Feldstein (1995), Gustman and Steinmeier (1995), Imrohorglu, Selahattin, Huang, and Sargent (1995), and Kotlikoff (1996b).
2. See Diamond and Valdes-Prieto (1994) for an excellent description of Chile's privatization of social security.
3. The 15.3 payroll tax rate includes the Medicare (HI) tax.
4. For low-income workers covered by the earned income tax credit, the payroll tax's marginal distortion is even larger. Such workers lose twenty cents of their earned income tax credit for every dollar that they earn. Hence, their total effective marginal labor tax rate is 45 percent absent the social security payroll tax and 59 percent with the payroll tax. For such workers, the payroll tax raises their total effective marginal tax rate by 31 percent but their labor supply distortion by 72 percent. Compared to workers who face the earned income tax credit, the incremental distortion from the payroll tax (proportional to the difference between .3481 and .2025) is 62.5 percent larger than the incremental distortion for workers who do not face the earned income tax credit (which is proportional to the difference between .1521 and .0625).
5. This discussion abstracts from disability benefits.
6. Boskin et al. (1987), an earlier study of the marginal net rate of social security taxation, reaches similar conclusions.
7. Since social security tax payments and benefit receipts are both risky, discounting them at a risk-adjusted discount rate seems more appropriate than, say, discounting at the real return on short-term government debt. It is also worth noting that the U.S. equity market has yielded at least a 6 percent real return over every thirty-year holding period since 1929.
8. Note that since social security benefits are indexed, the real value of social security benefits would not be altered by the use of a retail sales tax or other form of consumption tax. Hence, those initial elderly whose consumption is solely financed by social security benefits would see no increase in their remaining lifetime net tax burden.
9. Note that the current system provides some crediting for early contributions through its wage indexation.
10. See Auerbach, Kotlikoff, and Weil (1992) and Auerbach et al. (1995) for a description of postwar changes in the resource annuitization of the elderly.
11. A recent study by Juster and Laitner (1994, September) using Teachers Insurance Annuity Association-College Retirement Equity Fund (TIAA-CREF) data and participants suggests

that the demand for annuities may be small even when they are fairly priced. However, their findings concern the residual demand for annuities given the receipt of social security benefits. Absent social security, the demand for annuities might be much greater.

12. After this Chapter was written, the U.S. Treasury did announce its plans to issue indexed debt.
13. The classic article on this issue is Merton (1983).
14. This section and the next draw heavily on Kotlikoff (1996b).
15. See Auerbach and Kotlikoff (1987).
16. The social security benefit formula is progressive, and workers with short earnings histories are, other things equal, treated as relatively poor. The reason is that social security benefits are based on the average of workers' indexed monthly earnings, where the average is taken over the worker's entire work span. Providing full accrued social security benefits as here proposed is, for this reason, more expensive.

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## *Comment*

*Edward M. Gramlich*

Privatization of social security is in the air. A number of countries in South America, Europe, and Australia have already adopted partial privatization schemes. One now departed U.S. presidential candidate advocated privatization, several members of Congress have come out for partial privatization, and a majority of the Quadrennial Advisory Council on Social Security (which I chair) favors large- or small-scale privatization schemes.

Before getting into a discussion of the pros and cons of privatization, it should be noted that this word refers to a very big tent. In the present context, privatization of social security means loosely introducing mandatory individual defined contribution (DC) accounts into the present public defined benefit (DB) pension plan. Even among the set of compulsory programs, there are many ways in which this could be done:

- The individual accounts (IA) could complement or substitute for the existing payroll-tax-financed DB system. These IA could be added on top of the present system or carved out of the present payroll tax.
- The IA could be held inside or outside the social security trust fund.
- The IA could be small or large.
- The IA could be annuitized or not on retirement.

Larry Kotlikoff's privatization scheme has IA that largely substitute for the present DB system, are held outside, are large, and are not annuitized. In the council deliberations, I am suggesting a scheme that differs on each of these dimensions. The differences between the two approaches are extremely significant and well worth debating, but this is Kotlikoff's chapter, so for the most part I comment on his approach.

After establishing that the IA do not represent a mere shell game, Kotlikoff identifies several areas in which the IA are likely to have different efficiency or equity impacts from the present DB system.

## Distortions

This is Kotlikoff's main argument for switching to IA. The existing payroll tax system distorts work-leisure choices and carries with it excess burden distortions. The simulation model he presents deals with these distortions.

But not so fast. For one thing, the DB system carries with it earned rights. Workers may pay in more in payroll taxes, but these same workers get more benefits in the end. Table 6.2 gives these huge values for lifetime OASDI taxes, but in fact the true cost of these taxes is much less if one considers the benefit side as well. In fact, one can compute the present value of expected social security benefits compared to the present value of expected employer and employee taxes, factoring in inflation indexing, disability protection, and survivor's protection. This ratio of the present value of benefits relative to the present value of taxes has come to be known as the *money's worth ratio*. The Advisory Council has done calculations of this sort (using the forecast real bond rate of 2.3 percent, unlike Kotlikoff's 6 percent) and shows that single workers born in 1950 with steady low earnings (\$11,000 in 1995) get back about eighty-five cents per dollar of their and their employer's contribution in present value terms. Single workers born in 1950 with steady average earnings (\$25,000) get back about sixty-five cents per dollar of their contribution in present value terms, and single workers with steady maximum earnings (\$62,000) get back about forty-five cents per dollar of contribution in present value terms. Workers of each income class born before 1950 get better money's worth ratios, and workers born after 1950 will get worse ratios unless changes are made in the system. Workers with nonearning spouses in each category get money's worth ratios about twice as much as comparably situated single workers.

There are two implications of these types of calculations for Kotlikoff's chapter. First, the tax distortions he gives are substantially overstated; even high-wage single workers get back about half of their payroll tax, indicating that the distortion will be about half of the amount he gives (and the real distortion ratios are even less for other categories). Second, the tax drains he points to in table 6.2 are substantially overstated.

Kotlikoff himself could mention that there are further distortions within the retirement years. Until 1996, when the social security earnings test was largely eliminated, this earnings test was one such prominent distortion. On the other side, he does mention that if the country were to switch to an IA regime, there would need to be a transition tax that

carries with it its own distortions. How all this comes out is a complicated issue, but I am less troubled by distortionary excess burdens than is Kotlikoff.

### **Intragenerational Redistribution**

A second argument Kotlikoff gives for switching to a regime of IA is intragenerational redistribution. A large amount of that goes on now in the present DB system, and he views it as largely capricious.

It may not be optimal, but it is by no means entirely capricious. Most existing DB systems, and certainly that in the United States, have an explicit goal of social adequacy. For this reason there are internal subsidies to those with low-wage work histories, the disabled, the survivors of those who die early, and those who live a long time. These subsidies are clear and well known, and have been voted and revoted for sixty years now. There must be some sense in which society intends to support these classes of people. Moving to an IA regime would not inevitably remove their protection, because an IA scheme could be constrained in many different ways, but it could well remove some of these social protections.

Without specifying a complete social welfare function, it is hard to know how the intragenerational distributional calculus would come out. The differences could be surprisingly unimportant if the IA scheme has present-day social adequacy protections built into it. Kotlikoff seems to view any such social adequacy protections as capricious, while I in general view them as important and necessary. Here one's verdict on IA, both positive and normative, depends on one's social welfare function.

### **Intergenerational Redistribution**

Kotlikoff poses this as an important reason for going to an IA regime, and I largely agree. But I would again point out that a country does not have to go an IA scheme to promote intergenerational redistribution.

One large problem with social security now is that it is not prefunded. The internal rate of return on a nonprefunded system is the economy's growth rate, which is now less than the real interest rate. This means that younger workers get a much worse return on their social security saving than did their parents and grandparents, causing an intergenerational equity problem. Were social security to be prefunded or were national saving to rise through social security, the new funds would return at least

the real bond rate, and perhaps even the equity rate if a technique could be found to invest the fund in the equity market (and if the equity premium holds up). Prefunding then could solve, or partially solve, the intergenerational equity problem.

The Advisory Council has considered this issue and has come up with three different ways of prefunding. One is Kotlikoff's way: switch the system to large-scale IA and prefund through the transition tax. Another is the traditional way: just raise payroll taxes in advent of benefit rises, perhaps investing some of the funds in equities. A third is the way I favor: have small-scale IA on top of the present system, with the small-scale IA representing the new national saving. There are important differences in social security implicit in the three approaches, but for this point it is important to note that there are at least these three different ways of prefunding retirement saving and hence providing for a better rate of return on our children's pension saving. The IA may facilitate either prefunding or equity investment, but they are not logically necessary to bring about prefunding, or to improve intergenerational equity.

### Information

Kotlikoff promotes this as an advantage to switching to regime of IA. I largely agree, though the IA are not the only way.

Under the present DB system, most people have a very poor idea of their likely social security benefits. Having IA would no doubt improve the situation, but the situation could also be improved by the simple expedient of having the Social Security Administration (SSA) provide to people their earnings records and their likely social security benefits. SSA is already in the process of doing that. Kotlikoff is aware of this new change and also makes the valid point that before any statements are mailed out, SSA must be sure the system has been brought into actuarial balance; if not, the SSA could generate a massive credibility problem.

If SSA is able to provide realistic DB information to people, that would largely eliminate this advantage of switching to IA. On the other hand, it may be intrinsically more difficult to provide this information in a DB plan, because SSA becomes responsible for all kinds of economic and demographic risks that affect likely benefits far in the future.

There is another advantage of switching to IA: it would permit individuals to make their own investment choices—stocks or bonds, index funds or not. Individuals could follow how their investments were doing, develop some ownership feelings, take their own risks, understand the



value of saving, and in general understand the system better. To me, this is one of the strongest reasons for going to some form of IA.

### **Annuitization**

Social security benefits are given in the form of indexed annuities with sizable survivor's benefits, and IA may not be. This sets up a potential advantage for the present system, in that there is less risk that people will outlive their retirement assets. Perhaps—but again there is no innate reason. If one is worried about people outliving their retirement assets in an IA world, the government could either force people to annuitize part or all of their accumulations, or at least force SSA to sell actuarially fair indexed annuities.

### **Risk Sharing**

Present pay-as-you-go DB plans subject cohorts to wage growth risk: if wages do not grow at anticipated rates, there will be less there for retirees. Switching to IA subjects cohorts to investment risk: if bond or stock markets do not do well, there will be less for retirees. So far it is hard to see which is intrinsically better, except that investment risk has exceeded growth risk historically. But it strikes me that there is a further point. Principles of risk diversification would argue that perhaps retirees should have a little of both types of risk but not too much of either. In social security terms, this argues for a combined DB-DC system or for mandatory IA on top of the DB system.

Adding up all these points, one can favor or oppose the switch to IA. The real point is that the devil is in the details. One can design an IA scheme that more or less replicates the DB system or is very different. The evaluations of these schemes would differ substantially. Should a country privatize its social security system? It all depends.

Finally, I cannot resist a current policy point. Kotlikoff's evaluation framework convinces me more than ever that the best approach for the United States is a small-scale IA on top of the present DB system. Distortions would be moderated, the intragenerational redistribution could be whatever society chooses to make it, intergenerational equity is improved by the prefunding, the information would be clearer, the ownership responsibilities would be clearer, and retirees would have some diversification against both wage growth risk and investment risk.

## *Comment*

*John B. Shoven*

Larry Kotlikoff's chapter is extremely useful in sorting out the real changes posed by privatizing social security from the changes that are simply relabeling cash flows. He emphasizes that the largest potential gain in economic efficiency from privatizing social security stems from sharply increasing the links between what participants pay into the system and what they can expect to get out of it. In a completely privatized system, the link is one for one. The entire system of social security becomes deferred compensation, like other defined contribution pension systems. In contrast, the link in the present social security system in the United States between contributions and benefits can be quite weak and uneven, as table 6.1 illustrates.

Kotlikoff does not make it entirely clear that most of the real advantages of a privatized system could be achieved without privatization at all. A pay-as-you-go (PAYG) system could be designed with much tighter links between contributions and benefits. Such a system would distort labor markets much less than the current U.S. social security program. Steps that could be taken include (1) counting all work years in the computation of benefits, rather than simply the highest thirty-five years, (2) lowering the forty-quarter minimum covered work history for the receipt of benefits, (3) making social security coverage universal in the economy, (4) reducing or eliminating the progressivity of the principal insurance amount formula use to calculate retirement benefits, (5) lowering or eliminating the spousal benefit, (6) instituting earnings sharing or community property with respect to social security entitlements, and (7) providing informative annual reports to all participants. Each of these steps would make the system appear more like a private pension program, but none of them actually requires privatization—highlighting that most of

Kotlikoff's paper is describing the potential benefits of linking benefits to contributions. Privatization is only one way to bring that about.

On a somewhat more technical note, I feel that the 6 percent real discount rate that Kotlikoff uses is far too high. He defends the number by discussing the uncertainty regarding future social security benefits, but raising the rate of time discount is generally not the appropriate way to adjust for risk. The preferred approach would be to assess the risks themselves, ascertain their covariance with other outcomes in the economy, convert uncertain social security outcomes into certainty equivalent amounts, and then use the risk-free real interest rate for discounting. It probably is fair to say that almost no one does this, but almost all previous studies use real interest rates in the 3 percent range rather than the 6 percent number. This makes comparing the results here with earlier work difficult. The 6 percent interest rate explains a number of the surprising results of table 6.2, which calculates the present value of lifetime net taxes (contributions less benefits) in 1993 dollars. Some of the numbers are staggeringly high (in excess of \$1 million). The numbers for single women are often close to those for single men, even though the life expectancy of women at age sixty-five is 27 percent greater than for men. Clearly single women get far more benefits from social security than single men, so why are table 6.2 numbers so close? The explanation for these results is that with a 6 percent interest rate, the taxes early in life swamp in importance the benefits late in life. I find that the 6 percent real discount rate obscures some important factors, and this strengthens my conviction that it is way too high.

Kotlikoff discusses the issue of the transition from a PAYG system to a private system. One of the key matters is how to finance the massive promises of the existing system. Although Kotlikoff's simulations indicate the importance of this matter (he gets very different results if a consumption tax is used to finance the transition costs rather than an income tax), he does not mention the recent estimate of Feldstein (1996) that the present value of the net social security benefits for all adults alive today totals \$11 trillion. That is, today's adults are being told by the Social Security Administration that they are entitled to benefits that have a present value of \$11 trillion even after the present value of their future contributions is deducted. Just for reference, the assets in funded pensions in the United States total about \$5 trillion. The Federal Reserve estimates that the tangible wealth in the country totals approximately \$18 \$20 trillion. Any way you look at it, U.S. social security "wealth" is enormous.

Kotlikoff spends some time discussing Chile, but Chile did not have a transition problem of remotely the same magnitude as we would face in the United States.

Kotlikoff ends by outlining a simple transition plan to a private social security system. Under it, the existing social security benefit structure would stay in place, but contributions to it would cease once the new plan is adopted. Future work years would not have covered earnings; zeroes would be entered for those years in calculating a worker's average indexed monthly earnings. The problem of this approach of simply adding zeros to the earnings record is that it enlarges the \$11 trillion liability of the old system. Social security has always failed to distinguish between people with low lifetime earnings and those who have short covered careers. It treats people with short covered careers as if they are poor, even if they are not. This is a problem because of the sharply progressive structure of the primary insurance amount formula used in computing benefits. Kotlikoff's proposal not only does not correct this problem but amplifies it enormously.

The severity of this problem with Kotlikoff's Personal Security System is quite great. Consider a forty-year-old person who has been earning \$1,820 per month for ten years. If she maintained that rate of pay for thirty-five years, she would qualify for a primary insurance amount (the amount that she would receive as a single person at age sixty-five) of \$833 per month under current social security law. If social security is privatized when this worker is forty years old, one sensible thing to do would be to give her ten-thirty-fifths as much as she would have gotten from social security if it had not been changed (reflecting the ten years of contributions rather than thirty-five years). Thus, under this arrangement the worker would receive ten-thirty-fifths of \$833, or \$238 a month from the "old program." On top of that, she would have whatever the privatized plan provided. Kotlikoff proposes to be far more generous with benefits from the old plan, thus requiring more transitional taxes. In this example, Kotlikoff's proposal would result in the worker's getting a primary insurance amount of \$417 each month, a full 75 percent more than the proportional reduction suggested above. It seems to me that the transition problem of switching to a private system is so large that we cannot afford to consider a plan such as this Personal Security System, which makes it costlier than necessary.

My conclusion is that Kotlikoff raises a number of important issues and discusses them with great clarity. I certainly recommend his chapter to

anyone trying to understand the debate about privatizing social security. On the other hand, the particular privatization proposal presented suffers from at least one important flaw, which in my mind eliminates it from serious policy consideration.

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