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A Simple Proposal**

by David Altig and
Jagadeesh Gokhale



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David Altig is a vice president and economist at the Federal Reserve Bank of Cleveland, and Jagadeesh Gokhale is an economic advisor there. This article was prepared as a contribution to The Cato Project on Social Security Privatization. The authors benefited from comments by and discussions with Stuart Dorsey, Larry Kotlikoff, Randy Mariger, Bill Niskanen, Kent Smetters, and Carolyn Weaver. They are especially indebted to Michael Tanner for detailed comments and input.

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Abstract

This paper proposes a Social Security reform for the United States that gradually, but ultimately fully, privatizes the system. This proposal follows the “no-harm, no-foul” principle in that it preserves the benefits of older generations and yet promises the same or higher retirement benefits for the young. As such it is both economically and politically feasible. The paper demonstrates that the transition to a privatized system can be financed without any additional taxation, including additional payroll taxation. Our approach is likely to improve U.S. national saving and work incentives compared to the current system. It also has advantages over other privatization proposals that recommend or may require additional taxation to finance the transition. The paper points out, however, that there is only a limited window of opportunity for implementing such a reform of the U.S. Social Security system.

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David Altig and Jagadeesh Gokhale¹

January 1997

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¹David Altig is Vice President and Economist and Jagadeesh Gokhale is an Economic Advisor at the Federal Reserve Bank of Cleveland. The opinions expressed in this paper are not necessarily shared by the Federal Reserve Bank of Cleveland or by the Federal Reserve System.

I. Introduction

The US Social Security system, now over 60 years old, has grown from a small program designed to provide retirement security to a massive and complex system that transfers resources between different demographic groups in the population. Concern about how to reform Social Security to meet future needs is likely to intensify as the oldest of the baby-boom generations (those born during the mid-1940s through the mid-1960s) begin to retire and collect their Social Security benefits in the year 2008--just years from now. The strain of maintaining the existing system in the face of these demographics has the potential to provoke significant conflict between the interests of the young and the old. Indeed, viability of the current system will inevitably require either substantially higher tax burdens on younger workers or reductions in the benefit levels of retirees.

Under current contribution and benefit rules, the program is expected to provide today's workers with rates of return that are much lower than the average returns obtainable by investing in private capital markets. Even worse, projections of Social Security finances under those same rules suggest that the system will enter financial insolvency by the year 2012 (instead of by 2029 as officially recognized by the Social Security Administration). The strategy of restoring the current system's long-range solvency by reducing benefits or by increasing worker contributions has several drawbacks, not the least of which is a further deterioration in the returns for young workers.

Our position in this paper is that, under reasonable economic and demographic assumptions, it may be possible to reform Social Security in a manner that avoids the stark choice of abrogating promised benefits or escalating tax burdens, while at the same time

placing the retirement of current and future generations on a sound economic foundation. Like other advocates, we propose a reform that entails movement toward a mandatory privatized retirement system. Unlike many others, however, our proposal follows the “no harm, no foul,” principle: The benefits of older generations are preserved while the young obtain the same or better benefits (on average) by investing a major part of their rent payroll contributions in private capital markets.

At its core, our proposal hinges on the fact that returns to private capital exceed the growth rate of the wage-income tax base, which has been diminished by both slow labor productivity growth and unfavorable demographic developments. In essence, we ask the following question: Taking current rates of payroll contributions as given, is it feasible to (a) shift those below some specific age to a privatized system; (b) finance from these contributions the benefits promised to those over that age under the current system; and (c) provide retirement resources to participants under the new system that are no smaller than what they can reasonably expect under the status quo? Using a straightforward generational accounting exercise based on official population projections and reasonable assumptions about rates of return, we conclude that the answer to this question is yes.²

The approach we outline contains several desirable elements. First, it establishes a “defined contribution” system for young generations, thus tightening the link between contributions and benefits and thereby improving work incentives. In addition, the plan gradually eliminates the on-going intergenerational redistribution of resources, a major

² The method of generational accounting was jointly developed by Alan Auerbach, Laurence Kotlikoff, and Jagadeesh Gokhale. For a description of the general methodology, see Auerbach, Gokhale, and Kotlikoff (1994).

cause of the secular decline in US saving. Furthermore, economic theory suggests that the economic distortions of financing the transition to a privatized system can be minimized if, after adjusting for rising incomes due to growth, the burden of benefit obligations to older generations is spread across all future generations via a proportional (flat) tax.³ Our plan incorporates this feature, thus reinforcing incentives for work, saving, and investment.

Second, unlike other plans that may require additional non-payroll taxation to pay off or service debt created during the transition to privatization, the foundation of our plan is the current payroll-tax structure with existing payroll tax rates. Hence, it will not introduce ancillary saving disincentives for individuals -- due to, for instance, additional income taxation -- that can mitigate the beneficial macroeconomic effects of privatization. In the broader context of fiscal reform more generally, this feature may be particularly important: Recent research by Alesina and Perotti (1996) indicates that higher payroll taxes (or personal income taxes more generally) are typically associated with unsuccessful reform efforts.

Finally, and perhaps most importantly, our plan adheres to the requirements that any reform proposal be economically sustainable and politically feasible. It is economically sustainable because it provides for the retirement security of all future generations. It is politically feasible because it preserves the benefits of older generations while offering the promise of the same or better retirement security for younger generations.

³ We make the usual assumption that non-distortionary lump-sum taxation is precluded.

Following a general discussion of the trends and issues that motivate our proposal, we present the basic plan in section III. To preview those results, under our baseline assumptions we calculate that an immediate implementation of a “no harm, no foul” privatization scheme would involve shifting all workers below age 60 to a defined contribution private pension plan with the following provisions: (a) Workers shifted to the privatized system forfeit all claims to accrued social security benefits ; (b) Mandated total “contributions” remain at existing levels; and (c) Roughly 54 percent of the contributions in the privatized system are dedicated to financing the acquired benefits of all those aged 32 and over (who remain in the existing system), with the balance allocated to an approved private saving vehicle.

An important aspect of the calculations reported in this article is that a reform of the nature we propose has a limited window of opportunity. Specifically, as the retirement date of the tail-end of the baby-boomers grows nearer, the tax burden on current and future workers required to finance the benefits of retired cohorts at current levels increases, and the net return to those shifted to the privatized system is diminished. In fact, given our assumptions, the type of privatization we envision would not be technically feasible beyond the year 2011. The practical consequence of this limited window of opportunity is that the cut-off age noted above becomes lower, and the necessary tax portion of total contributions becomes larger as the date of the plan’s implementation is pushed further into the future.

A final note before proceeding: Throughout we will focus our attention solely on the implied liabilities of the current system, and a plan to honor these obligations while shifting to a mandatory privatized pension scheme. Our proposal intentionally omits fiscal

strategies for supporting current and prospective non-pension government expenditures that are financed from surplus Social Security contributions. We will return to this issue in section IV.

II. The Current Status of the US Social Security System

A. How We Got Here...

The US Social Security program was created in 1935 during the aftermath of the Great Depression. Although motivated by the desire to provide assistance to the needy elderly of the time, it was not established as a short-term welfare program. Rather, its founders' objective was to create a long-lasting system for ensuring economic security during retirement. The program was expanded in 1939 to provide survivor benefits to the spouses and children of covered workers, and yet again in 1956 to provide disability insurance. Hence, this program is also known as the Old Age and Survivors and Disability Insurance Program (OASDI).

Eligibility to various benefits is acquired by paying money into the system when working. Frequent rate hikes since the 1940s have increased the fraction of wages that workers pay into the system⁴. Social Security benefits have also increased rapidly as a result of far-reaching changes in both the scope and generosity of the system. At its inception, only workers under age 65 in commerce and industry (except railroad employees, agricultural, and domestic workers) were covered. However, persistent poverty among the elderly forced an abandonment of the "full reserve system." In 1939, Congress extended coverage to those over age 65, thus firmly anchoring the system in a

⁴Initially, the contribution rate was 2 percent applicable to wages up to \$3,000, limiting the contribution per worker to \$60. Today, it exceeds 10.5 percent and is applicable to wages below \$62,700. As a result,

“pay-as-you-go” (PAYGO) framework involving intergenerational transfers. Additional extensions progressively brought an ever larger fraction of the population under compulsory Social Security coverage. Moreover, the benefit formulae were amended on several occasions to increase benefit payments.⁵

B. The Economic Effects of Social Security

The successive broadening of Social Security’s coverage across additional demographic groups has brought about a sizable (and on-going) intergenerational transfer of resources: Apart from old age insurance, the system provides protection against widowhood, child and spousal dependency, divorce, and disability. As a result, Social Security treats married households and women more favorably than single individuals and men respectively. Although this redistribution is motivated by social considerations, from an economic standpoint, it breaks the link between the amount that different groups pay into the system and the benefits that they receive from it. Because of this, many workers may be viewing Social Security payments as taxes rather than pension contributions meant to secure their own retirement. The Social Security payroll “tax” thus adds to marginal income tax rates and worsens individual incentives to work.

Further, the expansion of PAYGO Social Security benefits (along with the growth in health benefits via Medicare and Medicaid programs) occasions an on-going transfer of resources across generations--from young and unborn generations toward older retirees. Because older individuals consume a much larger fraction of their available lifetime

the average contribution per worker stood at \$2,500 in 1994. This last figure is obtained by multiplying the average wage for 1994 (\$ 23,753) by the contribution rate applicable in that year (10.52 percent).

⁵ Coverage was extended to seamen and bank and loan-association employees in 1939, to farm workers, domestic workers, and public workers not already covered under a government program in 1950, to the

resources than young and unborn generations (the latter of whom have zero current consumption), such intergenerational resource transfers have been identified by some as the chief cause of the dramatic and secular decline in US national saving since the mid-1970s.⁶

C. Long-Range Status: Judging Financial Solvency

Judging the long term financial prospects of Social Security is tricky business. Taken at face value, official projections of the Social Security Administration suggest that the system will remain financially solvent for another 33 years. Through 2018, the system is expected to generate annual surpluses of income (including interest) over expenditures. Thereafter, the excess of projected outgo over income will require the redemption of the trust fund's government bonds. Trust fund holdings of these bonds will decline rapidly after 2018 and are expected to be exhausted by the year 2029 (see figure 1). However, these numbers tell only part of the story: The trust fund's finances are intimately related to those of the rest of the government, and analyzing them independently can create an unwarranted illusion of security.

The key feature that irrevocably links the Social Security trust fund to the government's general budget is the statutory requirement that any surplus be invested in

self-employed in 1954, and to employees of uniformed services in 1956. Benefits were increased in 1950 and again in 1972. In 1975, they were indexed to keep pace with inflation.

⁶See Gokhale, Kotlikoff, and Sabelhaus, "Understanding the Postwar Decline in US National Saving: A Cohort Analysis," *Brookings Papers on Economic Activity*, 1:1996. In addition, the Social Security benefit payments in the form of regular monthly checks until death (rather than in the form of a lump-sum distributions at retirement) provides insurance against lifespan uncertainty. Although access to annuitized resources improves retirees' welfare by enabling them to consume at a faster rate out of their resources, such annuitization may also constitute a reason for the decline in US saving. Recent research suggests that the growth of entitlement and pension programs has increased to share of annuitized resources of the elderly from under 20 percent in the early 1960s to just under 50 percent in the late 1980s. See Alan Auerbach and others (1995).

Treasury securities.⁷ The requirement that trust fund surpluses be invested in government bonds makes these funds available for current government expenditure. Hence, almost all current contributions are consumed, either by retirees or by the government. Indeed, this implies that most worker contributions to date have been consumed rather than invested in real assets (real capital in the form of plants, equipment, and structures).⁸ Therefore, almost all contributions represent an investment not in tangible income generating assets, but in the willingness and ability of future workers to contribute to the system. In other words, the Social Security trust fund is merely an accounting device that creates the illusion of a “funded” system, whereas in reality it is completely “unfunded.”⁹ As a consequence, judgment about the long-term solvency of the system should be based on when income from payroll contributions plus taxation of benefits begins to exceed the outgo, and not on the reported magnitude of accumulated trust fund surpluses.

According to the official projections, outgo exceeds the sum of payroll contributions and revenue from benefit taxation -- and hence, the cost of honoring benefit

⁷Income includes income from payroll contributions, taxation of benefits, payments from the general fund of the Treasury and interest earnings; outgo includes benefit payments, administrative expenses and payments to the Railroad Retirement system. These are the Social Security Administration’s calendar year projections based upon intermediate economic and demographic assumptions.

⁸ Most of current payroll tax revenue is directly handed over to current retirees and is therefore directly consumed by beneficiaries. In 1995, for example, out of total revenue of \$400 b., \$333 b. (83 percent) was paid out as OASDI benefits.

⁹Only a very small fraction of trust fund assets may be viewed as having been invested via government spending-- a fraction that is difficult to estimate precisely. At one extreme, all of government spending may be called investment since government operations enable the private economy to function efficiently. On the other hand, all of government spending may be called consumption because it does not result in income generating assets for the government. In any event, the essential issue is whether, at the margin, the return to government spending in terms of expanding the wage-tax base is higher or lower than the return to investment in private capital. Again the evidence appears to be ambiguous, but some recent studies suggest that, with the possible exception of spending on education, government investment expenditures do not add to private productivity. (See, Evans and Karras [1994] and Holtz-Eakin [1994]. See Lansing [1995] for an overview.)

¹⁰In other words, the Social Security trust fund is merely an accounting device that creates the illusion of a “funded” system, whereas in reality it is completely “unfunded.”

obligationsspills over to other tax revenue sources-- in the year 2012. Because the first wave of baby-boomers will begin to retire in the year 2008, the inevitable conclusion is that the current system is incapable of meeting its benefit obligations to these generations.

D. Private vs. Public Rates of Return

Related to the solvency issue is the fact that, given the anticipated decline in the share of working-age individuals relative to retirees -- and recognizing that the effects of this decline are not likely to be offset by an acceleration in wage growth -- the return that future retirees can expect to realize from Social Security is significantly lower than what could be earned from private pension contributions.

As can be seen in figure 2, the inflation-adjusted rate of return for future beneficiaries of the system are projected to fall well below 2 percent, which is much lower than, say, the rate of return on long-term government securities¹¹. In fact, the outlook is even worse than that implied by figure 2, which calculates expected returns on the basis of gross benefits. As discussed in the previous section, the need to reduce benefits or increase contributions will drive the net return to Social Security even lower, possibly even negative. Simply put, the existing public PAYGO pension system is a bad deal for both current and future workers.

E. Options for the Future

In the future, a policy of imposing sizable benefit cuts is likely to come up against several hurdles. First, benefit reductions will become increasingly difficult as the number and political power of retirees and near-retirees grows progressively larger relative to the rest of the population. Second, although Congress has the authority to change Social

¹¹ Figure 2 is taken from Gokhale and Lansing (1996). See that article for further details.

Security's tax and benefit rules, the system has so far encouraged the sentiment that retirees have earned their rights to benefits by virtue of their past contributions. Hence, although small benefit reductions may be feasible, significant benefit reductions will be perceived as an unfair abrogation of those rights. In the worst case, the effects of major benefit reductions could be similar to those of repudiating (explicit) government debt--a loss of confidence in public policies and a reduced ability of the government to engage in future borrowing. Third, substantial benefit cuts may jeopardize the living standards of a sizable fraction of those already retired or close to retirement--those with little time or ability left for amassing adequate retirement savings in the absence of Social Security benefits.

Other proposals for reducing benefits include accelerating and extending the scheduled increase in normal retirement ages after the year 2000 or altering the inflation-indexing formula benefits payments. We perceive these "solutions" as no less problematic than explicit reductions. Postponing retirement may involve economic hardship for some individuals if an extended lifespan does not coincide with an extended ability to work or to find gainful employment at older ages. Changing cost-of-living adjustments represents a marginal fix that will push the date of financial insolvency further into the future by only a few years. In either case, these proposals are thinly disguised benefit cuts at best, and subject to all of the criticisms against explicit cuts noted above.

The option of increasing contribution rates to meet benefit obligations also poses problems: According to the official projections, a 2.19 percent increase in the contribution rate will restore Social Security's long-term solvency.¹² Such an increase

¹² See the 1996 Annual Report of the Board of Trustees of the OASDI program, pp. 133.

however, will further exacerbate the on-going inter- and intragenerational redistribution of resources that produce bad saving outcomes and create disincentives to work. In addition, this approach preserves the system's structural deficiencies that result in most of current contributions being consumed rather than invested in tangible physical capital assets.

III. The Proposal

The basic point of the foregoing discussion is that the current structure of Social Security has several shortcomings: It detracts from incentives to work, contributes to declining national saving, and represents a bad deal for young workers. The current system is not sustainable, and the usual remedies of cutting benefits or increasing payroll taxes will only serve to worsen the economic position of all generations -- current retirees and pre-retirees, as well as young and future generations.

The question, therefore, is whether there exists an economically and politically viable solution that avoids the shortcomings of the current system. Economic viability requires that the program be sustainable. Political viability implies that the system be acceptable to current (and future) participants. Any reform that would leave all participants at least as well off under the new program as under the current one would satisfy this condition.

Does such an alternative exist? Our analysis suggests that it does. In the rest of this article, we outline a reform proposal for privatizing the system by shifting future and some current young generations into a defined contribution plan for retirement saving. The reform we suggest applies only to future generations and current generations below a specified cut-off age. All current participants above the cut-off age are retained under the

existing system. Their benefits are financed by the payroll contributions of current and future workers who are shifted to the privatized system. Despite the diversion of a part of their payroll contributions toward meeting benefit obligations to older generations, the enhanced returns available from investments in private capital markets allow the retirement resources of young and future generations to be preserved or increased, on average.

This plan satisfies both the economic viability and political feasibility conditions by adhering to the “no harm, no foul” principle: Because it preserves or improves the retirement resources of young and future generations, it is economically sustainable. Because it guarantees the retirement benefits of current retirees and those close to retirement, it satisfies the political-feasibility condition.

A. A Brief Case for the Political Feasibility of Privatization

Why would privatization be viewed as an attractive alternative for at least some current participants? Many of the benefits of privatization that we have discussed are primarily macroeconomic in nature. Although it may be clear how the economy as a whole might benefit, it may be less clear how any given individual might benefit, and hence how the political critical mass would develop to support a transformation of the current system into a privatized one. It needs to be shown, then, that such a reform is indeed likely to provide better retirement resources to younger generations than can be provided under the existing regime, even after accounting for the taxation required to honor the benefit obligations to older workers and retirees.

As suggested above, the case is supported by a comparison of the rates of return obtainable in PAYGO systems versus those obtainable in defined contribution or “funded” systems. In the former, because each period’s benefits are directly paid out of that

period's contributions, the rate of return on contributions is ultimately tied to the growth rate of labor compensation. Real compensation approximately equals the sum of the rates of growth of labor productivity and the size of the working population. The growth rate of labor productivity averaged about 2.9 percent during 1950-69, but only 1.3 percent in the 25 years since.¹³ Unfortunately, perhaps because of lower saving and investment in the 1970s and 1980s, real compensation has fallen even more sharply, averaging only 0.75 percent during 1970-94 compared to 3.2 percent in the 1950-69 period.

In contrast to the feasible rate of return in a PAYGO system, we estimate that the after tax rate of return on private sector (for-profit) capital assets averaged 8.2 percent since 1970.¹⁴ Exploiting this disparity in the rates of return available from a PAYGO retirement scheme versus one based on investment in private capital is the basis of most reform proposals including those contained in the recently released Report of the 1994-1996 Advisory Council on Social Security (henceforth referred to as "the ACSS report").¹⁵ The novel insight provided by our calculations is that high private rates of return provide sufficient scope for a privatization plan that leaves all parties at least as well off as they would be under the status quo.

¹³ These figures are based on the Economic Report of the President, 1995.

¹⁴ The geometric mean rate of return was 8.1 percent. For each of the years 1970-1993, we calculate the after tax rate of return on private sector (for-profit) capital by solving for r in the economy wide asset accumulation equation $A_t = A_{t-1}(1+r) + Y_t - C_t - T_t$. Here, A_t stands for the capital stock in period t (excluding non-profit organizations), Y_t includes aggregate labor income, private and government employee pension benefits, veterans benefits, workers compensation, and government purchases, C_t represents aggregate personal consumption expenditures, and T_t stands for aggregate tax payments net of transfers. The data for A_t was taken from the Balance Sheets for the U.S. Economy--1945-94 published by the Federal Reserve System, and data for the rest of the variables is that reported in the National Income and Product Accounts published in the Survey of Current Business, Bureau of Labour Statistics, various issues.

¹⁵ The report is available on the Internet at <http://www.ssa.gov/policy/adccouncil/toc.htm>.

Before proceeding, we emphasize that by privatization, we mean mandated contributions to approved private saving plans. Examples of such plans are the standard 401k plans. The essential element of such plans is that they are of the defined contribution type. Returns are stochastic and are tied to claims on private capital. It should be noted that our proposal does not permit the government to directly participate in private asset markets on behalf of participants. In particular, our proposal does not involve (and neither do we recommend) that the trust fund's Treasury securities be replaced by a portfolio of private stocks to be managed by the government as is contemplated, for instance under option 1 of the ACSS report. Such a swap of government obligations for private stocks would, in our opinion, perversely affect the incentives facing the government and private agents. In particular, it may provide the government with the incentive and the leverage to pursue industrial policy or otherwise try to influence private resource allocations. Such ancillary agendas would likely undermine confidence in the plan and inhibit acceptance of transiting to a privatized system even in light of the superior returns than can be delivered relative to the current PAYGO scheme.

B. The Mechanics of the Proposal¹⁶

The “no harm, no foul” principle prescribes two conditions that must be satisfied in migrating to a private system. First, as noted, our rule requires that benefit obligations to retirees and those close to retirement who are retained under the current system (those above the cut-off age) must be met under the new plan. A portion of these obligations can be financed from the contributions of pre-retirees themselves. The remainder must be met out of the contributions of workers who participate in the new privatized system.

¹⁶ This section draws heavily from Altig and Gokhale (1996).

However, the second condition of the “no harm, no foul” principle is that the present value of returns in the privatized plan (net of the amount devoted to paying older generations’ benefits) must at least equal the present value of benefits that they would receive under the current public social security system. The central issue to be resolved in our proposal is how to determine an appropriate cut-off age below which workers are shifted to the privatized plan, and above which participants who remain in the existing unfunded system receive the same benefits they could anticipate without the reform.

As noted, a key to the feasibility of our reform proposal is the fact that the rate of return in the privatized system will exceed that under the current PAYGO system. However, if the chosen cut-off age is too high, some workers would not have enough remaining years to exploit the increased private returns, leaving them worse off than before. A lower cut-off age provides younger generations with more time to accumulate plan contributions at the higher private rate of return. However, this must be traded-off against the fact that the liabilities to those remaining under the current system (which increase as the cut-off age is lowered) must be partly financed out of the contributions of those who are shifted to the new plan (whose numbers decrease as the cut-off age is lowered). Choosing the appropriate cut-off age and the fraction of young workers’ contributions to be devoted to paying off the liabilities to older generations requires balancing these concerns.

Calculations using the current distributions of Social Security benefits by age and sex suggest that 32 is the appropriate cut-off age¹⁷. With this dividing line, about 54

¹⁷ These calculations assume a 1.2 percent rate of growth in future benefits per capita, a 6 percent discount rate for calculating the present value of future benefits, and an 8 percent return on private capital. Future Social Security benefits are discounted at a 6% rate to capture the uncertainty associated with

percent of young workers' contributions would be adequate to provide older generations with benefits at least equal to those received under the current system. Furthermore, given our assumptions, future retirement resources for workers younger than age 32 would be greater than those offered by the current system because their contributions will reap the higher private rate of return.

Our estimated cut-off age and share of contribution dedicated to financing existing benefits do, of course, depend on our specific assumptions. Those assumptions include the appropriate discount rate applied to Social Security benefits and the return to private capital. Table 1 provides information on how these estimates change given different choices for these values. In particular, the table shows that assuming lower average rates of return on private capital do not alter the results substantially. For example, with a 6 percent rate of return on private capital and the same rate of discount on benefit payments, the cut-off age falls to 26 and the fraction of young workers contributions that must be devoted to paying older generations' benefits becomes 51 percent.¹⁸ We emphasize that our essential message at this point is not so much that a particular cut-off age or "contribution tax" is the right one but that, given sensible parameters, the type of reform that we propose is feasible.

C. Debt, Taxes, and the Transition to Privatization

future transfers. Details on these calculations are provided in an appendix to the working paper version of this article, which is available on Federal Reserve Bank of Cleveland's home page at <http://www.clev.frb.org>

¹⁸ Note from table 1 that the relationship between cut-off ages and the fraction of privatized contributions required to finance existing obligations is not monotonic in assumed rates of return. The lack of a simple relationship appears to be a general property of the generational accounting exercise that involves present values of earning, tax, and benefit flows, which in turn depend upon demographics, age-earning profiles, etc.

When discussing Social Security privatization, some economists have expressed concern about the costs of transition from the current to a new, privatized system.¹⁹ Under some proposals such a transition involves sizable increases in fiscal deficits and debt for financing the benefit payments to older generations, which means that the economic impact of privatization depends crucially on how the additional debt is serviced. For example, using higher income taxes to service the debt may harm saving incentives because of the additional taxation of capital income arising from an income tax hike. The lower saving and investment may, at least temporarily, lead to slower economic growth.

In contrast, the proposal outlined in this paper does not involve any taxation over and above the current rate payroll contributions. Because our plan calls for paying full benefits under current law to older generations, but devoting only a part of current young workers' contributions toward this end, the gap between benefit payouts and revenue earmarked for this purpose must be met by the creation of additional public debt. Debt creation on this account is temporary. Additions to the stock of debt will cease when benefit payments to old generations becomes less than the revenue generated for this purpose. Thereafter, the share of future generations' payroll contributions that is devoted to "paying off" benefit liabilities would be devoted to servicing the debt created along the transition path to the fully privatized system

It is important to emphasize that debt creation associated with privatization imposes no additional liability to current and future generations in totality. The role of debt in the plan is to implement an equal (growth-adjusted) distribution of the burden of

¹⁹ See, for instance, Kotlikoff (1996) or Mitchell and Zeldes (1996).

benefit payments to current older generations that remain in the existing system. Diverting an equal (flat) proportion of young and future generations' wages to pay current retiree benefits or to service the debt created by doing so makes possible an intergenerational sharing of costs for honoring promises to those who remain under the current Social Security program.

IV. Truth in Advertising: Some Caveats and Complications

A. General Equilibrium Effects

The calculations used to support our proposal are partial equilibrium in nature. That is, they do not take into account feedback from changes in the macroeconomy that would result from implementation of the privatization scheme that we advocate. For, example, the fact that today the rate of return on capital is greater than the growth rate of the economy suggests that the US economy is under-capitalized.²⁰ Over time, privatization may be expected to increase saving and investment, thereby increasing the capital-labor ratio. This would reduce the rate of return on capital and increase the rate of labor compensation. All else equal, a decline in the return to capital will tend to offset some of the higher returns to the privatized system. On the other hand, all else will not be equal. The closer linkage between contributions and benefits inherent in a defined contribution plan is likely to improve incentives to work, increase labor-force participation, and dampen the increase in the capital-labor ratio due to capital deepening under privatization. Moreover, the better work incentives and added saving and investment will likely imply

²⁰ The creation of additional debt on this account will cease when benefit payments to old generations becomes less than the revenue generated for this purpose. This will occur before all old generations included under the existing system have passed away.

²¹ Economies in which this is the case are said to be "dynamically efficient." For evidence that this is indeed the case for the U.S. economy, see Abel, et. al. (1989).

that the fraction of young and future workers' contributions required for financing older generations benefits will be lower than 54 percent.

A fully satisfactory examination of the proposal would require formal analysis in a general equilibrium context. We note, however, that the results reported in table 1 can be used to provide some sense of whether general equilibrium effects would overturn the feasibility of our privatization scheme. For example, in his recent work on social security privatization Kotlikoff (1996) employs a model that implies a pre-reform annual post-tax rate of return to capital of about 8 percent, identical to the assumed rate of return in our benchmark calculations. In his analysis, a "cold-turkey" privatization that maintains some "no harm, no foul" provisions would cause the return to fall by about 16 percent. As seen in table 1, a change of such magnitude -- which is quite large -- would still leave within the feasibility range for our proposal.

B. Multiple Objectives of the Social Security System

We have adopted the position that, at its core, social security is a pension system. This is an admittedly restrictive view, as the system in the United States also plays a role in redistributing income within given age groups and providing public insurance against macroeconomic shocks across generations²². We treat these goals as separate from the central purpose of the social security, and assume that, to the extent they are desirable, these needs can be met through alternative fiscal programs. Doing so may, of course, entail additional taxation and expenditure policies with corresponding effects that we have not factored into the analysis. It is our position, however, that these should be treated as

²² Because benefit payments do not rise proportionately with contributions, the system implicitly contains an element of progressive taxation. In addition, benefits for wealthier recipients are taxed explicitly.

distinct from the pension issue at the center of the social security system, as both an intellectual and practical matter.²³

C. Risk

One potential drawback of the type of privatized plan we describe is that a defined contribution scheme shifts market risk to contributors, thus mitigating its attractiveness. We respond to this argument in three ways. First, the issue of increased risk will arise to some degree in any reform scheme that has a defined contribution element, which is to say most of them. Second, given the history of Social Security legislation and the questionable viability of the current system, benefits under the status quo are far from certain. Third, the magnitude of the spread between implied returns for current workers under Social Security and those available from investments in private capital over long horizons is sufficiently large to compensate for the greater uncertainty of the latter, even for quite large degrees of risk aversion.²⁴

D. Implications for the Rest of the Government's Budget

Because our plan redirects all future contributions into private investments via private defined contribution plans, there remains the issue of how the government will finance that part of current spending paid for by the trust fund's annual surpluses. In this context, it is important to note that the trust fund concept -- if its obligations are honored -- amounts to nothing more than issuing government bonds, placing them in the trust fund

²³ We use OASDI taxes and benefits to calculate our results. Hence, under our proposal, disability and survivor benefits would be paid to older generations as under the existing system. Young generations shifted to the new plan would be required to finance these payments out of their privatized OASDI portfolios.

²⁴ Technically, for a standard type of "utility function" and the empirical distribution of rates of return to capital averaged over periods of, say, ten years, the expected utility of one dollar of investment in private capital exceeds the utility of a certain 2 percent return from Social Security, even for utility parameterizations that imply significant risk aversion.

and promising to increase taxes in the future. We view this as independent of the public pension system per se, and believe that the non-pension aspects of fiscal policy should practice, be separated from the Social Security program, be it public or private in nature. Our preference would be to respond to the elimination of temporary Social Security surpluses by reductions in spending. We believe that there is value in an approach to reform that directly and exclusively addresses the need to provide retirement security without commingling the system designed for this purpose with other fiscal programs.

Nevertheless, the reality of the current situation forces consideration of how public spending currently being financed by Social Security's annual surpluses would be paid for under our proposal. We evaluate the impact of adding this spending to the liabilities to old generations in the privatized system proposed here. Doing so reduces the cut-off age to 34 and increases the fraction of payroll revenues devoted to paying off liabilities to 60 percent under our benchmark assumptions. Table 3 shows the results based on other discount rate combinations²⁵. Thus, factoring into our calculations the cost of government spending that is now being financed by annual Social Security surpluses does not eliminate the economic and political feasibility of our plan.

E. Administrative Costs

Some concern has been raised about the potential administrative costs of a privatized system, which by most accounts would exceed those of the current public system. Skepticism on this account has been fueled in particular by the relatively high

²⁵ The value of government spending financed by annual Social Security surpluses was calculated by subtracting projected annual benefit payments plus administrative costs from the sum of payroll tax contributions and revenue from taxation of benefits. This calculation produces positive numbers through the year 2012. The numbers were taken from the Annual Report of the Trustees of the Social Security Administration, 1996.

costs realized under the privatized plan implemented by Chile, which is often held out as a possible model for U.S. reform (see, for instance, Diamond [1993]). Because administrative costs will reduce the effective rate of return on private investment portfolios, this issue is an important one.

Ultimately, the administrative costs of a privatized system will depend on the exact nature of the plan, including whether benefits are annuitized or paid out in lump-sums, the number and type of assets that individual savers have access to, and how much flexibility investors have in choosing among the available options. However, a sense of the probable magnitude of administrative costs in the type of system we have described can be gleaned from a recent comprehensive study by Mitchell (1996) who examines the typical costs of a variety of managed retirement saving vehicles.

On one extreme, Mitchell finds that representative 401k plans --which have significant flexibility in payout and contribution options, among other features-- involve expenses that range from 0.84 to 1.88 percent of total assets²⁶. At the other end of the spectrum, the costs of administering a simple stock index fund are in the area of only about 0.3 percent of assets. The College Retirement Equity Fund (CREF), an existing plan that has a large asset base and which falls in between the other two alternatives with respect to flexibility and number of investment options, has expense ratios in the neighborhood of the simple index funds.

In fact, we think of the CREF structure as a reasonable model for the type of privatized plan we are espousing. Nonetheless, as the calculations in tables 1-3 indicate,

²⁶ The expense ratios reported by Mitchell do not include commissions or "loads."

our plan would remain viable even at the relatively high expense ratios associated with existing 401k plans.

V. Conclusion

The plan described here suggests that it is indeed possible to restructure Social Security in a way that is economically viable and politically feasible: To place it on a secure and sustainable economic foundation for the long-term while simultaneously honoring benefit obligations to current retirees and pre-retirees. Importantly, the calculations we provide suggest that the most ambitious of privatized schemes, such as option 3 of the ACSS report, can be implemented without reducing benefits or increasing payroll taxes. Our specific numbers may, of course, be susceptible to additional refinement. However, the basic argument provides a sensible framework for addressing one of the most important fiscal challenge facing the nation in the next few decades.

Privatizing Social Security will, apart from rendering the system sustainable will confer other benefits. Current tax and benefit rules generate a redistribution of resources both within and across generations, weakening the link between contributions and benefits. Further, the current system results in the consumption rather than investment of worker contributions in real capital assets. Hence, the current system harms work incentives and reduces national saving. A transition to a privatized system would restore the link between contributions and benefits and would gradually reduce the on-going redistribution of resources from young and unborn generations to older ones. It would thereby improving work effort, saving, and ultimately national output.

As a final point, we emphasize again that the window of opportunity for exploiting the benefits of a plan like the one we have proposed is relatively narrow. Table 2

illustrates, for different years of implementation, the implied cut-off ages and share of contributions that must be used to finance the benefits of those who are not shifted to the private plan. As shown, deferring implementation reduces the former and increases the latter. Based on our assumptions, our plan would be economically infeasible if not implemented before 2011. Given the rapid rise in the “contribution tax” necessary to honor the obligations to those who remain under the current system, political infeasibility may result well before that date. The type of social security privatization described here has several favorable features when compared to others, and is likely to hold up for a variety of alternative assumptions about the economic environment. Given that the window of opportunity is in fact narrow, we believe that our framework deserves careful consideration in current debates on social security reform.

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Table 1: Some Sensitivity Analysis

Cut-Off Age For Shift to Privatized System

	Benefit Discount Rate			
Private Capital Rate of Return	5%	6%	7%	8%
6%	26	26	26	27
7%	30	29	29	30
8%	33	32	32	32
9%	35	34	34	34
10%	37	36	36	36

Percent of Contribution Dedicated to Financing Current Benefit Obligations

	Benefit Discount Rate			
Private Capital Rate of Return	5%	6%	7%	8%
6%	49.1	50.7	50.1	49.8
7%	49.9	52.5	53.3	54.0
8%	49.8	53.5	55.4	56.0
9%	49.5	53.8	56.2	57.4
10%	48.8	53.6	56.5	58.3

Note: Shaded boxes represent benchmark case.

Table 2: The “Window of Opportunity”

Year of Reform Implementation	Cut-Off Age	“Contribution Tax” Rate
1995	32	54.0
2000	30	57.4
2005	27	63.5
2010	22	74.3
2011	20	77.9
2012	Not Feasible	Not Feasible

Note: Calculations assume an 8 percent annual return to private capital and a 6 percent rate of discount applied to Social Security benefits.

Table 3: The Plan With Rplacement of
Surplus-Financed Government Expenditures

Cut-Off Age For Shift to Privatized System

	Benefit Discount Rate			
Private Capital Rate of Return	5%	6%	7%	8%
6%	23	23	33	24
7%	28	27	27	27
8%	31	30	30	29
9%	34	33	32	32
10%	36	35	34	34

Percent of Contribution Dedicated to Financing Current Benefit Obligations

	Benefit Discount Rate			
Private Capital Rate of Return	5%	6%	7%	8%
6%	54.4	56.9	57.0	57.1
7%	55.2	58.8	60.5	60.8
8%	55.0	59.6	62.1	62.7
9%	54.3	59.6	62.7	64.5
10%	53.5	59.3	62.9	65.2

Note: Shaded boxes represent benchmark case.

Appendix

This appendix describes the calculation of the two unknown quantities: 1) the appropriate cut-off age, σ , and 2) the fraction, δ , of payroll taxes of young workers to be devoted to paying off the current system's liabilities to those older than the cut-off age. The calculation of σ and δ involves the simultaneous solution of two equations in these two unknowns. The first equation states that the present value of all future benefit payments to old generations (those above the cut-off age) must equal the present value of the revenues available to do so, namely, the sum of a) the payroll contributions of those who are above the cut-off age but are still working and b) a fraction δ , of the payroll contributions of young and future generations. The second equation states that members of the generation just below the cut-off age must, on average, be just as well off by investing $(1-\delta)$ of their payroll contributions in private capital markets as they would be under the current system.

The present value of future benefit payments to old generations is estimated as follows. Consider the following equation:

$$(1) \quad B_s = b_{65s}^m \sum_{i=18}^{100} [\beta_{is}^m P_{is}^m + \beta_{is}^f P_{is}^f].$$

Here, B_s stands for the aggregate value of OASDI benefits disbursed in the year s , b_{65s}^m represents the OASDI benefit paid to a male aged 65 in the year s , and β_{is}^m and β_{is}^f stand for the ratios of the average values of benefits paid to males and females respectively, aged i in year s to b_{65s}^m . Thus, $\beta_{is}^m = b_{is}^m / b_{65s}^m$ and $\beta_{is}^f = b_{is}^f / b_{65s}^f$. Finally, P_{is}^m and P_{is}^f stand for the populations of males and females respectively, aged i in year s . We use values of B the years 1993 through 2070 from the Social Security Administration's (SSA's)

intermediate projections; P_{is}^m and P_{is}^f for the same years are those from SSA's intermediate population projections, and the values β_{is}^m and β_{is}^f are based upon the Annual Supplement to the Social Security Bulletin, 1993. Using these values for all future years, we solve equation (1) for b_{65s} for each year $s=1993$ through 2070. The benefit levels per capita for year s males (females) aged i , b_{is}^m (b_{is}^f), can then be obtained by multiplying b_{65s} by β_{is}^m (β_{is}^f). The values of b_{is}^m and b_{is}^f for years after 2070 are obtained by applying a growth factor $(1+g)$ to the corresponding values in the previous year. Given the values of b_{is}^m and b_{is}^f for future years, the present value of benefits to be paid to those older than age σ in the base year t is given by

$$(2) \quad \sum_{s=t}^{t+100-\sigma} B_s^o R_b^{(s-t)} = \sum_{s=t}^{t+100-\sigma} R_b^{(s-t)} \sum_{i=\sigma+s-t}^{100} [b_{is}^m P_{is}^m + b_{is}^f P_{is}^f].$$

In equation (2), B_s^o stands for the total benefits paid to old generations (those aged σ or older in year t) in a future year s , up to age 100. These benefits are discounted to the present at the discount factor $R_b=1/(1+r_b)$, where r_b is the discount rate applied to future Social Security benefits. We use the value of 0.06 for r_b in our base case calculations, to reflect the riskiness of future Social Security benefits.

As mentioned earlier, the present value of taxes for paying off the system's liabilities to old generations is composed of two parts: The present value of taxes paid by those aged σ or more but who are still working in period t is calculated in a similar manner:

$$(3) \quad C_s = c_{40s}^m \sum_{i=18}^{100} [\chi_{is}^m P_{is}^m + \chi_{is}^f P_{is}^f],$$

In equation (3) C_s stands for the aggregate payroll contributions made in year s , c_{40s}^m represents the contribution level of a 40 year old male in year s , and χ_{is}^m and χ_{is}^f stand for

the ratios of average taxes paid by males and females respectively aged i in year s $\chi_{is}^m = c_{is}^m / c_{65s}^m$ and $\chi_{is}^f = c_{is}^f / c_{65s}^f$. For the values of C_s , we use SSA's intermediate OASDI aggregate payroll tax projections for the years 1993 to 2070. The values χ_{is}^m and χ_{is}^f are based on Current Population Survey's March 1993 files. The values c_{is}^m and c_{is}^f for each year s through 2070 are obtained by solving equation (3). Next, the values of male (female) contributions per capita in the years $t=1993 \dots 2070$ c_{40s}^m (c_{40s}^f) are obtained by multiplying c_{40s} by χ_{is}^m (χ_{is}^f). The values of c_{is}^m and c_{is}^f for years after 2070 are obtained by applying a growth factor $(1+g)$ to the corresponding values in the previous year. Then, the present value of the contributions of old generations above the cut-off age σ in year t can be specified as

$$(4) \quad \sum_{s=t}^{t+100-\sigma} C_s^o R_b^{(s-t)} = \sum_{s=t}^{t+100-\sigma} R_b^{(s-t)} \sum_{i=\sigma+s-t}^{100} [c_{is}^m P_{is}^m + c_{is}^f P_{is}^f].$$

Because the present value of benefits to be paid to those aged σ or older in year t [the left-hand-side of equation (2)] exceeds the present value of these generations own payroll contributions [the left-hand-side of equation (4)], an additional contribution must be made by generations younger than age σ in year t . This amount is given by the equation

$$(5) \quad \delta \sum_{s=t}^{\infty} C_s^y R_b^{(s-t)} = \delta \sum_{s=t}^{\infty} R_b^{(s-t)} \sum_{i=18}^{\min[100, \sigma-1+s-t]} [c_{is}^m P_{is}^m + c_{is}^f P_{is}^f].$$

Having evaluated its components, the first of the two simultaneous equation mentioned at the beginning can be written as:

$$(6) \quad \sum_{s=t}^{t+100-\sigma} R_b^{(s-t)} \sum_{i=\sigma+s-t}^{100} [b_{is}^m P_{is}^m + b_{is}^f P_{is}^f] = \sum_{s=t}^{t+100\sigma} R_b^{(s-t)} \sum_{i=\sigma+s-t}^{100} [c_{is}^m P_{is}^m + c_{is}^f P_{is}^f] + \delta \sum_{s=t}^{\infty} R_b^{(s-t)} \sum_{i=18}^{\min[100, \sigma-1+s-t]} [c_{is}^m P_{is}^m + c_{is}^f P_{is}^f].$$

The second equation specifies that, on average, accumulated resources available to members of the generation aged $\sigma-1$ in their year of retirement (assumed to be the year in which they become 65 years old) must be as large as the value of OASDI benefits promised them under the current Social Security system, evaluated as of the same year. These two values may be equated as

$$(7) \quad (1-\delta) \sum_{s=t}^{t+65-(\sigma-1)} c_{(\sigma-1+s-t),s}^x / R_c^{(s-t)} = \sum_{s=t}^{t+65-(\sigma-1)} b_{(\sigma-1+s-t),s}^x / R_b^{(s-t)} + \sum_{s=t+65-(\sigma-1)}^{t+100-(\sigma-1)} b_{(\sigma-1+s-t),s}^x R_b^{(s-t)}.$$

Here, x stands for male or female and c_{is} and b_{is} are calculated as before. Note that the present value of contributions is computed using the private capital market discount factor $R_c=1/(1+r_c)$. In our base case calculations, we use the value of $r_c=0.08$. The value of benefits has two parts. The first term on the left hand side represents the (survivor and disability) benefits received prior to age 65, accumulated up to age 65. The second term on the right hand side represents the value of (old age and other) benefits received after age 65, discounted back to age 65. These two components are calculated using the discount factor R_b .

Equations (6) and (7) must be solved simultaneously to determine δ and σ . We first determine the value of δ that will solve equation (6) for each age $\sigma=18...65$. Then, again for each age $\sigma=18...65$, we use the corresponding δ to compute the left-hand-side of equation (7) and check if it exceeds the right-hand-side. The cut-off age σ^* is determined

such that the left-hand-side of equation (7) exceeds the right-hand-side for both male and female generations aged σ^* , but not for those aged $\sigma^* + 1$.