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Different Approaches for Dealing with Social Security

Edward M. Gramlich

The U.S. Social Security system is a government pension program financed by worker payroll taxes. As workers pay in their payroll taxes, they accumulate credits toward benefits; in the language of pensions, this is a "defined benefit" plan. At any point in time, one can project tax inflows and benefit outflows, based on various economic and demographic assumptions, and determine the long-run actuarial soundness of the system—or to put it another way, determine whether the present set of tax and benefit schedules will be consistent in the long term.

Every year such forecasts are made by the Social Security and Medicare Trustees, now three cabinet officers, the commissioner of Social Security, and two outside members (Social Security and Medicare Boards of Trustees, 1995). Every four years, a quadrennial advisory council is appointed to review these forecasts and to comment on relevant policy issues. In the past, many of these councils have had important impacts on Social Security policy. For example, the 1983 Greenspan commission proposed a number of measures that saved the system from imminent financial difficulty, and the 1975 council recommended changing procedures that had until then led to overindexation of Social Security for inflation.

Another advisory council was formed in 1994, and I was asked to chair it. It also included three members from business, three from unions and six others from the private pension industry, the self-employment sector and independent

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representatives. The council met monthly throughout 1994 and 1995, commissioned a number of special studies, appointed two technical panels that made their own reports and, now in early 1996, it is just issuing its own report (Social Security Administration, all citations, all forthcoming). In this paper, I discuss this report and give my own perspectives on it.

The 1995 Trustees’ Report

Our point of departure is the 1995 report of the Social Security and Medicare Trustees. As has been widely reported in the press, the intermediate assumptions of this report had the combined assets of the Old Age, Survivors, and Disability (OASDI) trust funds going below the safety level, defined as a year’s worth of benefits, in 2030. The assets of the Medicare Hospitalization Insurance (HI) trust fund, a separate entity that this paper does not discuss, were projected to go below the safety level in 2002, a far more urgent situation. But since the past convention was that these trust funds should be actuarially sound for 75 years, the fact that the OASDI trust fund assets were projected to go below the safety level as soon as 2030 was alarming enough. With both trust funds, the underlying demographics of the country are such that projected benefits are rising rapidly compared to payroll tax inflows, so that once the fund assets go below the safety level at some future date, the funds will be increasingly out of balance after that date.

These trends reflect two deeper issues of pension saving for the United States. One involves actuarial balance. In a stable, defined benefit social security system with pay-as-you-go financing, where each generation of elderly is supported by the following generation of workers, the underlying accounting identity can be written as

\[ t = \frac{(B \times S)}{(W \times N)} = \frac{B}{W} \times \frac{S}{N}. \]

In this identity, \( t \) is the combined employer-employee tax rate on taxable wages to pay for OASDI benefits. In the numerator, \( B \) is average social security benefits, and \( S \) is the number of social security recipients, so the product \( (B \times S) \) represents aggregate Social Security benefits. In the denominator, \( W \) is the average taxable wages and \( N \) is the number of workers, so the overall denominator \( (W \times N) \) is aggregate taxable wages. Thus, the total benefits in the numerator divided by total taxable wages in the denominator must be the tax rate \( t \).

This identity can also be written in a different and revealing way. The fraction \( B/W \), the average level of social security benefits divided by average wages, is called

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1 The three business members were Joan Bok (New England Electric System), Sylvester Schieber (the Wyatt Company) and Marc Twinney (Ford Motor Company). The three union members were Gloria Johnson (International Union of Electronic, Electrical, Salaried, Machine and Furniture Workers), George Kourpias (International Association of Machinists and Aerospace Workers) and Gerald Shea (AFL-CIO). The public representatives were Robert Ball (former commissioner of Social Security), Ann Combs (William M. Mercer, Inc.), Thomas Jones (TIAA-CREF), Fidel Vargas (Mayor, Baldwin Park, California) and Carolyn Weaver (American Enterprise Institute). The self-employed representative was Edith Fierst (Fierst and Moss).
the aggregate replacement rate—that is, the rate at which wages are replaced by social security benefits after retirement. The fraction $S/N$, which is the number of social security recipients divided by the total number of workers, is called the dependency ratio. The identity thus reveals that the product of the replacement rate and the dependency ratio must also equal the tax rate.

The United States now has an aging population, with people living longer and not having enough babies to stabilize the population share of young people. As a result, the dependency ratio is steadily rising, from about .29 today to .50 in 2030, the year in which the last members of the enormous baby-boom generation will hit the normal retirement age, and then to .56 by the end of the 75-year forecast period. According to the identity, if aggregate replacement rates do not change, the payroll tax rate must rise steadily to pay for the existing defined benefits of Social Security. Whereas in 1995, a combined employer-employee OASDI payroll tax rate of 12 percent was sufficient to pay system benefits, this pay-as-you-go tax rate rises to 17 percent by 2030 and to 19 percent by 2070. Under the present demographic and economic forecasts, it keeps right on rising, slowly and steadily, after that time.2

The second issue involves the rate of return. Another property of a stable pay-as-you-go system with unchanging tax rates, first pointed out by Paul Samuelson (1958), is that the equilibrium real rate of return on worker contributions equals the rate of growth of the economy's real wage bill, which is real wages times number of workers. This real wage bill is slated to grow by 1 percent in the long-term forecasts of the trustees (slightly more when adjusting for CPI bias).3 When calculating the present discounted value of tax payments and eventual benefits, however, the trustees use an overall real interest rate of 2.3 percent. Since the discount rate is outstripping the growth in benefits, younger cohorts who retire later will increasingly be getting fewer discounted benefits relative to their discounted tax payments.

2 At present the OASDI payroll tax rate is actually 12.4 percent, leading to a slight accumulation in the Social Security Trust Fund. The actuaries forecast a number of variables in making these projections. Among the most important are the long-run rate of money wage growth (5 percent), the long-run inflation rate (4 percent), nominal interest rates (6.3 percent), women's fertility (1.9 births per female in child-rearing years), life expectancy at age 65 (rising gradually from 17.5 years now to 21.5 years in 2070) and immigration (about 1 million per year in the next century). These assumptions have been carefully examined and generally endorsed by our Technical Panel on Assumptions and Methods (Social Security Administration, forthcoming, a).

3 Both the Technical Panel on Assumptions and Methods and the council spent much time debating the Consumer Price Index (CPI). The Advisory Commission to Study the Consumer Price Index is about to release a report that argues that the CPI inflation rate has been biased upward by upward of 1 percent a year recently. Since so many labor and pension contracts are based on the CPI, no one thinks the Bureau of Labor Statistics will revise the index backward. At the same time, were the biases to be corrected, it is likely that the future outlook for real wage growth (nominal wage growth less the rate of inflation) would be more optimistic than might be projected on the basis of existing data. The technical panel argued for ignoring this whole CPI flap and for continuing to use a 5 percent rate of growth in nominal wages and a 4 percent inflation projection. The council, on the other hand, decided to follow the administration's budget and correct the inflation forecast by 0.2 percent per year, making for an implicit forecast of 1.2 percent real wage growth. The difference is tiny in computing the money's worth ratios, the main focus later in this paper. But it does matter in computing how much taxes have to be raised or benefits scaled back in the various plans.
The ratio of discounted benefits to discounted taxes paid is called a "money's worth" ratio, since it reveals whether paying into the program was worthwhile in some basic sense. (The taxes paid include those paid by employees and also those by employers on behalf of their employees.) Money's worth ratios can be computed for past and future cohorts. For people retiring now, the money's worth ratio is about 1.05 for single low-wage workers, .80 for single average-wage workers and .60 for single high-wage workers. (Figures 1 and 2, presented later in this paper, offer perspective on the money's worth ratios over time.) Over the long run, these ratios decline very gradually, even before the above adjustments in replacement or tax rates are made. When the necessary actuarial adjustments are made to reflect an aging population and the necessity for either higher than currently projected taxes or lower than currently projected benefits, these money's worth ratios become lower yet.

The interaction between these two issues—keeping the system in long-run actuarial balance and the declining money's worth ratios—sets up a difficult problem in political economy. Taxes could be raised or benefits cut to keep the system in long-term pay-as-you-go balance. But doing that worsens the money's worth ratios for younger cohorts and threatens the popularity of the system. The question of how to bring the system into financial balance while preserving its popularity was the central issue faced by our council.

The council debated three approaches for dealing with this problem. All three approaches share two common features. The first commonality is that each approach proposes a way of raising national saving, whether by raising taxes (now or later), trimming benefits, taxing benefits, gradually raising the retirement age or mandatory private saving. The second commonality is that each plan aims to get some of this new saving invested in the equity market. There is a long-term historical regularity that the equity market has significantly outperformed the bond market, even after adjusting for risk (Congressional Budget Office, 1994). Should this equity premium hold up, at least a portion of present retirement saving could be invested at better return to raise the money's worth ratios for younger cohorts. Economists are quick to point out that such a change is effective in raising subsequent national income only if there is a rise in national saving: without the national saving increase there is just a shuffling of assets between Social Security and other portfolios.

But despite these common features, the three proposals are very different in their conception of the future of Social Security. One approach involves a tax increase on Social Security benefits and direct investment of Social Security funds in equities. A second approach involves small-scale mandatory "defined contribution" individual accounts layered on top of the present Social Security system. These individual accounts would be held by Social Security, could be invested in equity index funds and would be annuitized on retirement. A third approach involves a gradual replacement of the present defined benefit system with large-scale defined contributions held outside the Social Security trust funds, which again could be invested in equities. The following sections describe these different approaches in more detail.
Maintain Benefits

The first approach tries to preserve the present Social Security benefit system as nearly as possible. There are only slight changes in replacement rates, if these rates are calculated on a pretax basis. There is some infusion of revenue from more complete income taxation of Social Security benefits, combined with large-scale investment of Social Security funds in equities. This is essentially the approach recommended by Bosworth (1996), though he proposes a more significant early rise in national saving through payroll tax increases.

Two aspects of this plan are central. The first involves a change in the taxation of Social Security benefits. Under present practice, from 50 to 85 percent of Social Security benefits are taxable above special income thresholds. The revenue raised by the 50 percent inclusion of benefits goes to the OASDI trust funds, and the revenue raised between the 50 and 85 percent inclusion shares goes to the HI trust fund. In the new approach, all Social Security benefits in excess of previously taxed employee contributions would be included in taxable income and would eventually go to the OASDI trust funds, though the transfer from the HI trust fund would not be made for several years.

Compared to the present tax treatment, the new approach has advantages and disadvantages. Most private pension saving in defined contribution accounts is now taxed according to consumption tax rules, with the funds deductible from taxable income when earned, but taxable when benefits are paid. The new rule would give similar tax treatment were the employee portion of Social Security contributions deductible. Since employee payroll taxes are not now deductible (and, because of the large initial revenue loss, probably will not be deductible any time soon), the new rule could be said to be slightly harsher tax treatment. One argument for this treatment is that it is the most sensible way to get present retirees, who already get a good money’s worth return on their Social Security contributions, to pay for some of the actuarial imbalance. But on the other side, it is questionable to divert the tax revenue to the OASDI trust funds. Private pension funds are obviously not now credited with the income taxes on their benefits.

The second key aspect involves direct investment of Social Security funds in the equity market. In this particular plan, Social Security would gradually invest up to 40 percent of its assets in equity form, raising the overall return on its portfolio by nearly half. The council has done stochastic simulations to assess the increase in portfolio risk, and while there was some increase, the 40 percent share increases the risk only moderately over and above that already present because of forecasting uncertainty.

But there are still potential concerns with this equity investment. One is the obvious one of whether the historical equity premium will hold up. If it does not, Social Security could have some significant new financial and credibility problems. A second concern involves government conventions. Steuerle (1995) raises the issue of whether other government trust funds might soon begin investing in equities—where would the line be drawn? A third involves politics. The plan is for the system to hold only passive index funds, managed by a prestigious investment board.
however passive the investment and however prestigious the board, it might still be
difficult to eliminate politics from the management of the fund. At today’s rates,
the equilibrium holding of equities would be about one-seventh of GDP, more than
a trillion dollars. Would it be feasible to have one overall board managing invest-
ments on this scale?

**Individual Accounts**

The second approach, my personal favorite, tries to scale back benefits to elimi-
inate today’s long-term actuarial deficit. It does this in part by raising the normal
retirement age for benefit eligibility gradually throughout the next century and, in
part, by scaling back the replacement rates realized by high-wage workers. It then
creates mandatory individual accounts in the amount of 1.6 percent of covered
payrolls. These accounts would be held by the Social Security system, though indi-
viduals would be free to choose whether to invest their own funds in bond index
funds, equity index funds or some combination. There might be from five to ten
investment fund choices. The accumulations would be annuitized and added to an
individual’s regular Social Security benefit on retirement.

The critical element here is the new individual accounts. As noted earlier,
Social Security has always been a defined benefit system, where contributions led
to benefits only through a formula that involved some redistribution from high
earners to low earners. The individual accounts would instead represent defined
contributions, where contributions are required, and payments based on these ac-
counts rely solely on what has actually accumulated in the account. Since the man-
datory contribution is a percentage of payroll, high earners will accumulate more
in their accounts than lower earners.⁴

One advantage of these individual accounts is that they decentralize decisions
over how the funds are invested; because individuals choose how their funds will
be invested, no longer is one overall board allocating the equivalent of a trillion
dollars of common stock. If stocks do not perform up to expectations, individuals
can blame their own investment choices and alter those choices. A second advan-
tage is that individual accounts may increase individuals’ sense of ownership of their
Social Security rights; at present, the system must seem like a black box to most
workers. A third is that the creation of mandatory individual accounts may represent
a more politically acceptable way to raise national saving than by plain old rises in

⁴ This approach is similar to one recently proposed by Senators Kerrey and Simpson, though with one
equivalent of a trillion

key difference. The aggregate payroll tax and mandatory contribution rate under the individual ac-
counts plan is 14 percent of covered payrolls, 12.4 for the payroll tax and 1.6 for the individual
accounts. The Kerrey-Simpson approach is to fit both the payroll tax and the mandatory contribu-
tion under the present 12.4 percent payroll tax. This leads to much lower central system replacement rates
under the Kerrey-Simpson plan. Moreover, Kerrey and Simpson achieve their benefit reductions by
suspending cost-of-living indexation of Social Security benefits, interfering with a property that has
become one of the bedrock advantages of Social Security protection. The individual accounts ap-
proach as discussed here retains inflation protection.
payroll tax rates. The individual accounts really are held on behalf of an individual, as opposed to payroll taxes that largely finance current retirement benefits for someone else. A fourth involves risk sharing: there are some wage growth risks with defined benefit plans and some investment risks with defined contribution plans. This mixed approach might be prudent from a standpoint of risk diversification.

**Personal Security Accounts**

Some council members wanted to go beyond these small-scale individual accounts to form much larger individualized accounts, called Personal Security Accounts. This would be a large step in the direction of privatizing social security, as has now been done in Chile for more than a decade and as is now being emulated in countries such as Argentina and Peru. The World Bank (1994) has also been pushing a more privatized approach to social security saving.

The Personal Security Accounts would be created as follows. The present 12.4 percent OASDI payroll tax is half paid by employers, half by employees. About 2.4 percentage points of the 12.4 percent are needed for survivor’s and disability insurance, and these programs could be left largely intact. Of the remaining 10 percentage points, the employer share, 5 percentage points, would be devoted to the central system and pay for a flat Social Security benefit; in a fully financed equilibrium system, this would be enough to pay for a flat benefit that would be about two-thirds of the poverty line. The employee share, the other 5 percentage points, would go into an individual’s Personal Security Account. Unlike the individual accounts described above, held by Social Security and annuitized on retirement, these Personal Security Accounts could now be held by private registered investment companies, and individuals would have much broader choices over how the funds were to be used on retirement. They could be annuitized, given out in lump sums, or even kept in an individual’s account and added to an individual’s estate.

The transition problems with switching the country over to this new system would be serious. The basic problem is that this generation of workers has paid for its parents’ retirement, and after the transition, its children would be paying for their own retirement. But someone has to pay for the retirement costs of this generation of workers.

The transition might be managed as follows. All workers over some age, say 55, could be left on the present system. All workers under some age, say 25, could be put on a new system where their retirement income is their flat benefit plus the return from their Personal Security Account. They might also receive some credit for any payroll taxes they might have already paid. This leaves the workers between the ages of 25 and 55, who are at the heart of the transition. Their benefits would come in two tiers. One tier would consist partly of the benefit already accrued in the existing system and partly of a prorated share of their flat benefit that would be provided by the new system. Their second-tier benefit would be their returns from their own Personal Security Accounts.

The ultimate flat benefit—about two-thirds of the poverty line—is what
could be afforded by the employer's share of payroll taxes in the very long run. But over the transition period, benefits would far outpace the 7.4 percent of payroll that would now be credited to OASDI. Thus, there would need to be a supplementary transition tax, spread across as many generations as possible, to pay the missing transition costs. This transition tax could be any sort of tax—most supporters of this approach favor a permanent consumption tax. The amount necessary to pay the full transition cost is 1 percent of consumption, or (were the present financing scheme used) 1.5 percent of payrolls. There would need to be additional borrowing of nearly this amount in the early years of the transition, to be paid off in the middle of the next century. This transition tax would represent the increase in national saving, and again the returns would be devoted to the equity market if individuals so chose.

Apart from the costly transition problems, the new plan moves dramatically in the direction of a more personalized and less communitarian retirement system. On the positive side, the approach again encourages individual responsibility and ownership of Social Security rights. It guarantees a minimum flat benefit for everyone. The transition tax is a tax, but the enticement of large-scale individual accounts might make this a palatable way to raise national saving.

On the negative side, there is economic risk, because again large amounts are being invested in the stock market, this time by private individuals. There is a political question of whether these large-scale individual accounts can easily coexist with the flat benefits; specifically, will there be pressure in the twenty-first century for the system to scale back the flat benefits and give people more in their personal accounts? It may be more difficult to sustain minimum living standards for all working Americans in a world of large-scale individualized accounts. A further problem exists if people withdraw large lump sums from their Personal Security Accounts immediately upon retirement and do not save sufficiently for very old age. This problem could be met by requiring partial or complete annuitization of the accounts. In the absence of such restrictions, there could also be political pressure to bail out people who have fared poorly, either by investing badly or by overconsuming in their early retirement years.

Comparison

The three approaches can be compared through their money's worth ratios: the ratio of the present value of expected benefits to the present value of employer and employee taxes. The basic advantage of this type of measuring standard is that it gives a somewhat objective indication of who gets what from Social Security, both in the present system and proposed changes. The disadvantage is that Social Security provides many protections not available elsewhere—against disability, against inflation and against the financial risk of living a very long life. Because these insurance protections are of value, one
should not be too literal about money's worth ratios dipping below unity. Many individuals with lower ratios might more than appreciate their insurance. A second weakness, even more intangible, is that many individuals may appreciate the fact that Social Security does cover all American workers. Many people do take pride in the communitarian aspects of Social Security, and these aspects may also be important to the long-run political viability of the system.

With these warnings in mind, Figures 1 and 2 give the money's worth ratios for the three plans. The first plan is called MB, for Maintain Benefits; the second IA, for Individual Accounts; and the third PSA, for Personal Security Accounts. The top panel of Figure 1 shows money's worth ratios for the three plans for full career single workers of different birth cohorts who have low levels of career earnings. The middle panel gives the ratios for all three plans for single workers with average career earnings, while the bottom panel presents the ratios for single workers with high career earnings. The three panels of Figure 2 present parallel money's worth ratios, but for low-earning, average-earning, and high-earning married workers with a nonearning spouse. The married worker money's worth ratios are approximately twice those of the single worker because of the present 50 percent spousal benefit combined with the fact that these spouses often live a long time. In the past, these types of families have been very common; in the future they may become much rarer.

A few details about these calculations may be helpful. All workers are assumed to have normal disability incidence and mortality and to receive the protections built into the particular plans for disability and for survivor's insurance. The individual accounts are assumed to be invested in stocks and bonds using present-day ratios that are observed for Individual Retirement Accounts (about 40 percent in stocks, 60 percent in bonds), with some historically observed adjustment for administrative costs. The transition tax for the PSA plan is built into that plan's money's worth calculation. Any income taxes on benefits from the plans are ignored. This makes the calculations comparable to other pretax financial calculations. All real benefits and tax payments are discounted by the real interest rate of 2.3 percent.

The observed ratios differ both because of the properties of the plan and the degree of equity investment. In all cases, the money's worth ratios continue to decline for workers born before about 1955—it is simply too late to change these ratios. But for younger workers born in the 1960s, the combination of new saving and new investment in all plans can begin to turn things around.

Comparing the plans, the PSA plan generally does best for single workers and the MB plan for married workers with one earner (because of the spousal benefit). My preferred plan, the Individual Accounts, does not do as well on these money's worth tests, because it does not get as large an amount invested in equities as either of the alternatives. At the same time, this disadvantage is offset by the advantage

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5 In 1995 dollars the career average wage levels were $11,000, $25,000 and $61,000 respectively.
Figure 1
Present Value of Benefits as a Percentage of Present Value of Taxes: Single Workers

Panel a: Single workers with steady low earnings

Panel b: Single workers with steady average earnings

Panel c: Single workers with steady maximum earnings
Figure 2

Present Value of Benefits as a Percentage of Present Value of Taxes: Married with One Earner

Panel a: Married with one steady low earner

Panel b: Married with one steady average earner

Panel c: Married with one steady maximum earner
that if the stock market does not do well, portfolio risk is lower for this plan than for the others. The Individual Accounts plan might also prove a reasonable second-best compromise in the event that either the large-scale fund equity investment of the Maintain Benefit plan does not work out or the large transition cost of the Personal Security Accounts plan proves a stumbling block.

Conclusion

Social Security has been a highly popular program since its inception, perhaps the most popular government domestic program in the history of the United States. Politicians are reluctant to make dramatic changes—as they should be. At the same time, the U.S. population is aging, and the pay-as-you-go payroll tax required to keep up the replacement ratio is rising. It might well be time to switch over to a new approach—whether that be simply investing Social Security funds in the equity market or creating small- or large-scale individual accounts. It is already too late to stem the fall in money's worth ratios for workers born in the 1950s, but it is not too late to stem the fall for workers born in the 1960s or later.

I have characterized various approaches suggested by the council as best I could, but I, and not the council, am responsible for the particular wording. Peter Diamond, Eugene Steuerle and the editors have made helpful comments on an earlier draft.

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