

Reforming Public Pensions in the US and the UK

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This essay describes the current debate on reforming Social Security in the US, along with a brief description of how the program works. Along the way it comments on the quality of some reform proposals as well as their political standing. Where issues are similar, some inferences are drawn for the UK.

Financing Problem

Each year the Office of the Actuary of Social Security prepares a projection of the finances of the system for the next 75 years (Board of Trustees, 2005). The Office also does projections for reform proposals. Despite the presence of three cabinet members among the five Trustees who have the power to set the economic and demographic assumptions, the projections have wide acceptance and are viewed as coming from widely-respected civil servants, not the cabinet members officially in charge. They play a key role in the political process, although recently the Congressional Budget Office has started doing projections as well (Congressional Budget Office, 2005).

The most recent projection from the Office of the Actuary is shown in Figure 1, relating both expenditures and revenues to taxable payroll, year by year. The nearly horizontal revenue line reflects the 12.4 percent payroll tax plus those of the revenues from the income taxation of benefits that go automatically to Social Security. The solid line that then becomes dotted is the cost of annual expenditures if all of benefits in current law were paid, referred to as scheduled benefits. At present the system is running a surplus, with revenues above costs. The rapid rise in costs is the retirement of the baby boomers. And the continuing slow rise reflects the anticipated continuing increase in life expectancy at retirement, which raises the cost of a system defined in terms of monthly benefits. Since the system can not borrow and has no de jure access to general revenues, it is constrained to paying benefits only from its trust fund and from ongoing revenues. Hence the sharp fall in expenditures as payable benefits fall below scheduled benefits in 2041. In present discounted value terms, the shortfall of revenues over the 75-year horizon is \$4 trillion, or 1.8 percent of taxable payroll. Taxable payroll is roughly 40 percent of GDP. To also end the 75-year period with a trust fund at a precautionary level equal to the following year's expenditures would raise the shortfall to 1.9 percent of taxable payroll. This calculation also includes use of the sizable accumulation in the Social Security Trust Fund, currently over \$1.7 trillion, and growing.

There is a debate about the effect on national savings of the buildup of this trust fund, consciously included in the last major reform (in 1983) in anticipation of the baby boomers' retirements. Some analysts, including me, believe that most of the surpluses have been saved by the government and so have added to national savings (Diamond and Orszag, 2004). Others think that the government has increased the deficit on the rest of the budget to offset the

¹ This is a longer version of a lecture given at LSE May 18, 2005. I have benefited from reading the report of the Pensions Commission and many papers from the Pensions Policy Institute and from comments from Tony Atkinson and Nick Barr. The material about the US has drawn heavily on my collaboration with Peter Orszag.

surpluses, and so little has been saved by government or contributed to national savings (Schieber and Shoven, 1999). This issue can not be answered by merely observing that the trust fund holds only government bonds and the US government ran large deficits most of the years since the reform. A proper answer requires consideration of the counterfactual of how the government would have responded afterwards had the 1983 legislation included less (or none) of a surplus. No one is currently disputing that the funds will be used for benefits eventually, only of how the rest of the government budget has been affected.

I see the budget process as focusing on changes from previous budgets along with the effects of previous alterations in tax structure, without any strict target for a deficit, even when the deficit is widely agreed to be too large. Congress finds it politically difficult to raise taxes or to cut spending, which are the two measures available for reducing the deficit. Indeed, many politicians seem to have a “political pain threshold” that governs the size of any tax increases or spending cuts they would embrace. The political pain threshold of Congress was unlikely to have been substantially affected by changes in the reported deficit of the size induced by Social Security during the periods of high deficits. If this interpretation is correct the surpluses in Social Security resulted in less debt held by the public, so that the sum of debt held in the Social Security Trust Fund and debt held by the public is near to the level that would have occurred without the Social Security surpluses.

The counter argument is that the political pain threshold is driven by public perceptions of the unified deficit, the deficit including both Social Security and the rest of the budget, implying that that deficit was roughly unchanged by the Social Security surpluses. If this is the case, then the surpluses induced a roughly matching offsetting deficit increase in the non-Social Security budget, and debt held by the public is roughly the same as it would have been without the surpluses. Just reflecting on the budget debates since the 1983 Social Security reform, I find the latter argument unconvincing, even though the media do usually report the unified deficit and do not distinguish different deficit measures carefully, or often at all.

The level of debt held by the public affects national savings by displacing other assets that would have been purchased otherwise. Even if the surpluses did impact the rest of the budget, they still represent a difference in outcomes. While payroll tax revenues were used to build up the trust fund, general revenues will be used to pay off the debt held by the trust fund. That is, the 1983 reform substituted higher payroll tax rates in the near term for higher ones (or lower benefits) in the long term, whether the surplus added to government savings or not. The national savings issue will recur below, as some analysts favor individual accounts as a device to increase the current reported deficit, already widely viewed as too large, in order to generate a reduction in the deficit (or more precisely government spending) outside Social Security. I note that a similar question is present in the UK of the implications for the rest of the budget of notionally funded public sector schemes. I do not have any idea of the right interpretation of the UK budget process, but merely note how these pension schemes should be analyzed.

Program Description

For the US Social Security system, referred to as the Old-Age, Survivors, and Disability Insurance program (OASDI), there is a payroll tax of 12.4 percent, half on employers and half on

employees, with the self-employed treated as both employer and employee. The tax is levied on earnings up to a cap that is indexed to average earnings and is currently \$90,000. From 1983 to today roughly 6 percent of earners have had earnings above the cap. As income distribution has become steadily more unequal, the fraction of earnings not subject to this payroll tax has grown from 10 percent to 15 percent. Coverage is almost universal, with the only large group outside the system roughly one-quarter of state and local government employees. I will focus on the retirement portion of the program, including elderly surviving spouses, but there is also a disability program and benefits for young surviving children.

Benefit determination is described in Figure 2.² Like the taxable earnings cap, the benefit formula is indexed to average earnings, so cohort by cohort, replacement rates (the ratio of benefits to earnings before retirement) stay roughly constant on average, while being higher for low earners than high earners. The system is gender-neutral. There are no earnings credits for those outside the paid labor force, whether unemployed or looking after children or others. But there are spouse and surviving spouse benefits for nonworking spouses, which also top up the benefits of low-earning spouses. And there are benefits for younger surviving spouses who are looking after young surviving children or disabled workers.

The monthly benefit varies with the age at which benefits start as shown in Figure 3. For those who must stop working to receive benefits (until recently ages 62 to 65, but with the latter en route to 67), referred to as the earnings test or retirement test, the growth in benefits from a delay in their start is an incentive to continue working.³ For those who can receive benefits without stopping work, the growth in benefits from a delay in the start of benefits represents an incentive to continue working only for those who find the delay attractive and are also liquidity constrained if they do not continue to work. For those who can afford to stop working while delaying the start of benefits, the financial calculation of when to start benefits has little to do with when to stop working. Indeed, there are some workers who stop work by the time they are 62 and eligible for benefits and who wait a year or more before starting to receive benefits (Coile et al., 2002).

Of course the incentive to delay depends on how much benefits increase as a consequence of a delayed start. For those not subject to the earnings test, this is structurally similar to the UK Basic State Pension (BSP), which offers 10.4 percent increase in the benefit for each year of a delayed start in benefits. For those who recognize the value of a real annuity – of monthly benefits that last as long as you live and keep pace with inflation - the opportunity to receive more of it is welcome. However, the design in the UK, like the design in the US makes little sense. The problem is that by adding (or subtracting) the same percentage to the benefit received at the full benefit age for each year of delay, the percentage increase in benefit for delaying another year steadily declines. This is true in the US for some combinations of ages, as shown in Figure 4, and true for all ages above the State Pension Age (SPA) for the BSP as shown in Figure

² Indexing of earnings is done to the year a worker turns 60, with later earnings entering nominally.

³ The incentive to continue working also depends on any increase in benefits as a consequence of additional earnings subject to payroll tax (as well as the tax itself). Benefits are increased when the additional annual earnings level is among the best 35 years of earnings. Use of best years of earnings rather than last years of earnings allows workers to move to lower-paid positions late in their careers without incurring large pension losses. There is an allowed earnings level which can be combined with benefits.

5. Since mortality rates rise with age, having the percentage increase in benefit steadily fall makes delay a poorer and poorer financial tradeoff.

Legislatures commonly make formulas additive when they ought to be multiplicative. Even better would be the approach taken in Sweden, where these factors are automatically adjusted each year based on an actuarial calculation using recent mortality information, so that the benefit increase for a delay in the start of benefits is roughly actuarially neutral – with expected higher future benefits just balancing the loss of a year’s benefits in present discounted value. Note that the adjustments for delayed benefits beyond the earliest age for pension eligibility can depend on the latest mortality figures without requiring that the benefit at the earliest age for pension eligibility also vary in the same way. In other words, adjustments for demographic factors can have different rules for the benefits at first eligibility for retirement benefits and for the marginal return to a delayed pension start. I note that at present the adjustment at ages 62 and 63 in the US are approximately actuarially fair, but not at later ages (Diamond and Gruber, 1998).

The progressive benefit formula in the US (Figure 6) is a key part of providing higher replacement rates for those with lower earnings in the US. The highest tier of the benefit formula, with the lowest benefit increase relative to lifetime earnings applies to roughly 15 percent of new retirees.

To get a sense of the implications of this benefit formula in terms of a replacement rate, I will follow the Social Security Administration Office of the Chief Actuary (2004) and consider benefits for a full-career worker who has the typical age-earnings profile – referred to as scaled workers. For example, a single worker retiring at the age for full benefits in 2004 (65 years and 4 months) with a lifetime average wage-indexed earnings of \$30,000 is roughly in the middle of the cohort and has a replacement rate of 44 percent. Keep in mind that this refers to being in the middle of all workers in the same birth cohort, not just full-career workers, that the replacement rate is relative to a lifetime average of the best 35 years of wage-indexed earnings, not earnings over a later period when they may be higher than earlier, and that a large majority of workers retire earlier than the age for full benefits and so have lower replacement rates, roughly 20 percent lower for an age 62 retiree. And this 20 percent will drop in steps to 30 percent lower in 2022 as the age for full benefits reaches 67, as legislated in 1983. The same calculation would hold for a two-earner couple with each earning this level. Because of the presence of spouse benefits, a one earner couple (of the same age) would have a 50 percent higher replacement rate. A two earner couple with one low earner would see a top up raising the couple’s replacement rate somewhat.

In contrast with a 44 percent replacement rate at \$30,000 of lifetime earnings, the replacement rate is 51 percent at \$20,000, 41 percent at \$40,000, 38 percent at \$50,000 and 33 percent at \$60,000 as shown in Figure 7. This progressive benefit formula is an alternative approach to achieving the same progressivity end by a two-pension program, one giving a flat benefit (for a full career) while the other gives a benefit proportional to earnings, or increasing with earnings, a combination present in the UK.

The US has a guaranteed minimum income for the elderly as well. But the level is quite low, in keeping with the political aphorism that in the US a program for poor people is a poor program.

Thus, Social Security plays a key role in keeping many of the elderly out of poverty. Even so, a considerable number of the elderly live below the government poverty line, as shown in Figure 8. Note the much higher poverty among single elderly than among couples. Of course, single elderly are primarily widows. Social Security also provides the bulk of income for a large fraction of the elderly, as shown in Figure 9, although the program was never meant to be more than a foundation for retirement income, not an adequate level all by itself. This outcome supports the concern that many workers would not save enough for a sensible retirement without a mandatory program.

As with other countries, including the UK, there is a tension in the US between focusing on poverty among the elderly and focusing on replacement needs over a much wider swath of the population. My own view is that both are worthy social goals and both need to be preserved at significant levels. But there are some who would push the program in the direction of greater emphasis on poverty at the expense of replacement rates further up the income distribution. Indeed, that is part of the approach of the Bush administration. The need for concern beyond merely poverty is driven by the failure of much of the working population to accumulate sufficient financial assets for retirement.

In the US, as in the UK, there is also a sizable provision of funded pensions through employers and individual retirement accounts (Munnell and Sunden, 2004). At any time, roughly half the US labor force is participating in a plan. And, in both countries, there has been a sharp shift from defined benefit to defined contribution plans, with US experience shown in Figure 10. Moreover the Pension Benefit Guarantee Corporation, created in 1974 to insure defined benefit pensions, is foreseeing large deficits as companies with underfunded pension plans get into trouble, mostly recently United Airlines. Indeed, the difficulty in enforcing adequate funding for insured pensions (and the difficulty for workers in not insuring them) is one of the reasons I have not viewed the swing from defined benefit to defined contribution pensions with alarm. Rather, I consider such a move good as a general proposition, while sharing the concern that some of the changes have been accompanied with large decreases in anticipated pensions. In the US, improved regulatory oversight for both types of pensions is needed.

Political Debate

While pressure from the right to go to fully-funded individual accounts started earlier, I will start my description of the political debate with the Clinton Administration. Historically, a key role in Social Security reform has been played by Advisory Councils, appointed every four years. These have been (they no longer exist) blue-ribbon panels made up of businessmen and union officials, with others representing the public. The one appointed by President Clinton was to address a projected financial shortfall showing roughly the same pattern as the more recent one shown above. The Council split into three groups – one wanting to preserve the current system, with benefit and tax changes and the start of investing part of the trust fund in stocks and corporate bonds, one wanting to add mandatory individual accounts to lessen the impact of the benefit cuts needed to stay within the existing revenues, and one wanting a radical change to a combination of a flat benefit and mandatory funded individual accounts (of roughly equal cost), with a separate tax increase for the decades needed to transit to the new system (Advisory Council on Social Security, 1996). Thus the Council did not play its traditional role of

smoothing the way to legislation by achieving a wide consensus. But it did add legitimacy to the calls for individual accounts.

In the face of Republican pressure for tax cuts as a consequence of the budget surplus that had been achieved, President Clinton turned to Social Security in the State of the Union Address of 1998. With the call to “Save Social Security first,” he blunted the push for a tax cut. He put forth a plan to partially address the Social Security financing shortfall, including a transfer of some of future budget surpluses to Social Security. With the disappearance of the surplus under President Bush, this route to restoring financial balance is gone.

In the presidential campaign of 2000, Mr. Bush laid out some principles he wanted to follow in pursuing Social Security reform. Promptly after his election he appointed a commission to present a plan that conformed to his principles. The two key principles were that there be no tax increase and that there be voluntary individual accounts financed by existing payroll tax revenue – a contracting out option, in UK vocabulary, carve-out accounts in US vocabulary. While membership of the President’s Commission included both Democrats and Republicans, the Commission only included members supporting the President’s principles. The Commission reported in December 2001, delivering two alternative plans, not a single recommendation (President’s Commission to Strengthen Social Security, 2002).⁴ This was requested by the White House, as Social Security was put on the back burner in light of September 11. In 2004, the President ran for reelection on the same principles as in 2000, and has only come forth with portions of a plan since his reelection. This spring he traveled extensively to push for the individual accounts he called for in his February 2 State of the Union Address:

“Right now, a set portion of the money you earn is taken out of your paycheck to pay for the Social Security benefits of today's retirees. If you are a younger worker, I believe you should be able to set aside part of that money in your own retirement account, so you can build a nest egg for your own future.”

Individual Accounts

An option for contracting out requires a rule linking future benefit reductions and current transfers for asset purchase. Following an earlier design by the Government Accountability Office, the Commission, and now the President have put forth plans based on treating the diverted payroll tax revenue as a loan. That is, Social Security would track the amounts diverted to individual accounts and charge interest each year on the accumulated diverted funds, with the interest rate referred to as the offset rate. At retirement, a worker would repay the accumulated debt through a reduction in traditional monthly benefits, with the reduction sufficient to pay off the debt for a retiree of average life expectancy at that time. The calculation of both the debt and the annuity decrease depend on the interest rate chosen. The President proposed using 3 percent real, which is the projected rate of return on long-term Treasury bonds. Thus, to a first approximation, the President’s proposed individual accounts would not affect the projected present discounted value of Social Security’s shortfall of revenues relative to expenditures,

⁴ While they report three plans, one simply showed how accounts would work, with no other changes. For an analysis of the Commission’s plans, see Diamond and Orszag, 2002.

measured over an infinite horizon.⁵ In contrast, his Commission proposed to use an interest rate below the Treasury rate, thereby subsidizing the accounts and worsening the financial position of Social Security. Perhaps criticism of the subsidy as unjustified played a role in the choice of interest rate. In summer 2005, the offset rate proposed by the President was reduced to 2.7 percent. When combined with the projected (long-run) administrative fee of 0.30 percent this would imply a cost to workers of 3 percent real. If Treasury bonds were yielding 3 percent real, this would imply that a worker choosing to hold an all-bond portfolio would be projected to break even. Perhaps comments that few workers would take the accounts because the offset rate was too large generated this change.

This loan-based approach permits workers to recognize that opening an account would be worthwhile if they are willing to take on the added risk in purchasing stocks and corporate bonds in order to have a higher expected return. This might be simpler for workers to think about if the offset interest rate were indexed to Treasury rates rather than being set in advance. With indexing of the offset rate, a worker would find contracting out equivalent to selling government bonds in order to purchase stocks. As such, it is of little or no value to workers with diversified portfolios in their retirement accounts outside Social Security. In contrast with the UK structure of a contracted-out rebate combined with forgoing a year's accrual in monthly benefits, this loan-based approach should make clearer for workers what the choice is about and may improve the quality of decisionmaking on whether to contract out.

Advocates of the accounts cite the diversity of attitudes toward risk as a possible source of an efficiency gain. But this only works insofar as people who do not already have a choice between stocks and bonds have a good understanding of the basis for choice. There is considerable evidence from choices made in employer-organized defined contribution pensions in the US that many workers make poor choices – after all it is not simple to understand value of diversification or the nature of the risk-return frontier and the issues behind choosing a good portfolio. Too many workers invest heavily in the stock of their employer, hold money-market funds for long-term investment, and try to time their moves between stocks and bonds in ways that increase risk and lower expected returns (Munnell and Sunden, 2004).

The President proposed that mandatory annuitization of the accounts would only extend to a level that, together with remaining traditional benefits, would keep a couple out of poverty. Thus the accounts would reduce annuitization, which is viewed as a problem by some analysts, including me, who think that many workers do not appreciate the insurance value of real annuities.⁶ There is also concern that the presence of individual accounts would alter the political landscape and open the possibility that the accounts would become subject to the even less stringent rules that currently apply to individual retirement accounts, including access before retirement, thereby undercutting their role in providing social insurance.

⁵ This is not a perfect offset since the death of a single worker before retirement would result in the transfer of the assets in the account to the deceased worker's estate and the extinction of the debt. In addition, if traditional benefits are cut sufficiently, some high earners would not have sufficient monthly benefits to fully pay their offset debt, again resulting in a shortfall.

⁶ Much more consideration has been given to organizing account accumulations than to providing benefits from individual accounts. On the latter, see National Academy of Social Insurance, 2005.

With a slow phase in that eventually allows 4 percentage points of payroll to go into the accounts and the assumption that two-thirds of workers would elect to have them, the implied cash flows of the President's accounts are as shown in Figure 11. Since diverted taxes occur decades earlier than repayment through reduced benefits, the cash flow is negative for roughly 40 years. As a result, as shown in Figure 12, the trust fund reaches zero over a decade sooner. This cash-flow problem creates a political risk to benefits as Congress might not choose to come up with the additional funds and a possible threat to government financing generally if the shortfall is covered by additional debt issue and the bond market reacts adversely to this significant increase in bonds outstanding, a possibility that has been recognized by Fed Chairman Alan Greenspan. That is, making implicit debt explicit, with the implied need to roll over debt instruments, increases the risk associated with bond market reactions, both present and future.

Central to the support of some account advocates is an argument that the accounts would contribute to national savings, even though, by themselves, they do not. The argument is a repeat of that above on the impact of the trust fund on national savings. With debt-financing for the lost revenue, deposits in the accounts would not contribute to government savings. In contrast, using tax increases or spending decreases (other than for public investment) in the non-Social Security budget to offset the cash-flow problem increases savings. Hence concern about how the introduction of the accounts might influence other government decisions. It is thought that the difference in impact on government savings between individual account and trust fund holding of assets is the key issue, with differences in individual response likely to be small and of uncertain sign. That is, having a contracting out option is not thought to noticeably affect the individual contribution to national savings through other savings.

Under current Congressional Budget Office rules, transferring payroll tax revenue to individual accounts would be scored as an expenditure, thereby increasing the reported unified deficit. Perhaps that would influence Congress to run lower deficits, although I doubt it. But Congress has the power to change the CBO scoring rules. Congress occasionally engages in "directed scorekeeping," simply changing the established rules by fiat. Congress could direct that the transfer to individual accounts be scored net of any anticipated repayments decades later. That instruction would attenuate or eliminate the effect on the reported deficit. Lest this idea seem fanciful, we note that Senator Judd Gregg, the new chairman of the Senate Budget Committee, has already raised this possibility. Other examples of eliminating the impact of individual accounts on reported deficits come from Hungary, Poland and Sweden, which score the deposits in their individual accounts as government revenue, thereby reducing reported deficits. While this scoring will have to stop after a few years, the US is not subject to similar pressures as those coming from the European Union.

Furthermore, in evaluating the importance of this argument, we must recognize that Social Security cash-flow surpluses are projected to reduce the unified deficit only until 2017 without individual accounts, and only until 2011 with the accounts proposed by the Administration. After that point, Congress would probably try to redirect attention to the on-budget deficit (without Social Security) instead of the unified deficit, since the on-budget deficit would be the smaller number. A successful redirection of attention would undercut the mechanism claimed to increase national savings. In sum, I find the case that accounts financed from existing Social Security revenues are good because they will raise national savings extremely weak.

These carve-out accounts are distinct from what are called add-on accounts that would be directly financed by a tax increase, as was proposed by Edward Gramlich when he chaired the Advisory Council under President Clinton (Advisory Council on Social Security, 1996, Gramlich, 1998). Such accounts would add considerably to national savings. But the current debate has shown little interest in accounts directly financed by additional taxes. Beyond the possible national savings link, I see little basis for the expense and political risks (from cash-flow implications) generated by carve-out accounts in the US context.⁷ I suspect that may be the case in the UK as well.

Individual Account Portfolios

The US has seen considerable analysis of alternative ways to structure individual accounts, with particular attention to the cost of different ways of organizing the set of available investment options (Diamond, 2000). Analysts have naturally considered the experiences abroad, particularly Chile, Sweden and the UK. Chile organized its accounts using specialized, tightly regulated, mutual fund companies that do not engage in other activities and make limited offerings to workers by each company – originally just one fund, now expanded to five, with funds of each type highly similar across mutual fund companies. The competition among the funds has led to significant costs, with firms devoting resources to securing contributors rather than simply relying on lower charges to attract customers, even though the funds are extremely similar. Thus, while this approach succeeds in restricting workers to widely diversified portfolios, it does this at a higher cost than is possible with some other approaches. By law, Chilean firms charge on the basis of deposits, not balances, and currently charge about 13 percent of mandatory payments, down from earlier figures. That is, a continuation of these charges throughout a working life would result in a balance upon retirement (and so benefits) 13 percent lower than if these charges were avoided.

In Sweden, the mandatory accounts have very wide access to funds, resulting in over 600 available mutual funds and considerable opportunities, often taken, to have limited diversification. Their approach to restricting cost involves two steps. One is to have workers deal only with a government agency, which, in turn, transmits the deposits aggregated over workers to the funds. Thus funds do not know which workers choose them, limiting the incentive to pursue expensive advertising on an ongoing basis, although advertising was very heavy at the start of the system. Secondly, Sweden uses price regulation, only accepting funds that are willing to comply with the pricing rules set by the government. This approach has resulted in charges (including the charges to cover the central administrative costs) that average roughly 0.75 percent of annual balances. In considering this number, one needs to keep in mind that over a 40 year career, one has deposits staying in the account for roughly 20 years on average. Thus the reduction in final balances from a given charge on annual balances is roughly 20 times the annual charge. Thus, 0.75 percent annually translates into a reduction in final balances of roughly 15 percent, a similar level to that in Chile. In general, price controls have

⁷ The political process is likely to treat individual accounts differently from defined benefits, and both of these differently from current individual retirement accounts outside Social Security. Going from this statement to an assessment of political risks and political hedges (that is, protecting people from some risks) is complex, requiring modeling of the political process and of the various demographic and economic changes that can affect pensions.

often swung to the advantage of suppliers, rather than the protection of consumers. One wonders if that will happen in Sweden as well.

As you can guess, the exceptionally expensive and unsatisfactory early UK experience with simply turning workers loose in the investment market is held up as an example not to be followed (Murthi, Orszag, and Orszag, 2001). Early in the US debate, Martin Feldstein proposed to let workers follow the rules that hold for individual retirement accounts outside Social Security, paralleling the earlier UK design, but this approach has been abandoned in the US debate.

The President's approach has followed none of these models, but rather the model of the retirement account system that has been set up for federal civil servants (Thrift Savings Plan). That is, workers would have a choice from a very limited set of alternative mutual funds – roughly half a dozen, with no choice among fund managers. The government would aggregate the deposits and hold competitive bidding from private investment companies for the right to invest the money, based on index tracker funds – that is, funds that attempt to approximate the return from holding all the assets in a particular class. For example, there can be funds that approximate holding the entire stock market, or the set of large firms or of small firms, or all of corporate bonds. Thus, this is a combination of the limited choice in Chile with the central government role in Sweden, but without individual choice of provider, which is present in both Chile and Sweden. This focus on limited costs with limited choice seems very wise to me. The Office of the Actuary has estimated that such an approach, once fully up and running, would cost about 0.30 percent of assets per year, less than half the cost in Chile or Sweden (President's Commission to Strengthen Social Security, 2002). The Commission took the same approach for small accounts but was willing to let accounts that exceeded \$5000 leave the government-run system and go into the open market, but only to funds that were individually widely diversified. But they did not favor limiting the charges that could be levied by the funds. I find the President's proposal more appealing than that of the Commission since many workers are at risk of a poor basis for a decision to leave the low-cost low-choice government system for a higher-cost greater-choice private system.

If accounts are set up, then they are naturally a vehicle for additional voluntary contributions, as can be done in Chile. Some analysts opposed to carve-out Social Security accounts have expressed interest in this form of government-organized accounts as part of encouraging additional voluntary retirement savings. That is, there is the suggestion that the government set up such a system in competition with the current private market in tax-favored retirement accounts. This would be particularly useful if individuals could deposit their annual income tax refunds as well as payroll deductions and direct deposits.

The tradeoff between limited options and lower costs, based on what has been learned from behavioral economics, has also been noted in the UK Pensions Commission's first report (2004). Even with the modifications that have occurred for contracted-out accounts in the UK, I still think that the system is too expensive for the value offered by such wide choice of investments.

Benefit Cuts

Given the size of the financial hole in Social Security and the lack of a contribution to restoring financial balance from the type of accounts that have been proposed, there has naturally been a discussion of alternative ways of arranging benefit cuts and revenue increases. Of course, there is a dispute over the mix of benefit cuts and revenue increases, but I want to focus on the design of individual cuts and increases. I note that the President, his Commission and various other proposals have also included some benefit increases (at least relative to benefits after proposed cuts) for groups thought to be particularly vulnerable. The President has singled out workers with long careers and low earnings. The idea is to help these workers be less reliant on means-tested benefits and also to have more than that program provides. His Commission also recognized widows and widowers with low benefits as another vulnerable group. They were concerned about disabled workers, but made no concrete proposals. Also bundled with disabled workers in some discussions are young children who survive a working parent. I note that a proposal I have made, together with Brookings economist Peter Orszag, provides protection for all of these groups (Diamond and Orszag, 2004).

From the time of the Commission report until recently, the approach to benefit cuts receiving the most attention was dubbed “price indexing” by the Commission, and is similar to the approach taken by Mrs. Thatcher. After calculating benefits as under current law, benefits would be reduced to offset the effect of the rise of real wages from the start of reform. Calling this price indexing (it leaves a mixed price-indexed-wage-indexed system and may be more accurately called real-wage-deflating) led many early audiences to fail to recognize how large the benefit cuts are in such an approach. Figure 13 shows the sizes of the cuts, assuming, as the President proposed, that no one 55 or over has a benefit cut and real wages grow at 1 percent per year. The cuts are very large eventually. Beyond the size of the cuts is the issue of whether it makes sense to do indexing in this form rather than just legislating specific cuts. The obvious difficulty in the approach is illustrated in Figure 14 which shows considerably larger benefit cuts if wages grow by 1.5 percent per year rather than 1 percent. The cuts are larger the more rapid real wage growth, even though the financial position of Social Security is improved, not worsened by more rapid real wage growth.

If one thinks about providing retirement benefits in terms of a given level of real benefits, such an approach makes sense. However, if one thinks in terms of replacement rates, recognizing a need to adjust replacement rates for financial affordability, then this approach to indexing does not make sense. I think it is important that replacement rates be the center of analysis for the portion of pension design aimed at those who are above poverty levels (and a similar argument holds for poverty alleviation when poverty lines are defined in relative terms as opposed to real terms). Thus, I think this price-indexing approach does not fit with what public pensions should be trying to accomplish.

Currently, this price-indexing approach has dropped from a central focus since the President has embraced a hybrid plan, put forth by Robert Pozen, which would use the same price-indexing approach for workers with a history of maximal taxable earnings, the current wage-indexing approach for workers at or below the 30th percentile of the lifetime earnings distribution, and a weighted average of the two in-between. This approach continues to involve indexing that is

backwards relative to needs and so makes little sense on that account. Indeed, Pozen, in congressional testimony, has raised the possibility of simply making the cuts based on a chosen rate of decline, rather than formal indexing. This approach is quite progressive in its approach to benefit cuts and leaves some supporters of the system concerned that the flattening of the benefits might go too far, undercutting political support for the program as well as focusing too much on poverty alleviation at the expense of replacement rate issues. An alternative approach to progressivity in benefit cuts, used by the Bush Commission and other analysts (again including my plan with Orszag), is simply to lower the slope of the top tier of the benefit formula (shown in Figure 6) – from 15% to 10% in a series of small steps.

An alternative approach to indexing benefit cuts is based on the expectation of continued growth in life expectancy after retirement age. Unlike price indexing, this relates the reduction of replacement rates to the cost of providing them. A straightforward approach to adjusting for life expectancy parallels benefit determination in a defined contribution pension – calculating the size benefit that would cost the same as under the previous benefit formula given the growth in life expectancy. Then, the benefit could be cut to match this level, as is done in Sweden. Alternatively, as proposed by Peter Orszag and me, the benefit cut could be half this size and a payroll tax increase could be used to cover the other half to reflect the idea that an increase in working life proportional to life expectancy is not likely to accompany increasing life expectancy. In this case, a sensible response to a longer life would involve some increase in work, some increase in savings (represented here by increased taxes) and some decrease in post-retirement consumption.

The Bush Commission included indexing for life expectancy in one of its proposals. However, they did that by indexing the age for full benefits not the level of benefits – an approach that has unfortunate consequences, as seen in Figure 15. An increase in the age for full benefits is a decrease in benefits for any particular age of retirement. By itself it does not necessarily have an effect on chosen retirement ages. So we can examine the implied pattern of benefit cuts across different retirement ages. The cuts are largest for age 62, given the US rules for benefits as a function of the difference between the age when benefits start and the age for full benefits. But in the US, the set of workers claiming benefits at age 62 have, on average, lower lifetime earnings than the average of retirees first claiming at any other age. Moreover, they have considerably higher mortality rates than the average for those first claiming benefits at any other age. It does not make sense to have the largest percentage benefit cut for the group with lowest benefits and shortest retirement lives.

Pensionable Age

In US Social Security, there are two key ages – the age for full benefits (in the process of going from 65 to 67) and the age at which retirement benefits can first be claimed (still 62), sometimes called the earliest entitlement age. The former is a parameter in the determination of benefits as a function of the age at which they are first claimed, while the latter limits who can claim benefits at all. In the UK, the State Pension Age (SPA) plays both roles – determining who can claim benefits and determining their size, since benefits increase for delayed claiming beyond the SPA. These two roles should be analyzed separately since either role can be changed without changing the other. That is, eligibility to claim benefits could start at 66 rather than 65, without

reducing the size of benefits paid as a function of the age at which they start at 66 or beyond. Alternatively, the 10.4 percent increase in benefits for the first year of delay in benefits beyond age 65 could be removed, without denying the ability to claim (reduced) benefits at age 65. To clarify these alternatives I review the issue in the context of the US.

There are frequent calls for increasing the earliest entitlement age in the US beyond age 62. At some point that will certainly make sense, although it is not clear it makes sense right now, nor does any simple indexing rule have obvious virtues.⁸ But it is important to understand the role of this parameter. In the US, the benefit increase from starting benefits at age 63 rather than at age 62 is roughly actuarially fair. That is, the increase in benefits make up for the loss of a year's benefits over the expected lifetime of a retiree. Thus, increasing the earliest entitlement age, by itself, does not help with long-run Social Security financing. I would guess that the same is roughly true in the UK – denying benefits to 65 year olds while preserving the 10.4 percent benefit increase for 66 year olds would not make a significant impact on long-run finances.

In the US context, where stopping working is a condition for receiving benefits at the earliest entitlement age, increasing this age forces a delay in the end of work for those without sufficient other funds to stop working while waiting a year for the start of benefits. As is the case in the UK, many people stop working before eligibility for a public pension. We need to ask whether the people who are pressed into working an additional year are helped or hurt by that (as well as examining those who would like to find suitable work but can't). Some are helped because they were retiring too early for their own good, or that of their families, running too large a risk of outliving their resources. Others are hurt by being forced to continue in unsatisfactory jobs, or making do without either a job or a public pension for the additional year. So the key to picking an age for first claiming benefits is to balance those benefited and those hurt. That balancing would naturally be somewhat different in a system without an earnings test, as is the case in the UK.

As noted above, the State Pension Age is both the age for full benefits and the earliest age for claiming benefits. By the age for full benefits, I do not mean it is the age at which benefits are largest (that is not the case in the US either). Rather it is the age that plays a key role in the legislated formula for determining benefits. The same pattern of benefits as a function of age can be defined using any of the ages at which benefits might start as a key parameter. As with some of the effects of increasing the age for full benefits in the US, the percentage size of the benefit cut is smaller the older the worker when benefits start, as shown in Figure 16 (which is the same as Figure 5, but with the horizontal axis labeled by the age of benefit claim rather than the delay beyond the SPA). This pattern has no apparent virtue.

To consider the second effect of an increase in the pensionable age, consider removing access to benefits for 65 year olds without changing the benefit rules for anyone claiming benefits at 66 or later. This removes an option from workers. That may be good, depending on the extent to which some workers make a mistake by claiming the smaller benefits at 65, and may be bad,

⁸ In the absence of automatic indexing for a parameter that should plausibly be changed from time to time, change can be left for times when some cause (most plausibly a shortage of funding) puts the benefit structure on the political agenda. An alternative is to have an automatic review procedure, with a requirement to appoint a review commission from time to time.

depending on the extent to which some workers are made worse off by having to wait another year for the start of benefits. For many workers it would not matter much which choice was made. Unfortunately it is very difficult to identify who should start earlier, who should start later, and who is roughly indifferent between the two. Thus it is difficult to design a policy change that has a good justification. This is not to claim that 65 is right – I don't think we know based on current evidence; just to identify what should be thought about if changing the age and to recognize the inadequacy of simple rules relating the SPA to life expectancy. That is, the age at which benefit eligibility is set should depend on the evaluation of the quality of the decisions being made on when to start benefits. Key to an evaluation are the positions of a minority of workers, both those in need of an early claim and those unwise if they do so. Focus on average life expectancy and average healthy life expectancy will not be adequately informative.

One possible role of increasing the pensionable age (and removing one year from the count of years used to raise benefits because of a start later than the SPA) is to use a different vocabulary for cutting benefits. This may make benefit cuts more politically acceptable (as was the case in the US in 1983, but is no longer the case). Another role is to make a benefit cut more acceptable because it does not have as large an impact on pension adequacy for those working beyond the higher pensionable age, while particularly affecting those at the previous SPA.

Length of Service

Years of service commonly play a significant role in determining both benefit levels and eligibility for benefits in traditional corporate defined benefit plans. Years of taxable earnings play several roles in existing US Social Security rules and in some proposals.⁹ Ten years of covered earnings are required in order to receive a retirement benefit.¹⁰ With a progressive benefit formula and an intention to replace earnings upon retirement, some measure of active participation in the labor market distinguishes this approach from that of a citizen's pension. Along with other proposals, the President's proposal includes additional benefits for those with low benefits and at least twenty years of covered earnings. The focus is to help those with significant labor market experience.

As noted above, benefits depend on the average of the best 35 years of (indexed) earnings, including zeros in the averaging if there are fewer than 35 years of positive earnings. This is commonly referred to as 40 full years between 21 and 62, less five "dropout years." This is different from the approach in defined contribution (and notional defined contribution) plans that base benefits on all of contributions. Making use of a shorter averaging period provides some insurance against an extended period of unemployment (or recurring periods), just as the progressive formula itself provides insurance against a poor earnings outcome. As with insurance designs generally, there are also distributional implications of the use of this averaging period in that it helps those with short careers as a consequence of choice, not only as a result of random outcomes. Among those helped in this way are older immigrants who are part way

⁹ A worker receives credit for a quarter of earnings for each \$920 in covered earnings (up to four quarters per year). This amount is indexed to earnings.

¹⁰ Eligibility for disability benefits depends on adequate quarters of coverage relative to age as well as a measure of adequate recent labor market participation.

through their careers.¹¹ And women, on average, have considerably fewer years of covered earnings than men. Earlier, there were proposals to increase the number of years used for benefit calculation from 35 to 37, in line with the increase in the age for full benefits from 65 to 67. Of course, this is a form of benefit cut, and one that would cut benefits more for women than for men. This proposal has not reappeared in the current discussion. The Basic Pension has a similar character, basing benefits on the number of years of earnings, up to a maximum, although there are ways in which earnings credits are granted for some people outside the paid labor force.

In the US, eligibility for claiming retirement benefits (unlike the level of benefits) does not depend on the number of years of coverage (beyond ten) but only on reaching age 62. Similarly, the age for full benefits does not depend on years of coverage but only on age. Thus both the eligibility for benefits and the adjustment for when they start depend only on age. This seems to me the right principle for a national system, although I can not back up this view from existing research. Adjustment of benefit level for the start of benefits should be roughly actuarial. While there is (negative) correlation among men between the age of starting full-time work and life expectancy at pensionable age, it seems to me that age is a better predictor than years of service. Moreover, introducing an additional basis for a life-expectancy related adjustment opens up the issue of whether it is good policy to make more distinctions, for example by sex. I think this is not likely to be a fruitful direction for reforms.

Similarly, as discussed above, access to benefits should balance the gains for those who should have earlier access against the loss for those who would mistakenly start benefits too soon. Age seems a better measure than years of service for this role once one considers the multiple reasons for shorter careers. While replacing an age basis by a years of service basis does not seem to be a good idea, allowing earlier access (perhaps with an actuarially reduced benefit) for a group with very long service may make sense, but would require analysis of the same balancing of gains and losses for the group as is done for the pensionable age in general.

Revenue Increases

In addition to cutting benefits, financing can be improved by increasing revenues. There are two available margins to increase revenues within the context of a standard payroll tax system. One is to increase the maximum earnings subject to tax, assuming that implied benefit increases cost less than the revenue gain, as would clearly be the case for the BSP and is the case in the US. And even some Republicans have called for increasing the maximum subject to tax. The second is to increase the payroll tax rate. The US payroll tax rate for pensions is low by international standards of advanced countries, so there is room to do so without imagining dire macroeconomic consequences.

A different approach is to find some source of revenue not currently used for Social Security and use it for that purpose. Several suggestions have been made in the US. One is to place a small tax on earnings above the maximum currently used for both taxes and benefits. My own proposal (with Orszag) was a 3% tax, which would slowly rise over time. The argument for both the tax and its level comes from the history of the system. All early cohorts received far more

¹¹ There are offsetting provisions so that state and local workers who have been outside Social Security do not get treated as if they had no earnings when they had uncovered earnings.

than could have been paid for by their contributions with interest. This is the heart of starting and expanding a pay-as-you-go system. The consequence of that past generosity is that there are assets that are not present in the trust fund that would have been there without that generosity. Taking all the cohorts currently 55 years old or older (including the deceased), younger and future cohorts must cover about \$11.5 trillion already given away or scheduled to be given. This is referred to as a legacy debt, but is missing present and future assets, not actual debt. It has been estimated that roughly 3 percentage points of the payroll tax merely make up for the interest that would be earned if the assets were there. The question is how to share that cost among younger cohorts. It seems fairer to allocate that cost according to total earnings rather than just covered earnings. Hence a 3 percent tax above the taxable maximum. Some would include income from capital in the tax base for this, which would be a much larger break with the history of the program.

Another approach has been to note some of the tax cuts passed under the Bush administration, oppose making them permanent, as the President has requested, and instead dedicate some of that revenue to Social Security. Both the elimination of the estate tax and the decreases in the top portion of the income tax have been put forward as candidates for this move. In political logic, a dedicated tax often has different standing than a tax supporting general revenues. I consider it very important that Social Security benefits be financed fully from dedicated revenues.

Prognosis for Legislation

In 1977, Social Security had a projected financial hole four times the size of the current projected hole, and was expected to run short of money, forcing benefit cuts, in roughly five years. The 1977 reform had political cover from the clear message that the 1972 legislation that generated that financial hole was a mistake with large unintended consequences and had to be fixed. But the magnitude of change needed was daunting. The legislation might have been just barely enough to sustain the system for a considerable time, except that the large recession of the early 80's made the short-run finances untenable.

At the time of the 1983 legislation, the projected financial shortfall was about the same size as it is now, although the system was expected to run short of money, and need to cut benefits, in just two months, not 35 years as is the case now. With that political stimulus, a compromise was reached between the Republicans, led by President Ronald Reagan, and the Democrats, led by Speaker of the House Tip O'Neill. Leading the way to this compromise was a bipartisan commission headed by Alan Greenspan – not yet the world-famous star of the Federal Reserve System (Light, 1985). Since some combination of benefit cuts and tax increases was needed, including changes taking effect shortly, and since voters can show strong dislike of elected officials who make such changes, a bipartisan approach was needed to leave neither party standing alone in the vulnerable position of having inflicted pain.

I think that a similar approach is needed today if we are to have legislation. But the President has been adamant about having carve-out individual accounts and about not raising taxes (although he has allowed a little wiggle room for raising the cap on taxable earnings). Meanwhile the Democrats have been adamant against carve-out individual accounts.

Presumably they would insist on revenue increases as part of a solution. Until someone is ready to compromise, there is no basis for bipartisan negotiations to start.

Concluding Remarks

Recapping some of my themes of relevance for the UK, I note the following.

The role of government in the provision of retirement pensions should address both poverty among the elderly and inadequate replacement rates in a wider swath of the public. There should be concern about both replacement of earnings at retirement and replacement rates of benefits received by a couple when there is a death and a single survivor. The latter is a topic I did not have time to explore.

A replacement rate is the central concept for judging the adequacy of pensions for the population at large. While adjusting replacement rates for affordability is appropriate, using a price index rather than a wage index for the determination of initial retirement benefits does not adjust replacement rates for a cause that worsens affordability, but merely cuts replacement rates arbitrarily, and in a way not correlated with financial needs of the system. Consideration should be given to indexing for life expectancy, but with only a partial response by benefits.

The State Pension Age plays two roles – it sets the earliest age at which a retirement pension can be claimed and it is a parameter in the determination of the level of benefit as a function of the age at which benefits start. When considering a change in the SPA, these roles should be unbundled and considered separately since they can be changed separately.

There are methods of holding down the costs of funded individual accounts that do not seem to have made it onto the UK political agenda.

Pre-funding pensions is useful primarily when it contributes to increased national savings, a contribution that will not be present with some methods of shifting from public to private provision of pensions. Without such a contribution, and with the inevitably higher costs of private provision, it is not apparent why there is virtue in encouraging private provision at the expense of public provision.

In the US we do not have an explicit process for getting to a bipartisan solution. With the Pensions Commission the UK has a process which might succeed in generating cross-party consensus, as is needed for a pension system to have a stable structure that fits both social needs and affordability. One can only hope that the process succeeds.

References

- Advisory Council on Social Security. (1996). *Report of the 1994-1996 Advisory Council on Social Security*, Volume I: Findings and Recommendations. Washington, D.C.
<http://www.ssa.gov/history/reports/adccouncil/report/toc.htm>
- Board of Trustees, Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds. (2005). *Annual Report*. Washington D.C.
http://www.ssa.gov/OACT/TR/TR05/I_intro.html
- Coile, C., Diamond, P., Gruber, J. and Jousten, A. (2002). "Delays in Claiming Social Security Benefits," *Journal of Public Economics*, 84 (2002) 357-385.
- Congressional Budget Office. (2005). *Updated Long-Term Projections for Social Security*.
<http://www.cbo.gov/showdoc.cfm?index=6064&sequence=0>.
- Diamond, P. (2000). "Administrative Costs and Equilibrium Charges with Individual Accounts," in J. Shoven (ed.), *Administrative Costs and Social Security Privatization*, Chicago: University of Chicago Press.
- Diamond, P. and Gruber, J. (1998). "Social Security and Retirement in the U.S." in J. Gruber and D. Wise (eds.), *Social Security and Retirement around the World*, University of Chicago Press, 1998.
- Diamond, P. and Orszag, P. (2002). "An Assessment of the Proposals of the President's Commission to Strengthen Social Security." *Contributions to Economic Analysis and Policy* 1:1, Article 10.
- Diamond, P. and Orszag, P. (2004). *Saving Social Security: A Balanced Approach*. Washington: Brookings Institution Press.
- Gramlich, E. (1998). *Is It Time to Reform Social Security?* Ann Arbor: University of Michigan Press.
- Light, P. (1985). *Artful Work: The Politics of Social Security Reform*. New York: Random House.
- Munnell, A. and Sunden, A. (2004). *Coming up short: the challenge of 401(k) plans*. Washington: Brookings Institution Press.
- Murthi, M., Orszag, J. M. and Orszag, P. R. (2001). "Administrative Costs under a Decentralized Approach to Individual Accounts: Lessons from the United Kingdom," in R. Holzmann and J. Stiglitz, eds., *New Ideas About Old Age Security*. Washington: The World Bank
- National Academy of Social Insurance. (2005). *Uncharted Waters: Paying Benefits from Individual Accounts in Federal Retirement Policy*. Available at <<http://www.nasi.org>>.

Pensions Commission. (2004). *Pensions: Challenges and Choices*.
www.pensionscommison.org.uk.

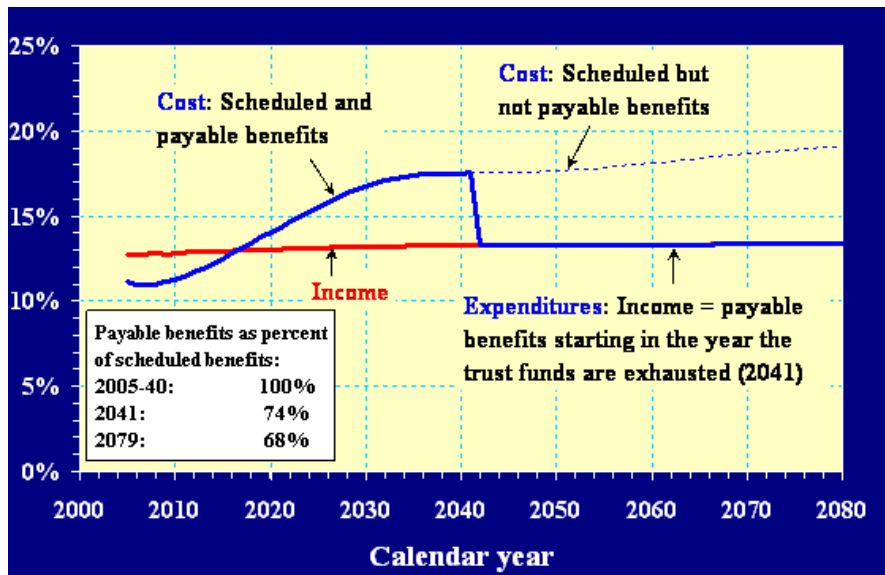
President's Commission to Strengthen Social Security. (2002). *Strengthening Social Security and Creating Personal Wealth for All Americans*. http://www.csss.gov/reports/Final_report.pdf.

Schieber, S. and Shoven, J. (1999). *The Real Deal*. New Haven: Yale University Press.

Social Security Administration, Office of the Chief Actuary. (2004). *Replacement of Lifetime Earnings for Single Scaled Workers Retiring at the Age for Full Benefits in 2004*. Actuarial Note 2004.4. <http://www.ssa.gov/OACT/NOTES/ran4/an2004-4.html>.

Figure 1

OASDI Income and Cost Rates Under Intermediate Assumptions (as a percentage of taxable payroll)

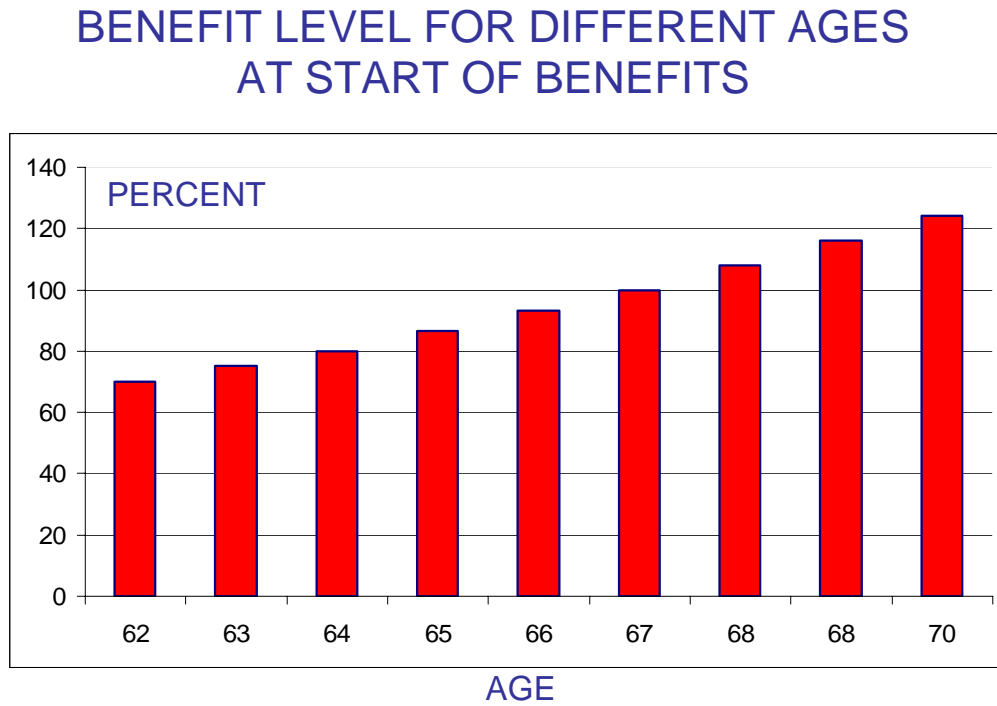


Source: 2005 Annual Trustees Report, Figure II.D.2.

Benefit Determination

- Average the best 35 wage indexed annual earnings (AIME).
- Use a progressive benefit formula ($PIA = f [AIME]$).
- Adjust benefits from PIA if they start other than at the age for full benefits (commonly called the normal retirement age).
- No benefits before age 62.
- Between 62 and the age for full benefits (which is in transition from 65 to 67), benefits are only paid if earnings are low enough, referred to as an earnings or retirement test.
- No further benefit increases for a delayed start beyond age 70.

Figure 3



For an age for full benefits (normal retirement age) of 67.

Figure 4

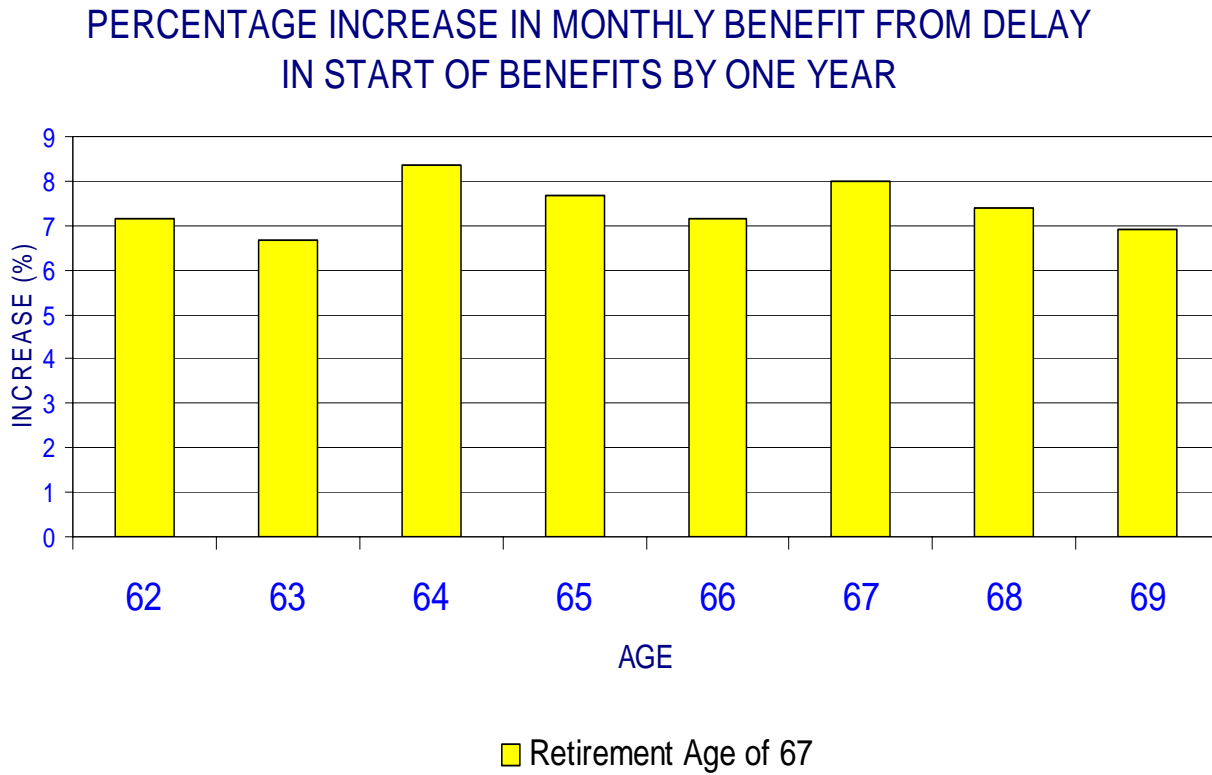
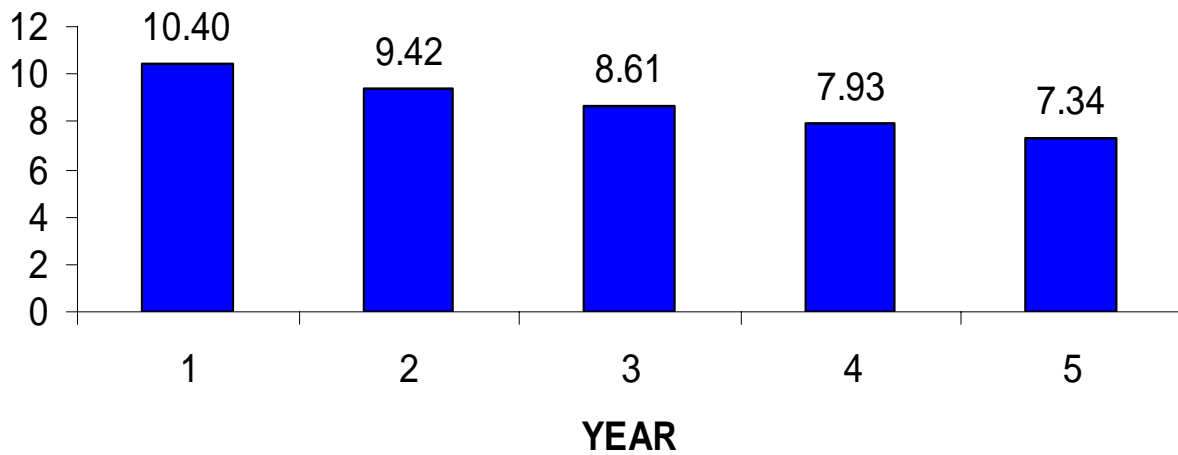


Figure 5

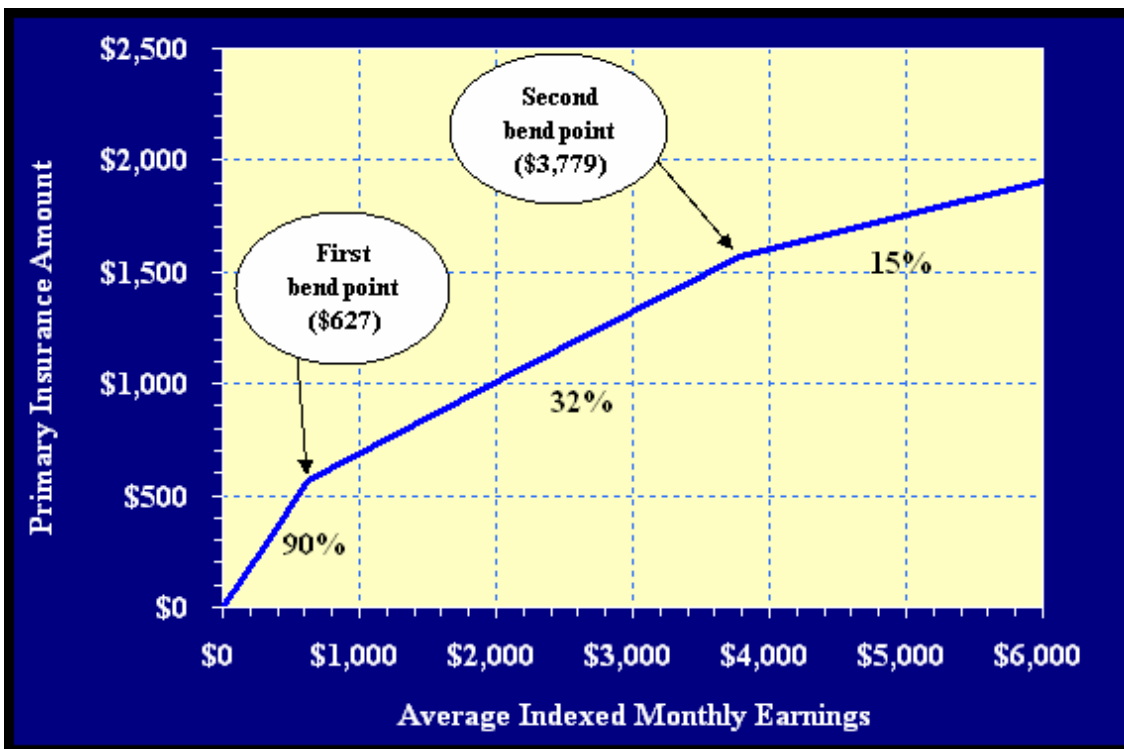
Percentage Increase in Basic State Pension from Delay of Start of Benefits by One Year



Additional benefit of 10.4% per year of delay

Figure 6

Primary-Insurance-Amount Formula for the 2005 Cohort

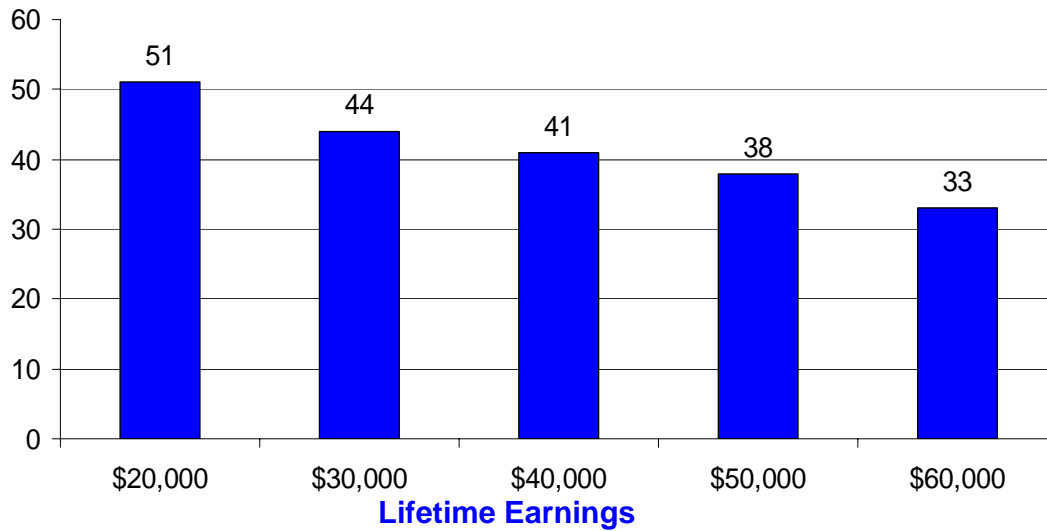


Source: 2005 Annual Trustees Report, Figure V.C1.

Figure 7

Replacement Rates

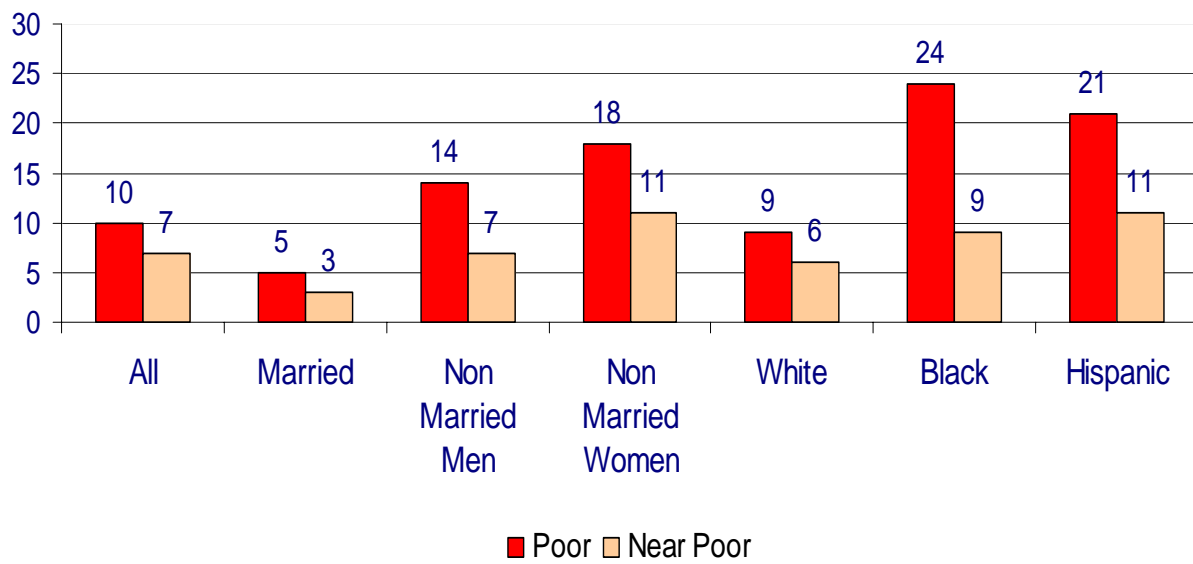
Replacement Rates (in percent)



Replacement of Lifetime Earnings for Single Scaled Workers Retiring at the Age for Full Benefits in 2004. Source: Social Security Administration, Office of the Chief Actuary, Actuarial Note 2004.4, December 2004.

Figure 8

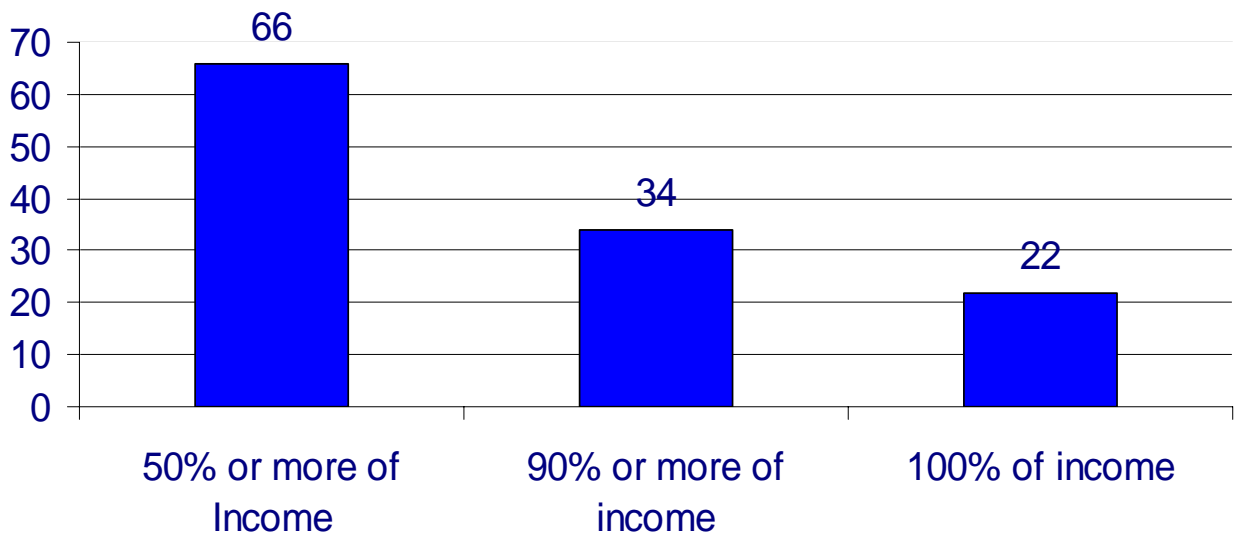
Poverty and Near Poverty Status Based on Family Income, 2002



Source: Fast Facts and Figures about Social Security, 2004, SSA Office of Policy Publication No. 13 11785

Figure 9

Ratio of Social Security to Total Income, 2002

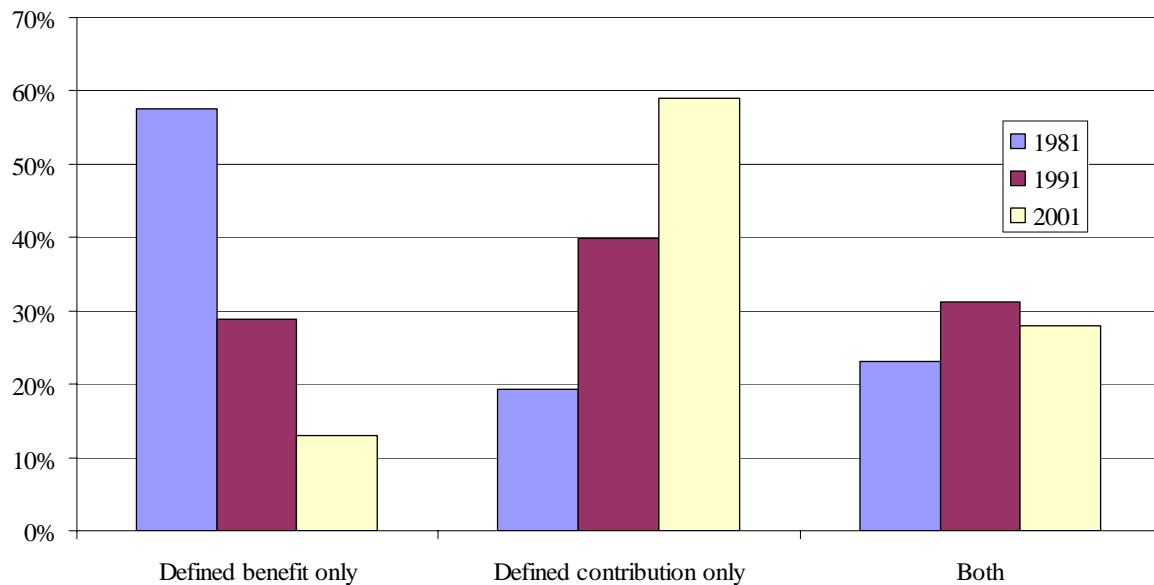


Source: Fast Facts and Figures about Social Security, 2004, SSA Office of Policy Publication No. 13 11785

Figure 10

Pension coverage has shifted to defined contribution – 401(k) – plans.

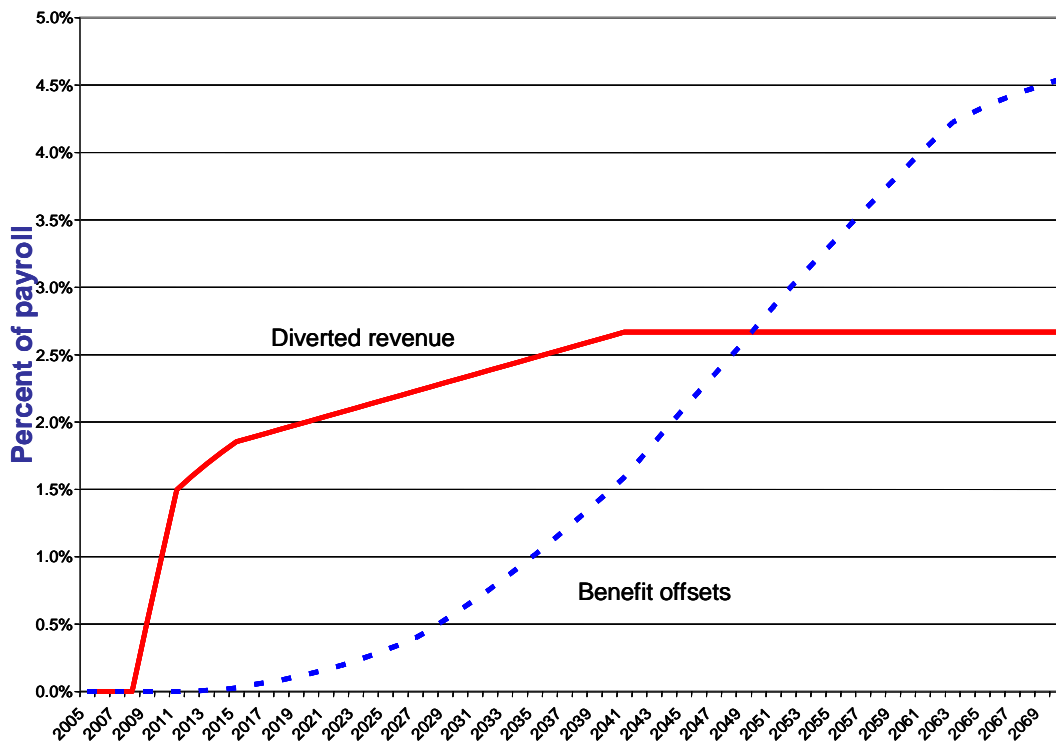
Percent of Wage and Salary Workers with Pension Coverage by Type of Plan, 1981-2001



Source: U.S. Department of Labor. 2004. *Private Pension Plan Bulletin: Abstract of 1999 Form 5500 Annual Reports*; Alicia H. Munnell's calculations from Board of Governors of the Federal Reserve System. 2003. *2001 Survey of Consumer Finances*.

Figure 11

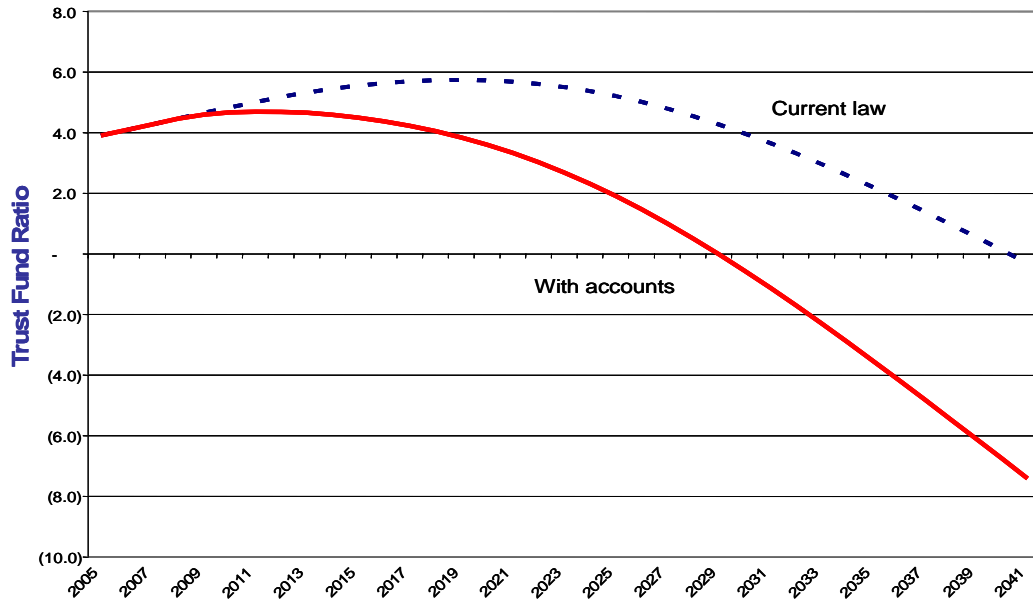
Cash flow Effect from Administration's Individual Retirement Plan



Source: Calculation provided by Jason Furman.

Figure 12

Trust Fund Ratio under Administration's Individual Account Plan



Source: Calculation provided by Jason Furman.

**EFFECT OF “PRICE INDEXING” OR
“REAL WAGE DEFLATING”
ON BENEFITS**

Age When Implemented	Change in Benefits from this Reform
55	-0.0%
45	-9.6%
35	-18.2%
25	-26.0%
15	-33.1%
5	-39.5%
0	-42.5%

Note: Calculated as $1 - (0.99^{55 - \text{age}})$, assuming real wage growth rate is 1 percent per year.

Source: Calculation provided by Jason Furman.

Figure 14

**EFFECT OF “PRICE INDEXING” OR
“REAL WAGE DEFLATING”
ON BENEFITS**

Age When Implemented	Change in Benefits from this Reform	
	with 1% real wage growth	with 1.5% real wage growth
55	-0.0%	-0.0%
45	-9.6%	-14.0%
35	-18.2%	-26.1%
25	-26.0%	-36.5%
15	-33.1%	-45.4%
5	-39.5%	-53.0%
0	-42.5%	-56.4%

Note: Calculated as $1 - (0.99^{55-\text{age}})$, and $1 - (0.985^{55-\text{age}})$.

Figure 15

BENEFIT REDUCTION FROM INCREASE IN NORMAL RETIREMENT AGE FROM 67 TO 70

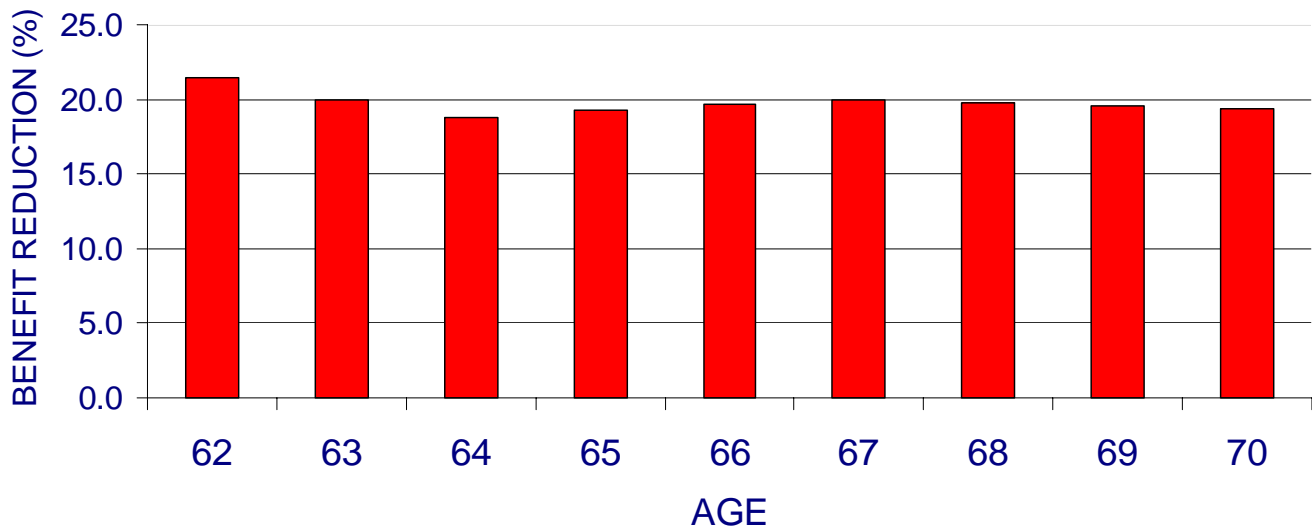


Figure 16

Benefit Cut from One-Year Increase in the State Pension Age (in percent)

