

The Economics of Social Security: An Old Keynesian Perspective

Abstract

Public policy makers are talking of a looming crisis in public pension arrangements. They emphasize demographic developments combined with the Pay-As-You-Go nature of public pension schemes. Their solution usually involves a reduction in benefits achieved by raising the retirement age, a move to pre-funding, and investing in equities. This paper examines the economic implications of such policies from an old Keynesian perspective. Such policies will not resolve the problem posed by having a large cohort of retirees, and may exacerbate it. Pre-funding could be deflationary and actually retard capital accumulation.

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I Introduction

Public policy makers around the world are increasingly talking of a future crisis in public pension arrangements. This new perception is evident in the World Bank's (1994) study entitled Averting the Old Age Crisis. In the U.S., the new perception is evident in the emerging debate over the future of the social security system, which is being driven by the fear that the future retirement of baby boomers poses a financial burden of crisis proportions.

Proponents of a looming crisis emphasize demographic developments combined with the pay-as-you-go (PAYG) nature of existing public pension schemes. Their solution usually involves some form of reduction in benefits achieved by raising the retirement age, combined with a move away from PAYG to pre-funding. This paper examines the economic implications of these types of solutions from an old Keynesian perspective. The conclusion is that such solutions will not resolve the problem posed by having a large cohort of retirees, and may actually exacerbate the problem. A move to pre-funding could be highly deflationary, and could actually retard the process of capital accumulation.

II Is there a retirement demographic crisis in the U.S.?

The key element in the retirement crisis hypothesis is the claim that an increased number of retirees will pose an insupportably large burden on the future working age population. Table 1 provides data on the number of children, non-working working age adults, and retirees per one hundred workers, as well as various measures of the dependency ratio. The retiree dependency ratio is defined as:

(1) Retiree dependency ratio = number of non-working elderly per worker

The table shows a steady increase since 1950, with a major acceleration taking place after 1995. In 1950, there were 0.14 retirees per worker. By 1995, this had risen to 0.22 retirees per worker. Over the next 40 years this increase continues unabated, reaching 0.29 retirees per worker in 2020, and 0.39 retirees per worker in 2040. This constitutes a 75% increase in the retiree ratio relative to 1995. On the basis of table 1, there is indeed *prima facie* evidence of a looming crisis.

An alternative way of viewing the problem of supporting the aged is to view them as part of the economically inactive population. Society's burden is then determined by reference to the number of economically inactive persons that must be supported. This gives rise to the notion of an economic dependency ratio which is defined as:

(2) Economic dependency ratio = economically inactive persons per worker

The economic dependency ratio is obtained by summing the populations of retirees, non-working adults of working age, and children and dividing by the number of workers.

The economic dependency ratio presents a completely different picture of the economic burden confronting society. Though the absolute number of retirees per worker is increasing, the economic dependency ratio has been falling since 1960. Though it begins to rise after 1995, this rise is relatively small because of the large and steady decline in the number of children and non-working adults per 100 workers. Fewer children and increased working age adult labor force participation therefore offsets the effect of an increase in the number of retirees.

The economic dependency ratio peaked in 1960 at 1.56, and has fallen steadily since. The peak level that obtained in 1960 was attributable to the baby boom and the low level of

female labor force participation.¹ Since then it has fallen, and it stood at 1.03 in 1995. Though projected to rise in the future, in 2040 it will only be 1.15. This constitutes an 11.6% increase relative to 1995. In sum, the economic dependency ratio reveals a significantly different picture compared to the retiree ratio. Instead of a looming demographic crisis, there is a mild upturn in the extent of economic dependency.

The economic dependency ratio provides a body count measure of economic dependency. However, workers are actually becoming more productive over time owing to technological progress, and this reduces the real burden of supporting the economically inactive. If technological progress is labor augmenting, as is commonly claimed to be the case, then it is as if the "effective" number of workers is increasing. From 1950 - 1970, labor productivity growth averaged 3% per annum: from 1970 - 1980 it averaged approximately 2% per annum, and since then it has been growing in the region of 1% per annum.

These productivity growth rates can be used to calculate the number of "effective" workers, defined as the number of workers augmented by the cumulative effect of productivity growth.² This gives rise to the notion of an effective economic dependency ratio which is defined as

¹ In comments made at an IMF seminar on the pension crisis, Aaron notes that the economic dependency ratio is endogenous, principally as a result of female labor force participation. In those countries with low female labor force participation rates, this provides a means for alleviating the burden posed by an increased elderly population.

² The number of effective retirees is also increased as a result of technological progress because social security payments are computed using career earnings which rise with productivity. However, post-retirement social security payments are not linked to real wage growth, so that growth of effective retirees only takes place at the margin, which is a second order effect. The number of effective workers is determined as follows:

$$N(t) = [1 + n + g]N(t-1)$$

(3) Effective economic dependency ratio = economically inactive
population per effective worker

Taking account of the labor enhancing effects of productivity growth dramatically changes the picture. The effective economic dependency ratio now falls continuously, and there is no indication of a looming old age crisis. The effective dependency ratio was actually at its highest in 1950 when there were 1.42 dependents per effective worker. By 1995 it had fallen to 0.40 dependents per effective worker, and by 2040 it is predicted to be a mere 0.29 dependents per effective worker. Moreover, this projection is based on the assumption of labor productivity growth of 1% per annum over the period 1995 - 2040. If productivity growth returns to the faster rate that prevailed in the 1950s and 1960s, as believers in the "new economy" are claiming it will, then the effective dependency ratio will be even lower.

The effective economic dependency ratio provides the true measure to society of the burden posed by the non-economically active population. For society as a whole, this burden has been falling. However, that does not mean that it has been falling for individual workers. If workers are sharing in the fruits of technical progress through higher wages, then it is as if each "actual" worker is an "effective" worker, and the burden is indeed declining. However, if wages are not rising, then the burden on workers of supporting the increased number of retirees is increasing.

where $N(t)$ = effective workers at time t , n = population growth rate, g = productivity growth rate. The number of effective retirees is:

$$E(t) = E(t-1) + r[1 + g]P(t-1)$$

where $E(t)$ = effective retirees at time t , r = retirement rate, $P(t-1)$ = number of actual workers at time $t-1$. The population of effective retirees grows slower than that of effective workers because the population of effective retirees only grows at the margin through the inclusion of new retirees, whereas the entire population of workers is augmented by productivity growth. The product of r and g is a second order effect.

This reveals how the issue of income distribution is central to the problem of supporting a growing population elderly. Not only must total productivity be growing, so that society has enough total income to provide for the elderly, but the income must get into workers' hands. That is the income must first get into the hands of those paying for the retirement system, and then get transferred to retirees. If the system is financed through payroll taxes, then wages must also grow. Absent this, the burden on workers of supporting the elderly will grow. Avoiding wage stagnation is therefore central to successfully reducing the burden of public pensions financed by a by payroll taxes.

This last point reveals how the method of assessing contributions is important. If the public pension scheme is funded by a payroll tax, then the burden of the scheme is profoundly affected by the pattern of wage growth. However, if the public pension scheme is financed out of the general income tax, and income tax receipts are proportional to GDP, then the pattern of wage growth is no longer important (though of course it remains important to individual households). For the latter case, all that matters is GDP growth: if wages stagnate and profits grow, contributions to the public pension scheme continue to grow through taxes on profits. This reveals how funding public pension schemes through a payroll tax rather than the general income tax, introduces a major additional concern with the functional distribution of income.

III Economics and the financial design of public pension schemes

The above analysis reveals that enhanced productivity growth is critical for reducing the burden of supporting a growing population of retirees. It also reveals that avoiding wage stagnation and having wages rise with productivity growth is also critical in a payroll

financed public pension system. Growth and income distribution are therefore key elements in the economics of public pensions.

Another dimension of the economic problem concerns the "financial" side of public pensions, and relates to the design of the public pension scheme. Here the issues are twofold. First, should public pension systems be PAYG or should they be "pre-funded" through advance accumulation of financial claims? Second, if public pension schemes are to be pre-funded, what should be the "investment policy" governing monies paid into the scheme and who should exercise control over these monies?

These public pension scheme "design" questions raise fundamental economic issues. The question of pre-funding concerns economic growth. Providing for a large aging cohort requires that the economy grow so that future income is available to support this group once it becomes economically inactive. This requires accumulation of physical and human capital for purposes of future production, and this process of accumulation may be impacted by the funding regime.

The question investment policy and control concerns the nature of the distributional mechanism for ensuring that income gets into the hands of retirees. Not only is there a need to grow the economy and grow wages so as to get monies into the public pension scheme, but the scheme must be designed so that these monies are delivered into the hands of retirees. In effect, public pension schemes are a financial time machine. Workers put money in today, and get money out in the future: money today represents a claim on current output, while money in the future represents a claim on future output. How contributions are invested and controlled affects the extent and the security of future claims on output that contributors will receive. The economic problem is to design a scheme that

ensures that future retirees (i.e. current contributors) get an appropriate share of future output. In this sense, public pension schemes are distribution mechanisms: a well designed scheme takes a fair share of today's economic cake and ensures that contributors get a fair share of the future economic cake. Moreover, it does so without disrupting economic activity.

Enhancing economic growth by appropriate choice of funding regime, and ensuring that future retirees get a fair share of future output by appropriate choice of pension distribution mechanism, are at the core of the public pension design problem. However, the problem is further complicated by the fact that there may exist feedbacks between the pension distribution mechanism and the rate of economic growth: that is, choice of pension distribution mechanism may impact the rate of economic growth.

Figure 1 provides a 3 x 3 matrix with nine cells. It describes alternative public pension design schemes. This figure can be used to understand the problematic for growth and distribution posed by public pensions. The columns are headed "pre-funding" which refers to the extent that future pension obligations are provided for. "Full pre-funding" occurs if there is 100% provision; "partial pre-funding" involves less than full provision but there is still some accumulation of financial assets as revenues exceed outlays: "none" refers to a pure PAYG scheme in which the public pension system holds no financial assets and pensions are paid out of current tax revenues.

The rows are headed "privatization" which refers to the type of assets that contributions are invested in and the legal pattern of holding arrangements. "Strong privatization" involves contributors controlling some or all of their contributions and allows them to invest in equities. "Weak privatization" has the public pension scheme controlling all

contributions, but allows the scheme to invest in equities and corporate bonds. "No privatization" has the scheme controlling all contributions and investing only in government bonds. In principle, pension arrangements can involve combinations of schemes. Thus, contributors might have full control over some portion of their contribution while the state scheme might control the balance and hold only government bonds.

PRE-FUNDING

PAYG schemes have no pre-funding. Social security is currently a partially pre-funded scheme. Until the early 1980s it was a *de facto* PAYG scheme. However, as a result of the Greenspan Commission's (1983) raising of social security contributions, it has become partially pre-funded with the trust fund now accumulating a surplus. One element in the current debate is should the extent of pre-funding be further increased by raising the social security tax.

The pre-funding debate is directly relevant to the question of capital accumulation and economic growth. At heart is the question of whether "saving causes investment" or whether "investment causes saving". This is a debate that has a long history in macroeconomics, reaching back to the 1930s and the debate between Keynes and the classics. Those (classical economists) who believe that saving causes investment support increased pre-funding. The argument is that investment (i.e. capital accumulation) requires resources, and these resources must be made available through saving. Those (Keynesian economists) who believe that investment causes saving see no reason to pre-fund, and even see potential dangers in such a course of action. For this group, capital accumulation is

driven by firms who first undertake investment spending, and once this investment spending has been accomplished it is counted as saving.

For Keynesians, it is not saving that is the constraint on capital accumulation: rather, it is limitations on the incentive to invest. Such limitations include low rates of profitability, high real interest rates arising from excessively tight monetary policy, and an insufficiently entrepreneurial business sector. There is empirical support for the Keynesian claim that saving does not cause investment. Almost all corporate investment is financed out of retained corporate earnings, while net household saving is approximately zero, with households merely lending to each other in aggregate (Pitelis, 1987; Ruggles and Ruggles, 1993). Vector autoregression models show that impulses to investment do positively affect saving, but impulses to saving do not impact investment (Palley, 1997a).

Though saving does not constrain investment, financial constraints can. However, such constraints have nothing to do with a shortage of saving. Instead, they reflect congestion in financial markets that arises because of insufficient liquidity or an excessive degree of liquidity preference. Thus, banks and financial intermediaries may be short of liquidity owing to a monetary tightening imposed by the central bank, or they may be unwilling to lend because of excessive risk aversion. Alternatively, firms may be constrained in their investment spending plans by low levels of corporate cash flow (Fazzari et al., 1988).

The one occasion on which the two views come together is when the economy is at full employment. In this event, both classicals and Keynesians agree that more saving is needed if there is to be additional investment. With the economy at full employment, there is no more spare capacity to put to work. If society wants more output in the form of investment goods, then resources must be released by cutting back production for private or

government consumption: voluntarily reduced private consumption implies increased private saving, while reduced government spending implies increased government saving. Alternatively, private consumption can be cut by higher taxes which can be viewed as a form of mandatory saving. The economic logic is illustrated by the national income identity for a closed economy whereby

$$(3) Y^* = C + I + G$$

where Y^* = full employment output, C = private consumption, I = investment spending, and G = government spending. With output fixed, increasing I requires decreasing C or G . However, though the two paradigms can agree, classicals believe the economy is at full employment almost all the time, whereas Keynesians believe that the economy spends large portions of time short of full employment.

The classical view dominates economic thinking today, and this has contributed to the push for increased pre-funding of pensions. In the U.S. there is a push to increase the extent of pre-funding of social security, and both the World Bank (1994) and the IMF (Chand and Jaeger, 1996) recommend similar policies for pension schemes in other countries. This new policy stance risks serious economic damage. If the Keynesian view that investment causes saving is correct, the new policy stance could have a significant deflationary impact on the economy, thereby raising unemployment and slowing growth and capital accumulation.

The push for additional pre-funding involves large increases in mandatory saving, either in the form of private saving accounts or public pension contributions. This threatens to reduce aggregate demand (AD) and create weakness on the spending side, which will in turn translate into reduced capacity utilization and profitability. Firms will then cut back on

investment. Europe is already suffering from a shortage of AD that has generated a jobs crisis. High real interest rates, the dominance of natural rate unemployment theory amongst central bankers, a systemic tendency to tight monetary policy owing to the threat posed by capital flight, and fiscal tightness imposed by the Maastrich Treaty, have all contributed to a contractionary environment. A generalized European shift to pre-funding would exacerbate these difficult conditions.

In the U.S. the situation is somewhat different. The extent of pre-funding was increased in the early 1980s as a result of the Greenspan Commission's (1983) recommendation to raise social security payroll taxes. However, at the same time the Federal government shifted into large structural deficit as a result of the 1981 tax cuts and defense build-up. This offset the deflationary impact of increased pre-funding. The Federal Reserve has also been willing to let interest rates move pro-cyclically, and this has also helped stabilize AD. In pursuing this course, the Fed has been helped by the fact that the dollar has not been subject to the same threats of capital flight as have afflicted European countries. Other factors contributing to healthy AD conditions within the U.S. economy include the spending resulting from the baby boom generation having children of their own, the culture of consumer borrowing, and the willingness of banks to finance such borrowing.

Some of these forces are now unwinding, so that pre-funding (especially if it is further increased) can be expected to exert a more deflationary impact in the future. However, even here the U.S. is protected from itself by the fact that the Medicare program is expected to run substantial deficits which rise from \$20 billion in 1998 to \$121 billion in 2006.³

³.Social Security and Medicare Boards of Trustees, 1997.

From a Keynesian perspective pre-funding of public pensions is deflationary. The move from PAYG to full pre-funding also has additional deflationary "transition" costs. PAYG means that liabilities attributable to past contributions are unfunded, and this means the public pension agency has to play funding catch-up.⁴ Not only must taxes be increased to fully fund new contributions, but taxes must be further increased to fund the accumulated liability on past contributions. An alternative slightly less deflationary way of doing this is to endow the public pension scheme with government bonds equal to the value of outstanding liabilities, but thereafter the interest on these bonds must be paid which requires either increased taxes or decreased government spending.

PRIVATIZATION

The second dimension of the matrix in figure 1 is privatization, of which there are three categories. With regard to the recent Report of the Social Security Advisory Council (1997), all parties favored increased pre-funding: they differed over the extent of privatization. The Maintain Benefits group are essentially for "no privatization", though they leave open the possibility that the social security trust fund could buy equities in the future. Both other groups (Individual Accounts and Personal Security Accounts) contain some element of "strong privatization" but they differ in the extent of pre-funding, with the former having less pre-funding.

Whereas the question of pre-funding turns on the issue of saving - investment causation, the question of privatization raises issues of risk, return, transactions costs, and fairness.

With regard to "no privatization", there is the problem of political risk whereby

⁴.With regard to social security, not only have past contributions been unfunded, but past beneficiaries have been paid out more than they put in. Pre-funding requires that the social security system recoup this past excess payout, which is additionally deflationary.

governments may fail to live up to promises made under the inter-generational compact.

Thus, governments may change both benefits and the retirement age. Though often presented as only applying to schemes such as social security, the problem of political risk is generic to all schemes: through its control over taxation and legislation, government can always alter the flow of benefits under all schemes.

Weak privatization

Weak privatization allows the public pension fund to own equities if it so chooses. Weak privatization raises its own set of problems. First, there is the issue of corporate control. Conservative voices have previously argued against government owning stock on the grounds that it is backdoor nationalization. A modified view is that the government can own stocks but not exercise voting rights. However, this could skew the market for corporate control. Social security will be a big buyer of equities, which will reduce the supply of equities and make it easier for wealthy individuals and big finance to gain control of corporations.

A second issue is the "buy high - sell low" problem. Owing to its size, the social security trust fund will drive up equity prices when it is in accumulating mode. Similarly, it will drive down prices when it is in decumulating mode. The result is that it could end up buying high and selling low, thereby wasting beneficiaries contributions. This could ultimately worsen the distribution of wealth since the wealthy will be sellers in the accumulation period and buyers in the decumulation period.

A third issue is whether stocks are a good investment. The buy high - sell low problem suggests that they won't be. A second reason is that stocks are already full valued at current

price:earnings (PE) ratios. If stocks maintain their existing valuation, this leaves little room for appreciation (Baker, 1997; Palley, 1997b). Such appreciation can only occur if (i) the economy undergoes significantly accelerated real economic growth that allows profits to grow, (ii) there is a further shift in the distribution of income away from wages to profits, or (iii) there is an unprecedented explosion in PE ratios. The first is unlikely given the slow rate of economic growth experienced over the last twenty five years. The second, is hardly a solution to the pension problem since a collapse in wages would also engender a collapse in contributions. The third ultimately risks an asset price deflation such as has afflicted Japan. All three of these outcomes are either unpalatable or unlikely.

Strong privatization

Strong privatization has contributors directly controlling their contributions. It too suffers from the buy high - sell low problem. With lots of small investors buying stocks, this will in aggregate push up stock prices: analogously, when they retire and sell their stocks, this will push down prices. The question of whether stocks are a good investment also remains. Supporters of strong privatization (see Social Security Advisory Report, 1997) hold out the prospect of a 7% annual real rate of return, but this is unlikely on the basis of current market valuations. Instead, a period of returns on par with those of bonds is more likely (Palley, 1997b).

Contributors will also be exposed to greater variability of returns. Stock market returns are more variable. Prices fluctuate on a day-to-day basis, and they are also variable across decades. The 1980s and 1990s have constituted an historic bull market. However, the

1970s saw a ten year period of stagnant stock prices. In Japan, the Nikkei index peaked at slightly over 38,000 in 1989, and as of December 1997 it stands below 16,000.

In addition to market variability, there will also be individual investor variability. Many investors will invest poorly, and this risks a return of poverty amongst the elderly. In this event, the public purse will be left to pick up the charge. Putting in place a publicly supported pension safety net carries a moral hazard problem as contributors may invest in an excessively risky fashion knowing that the safety net exists.

Administrative costs of strong privatization schemes also appear to be much higher. Administrative costs in the Chilean pension system, which is privatized, are estimated to be 5.5 times those of the existing U.S. social security scheme (Diamond, 1993). In 1991, the Chilean system cost \$89.10 per person, whereas the administrative cost of social security was \$18.70. Moreover, these costs are regressive because they are of a fixed nature and spread across all accounts. This tends to hurt low income - low contribution accounts proportionately more.

Strongly privatized schemes also fail to provide a range of insurance benefits that are part of the existing social security scheme. These include disability benefit for workplace injury, and benefits for surviving spouse and dependent children in the event of accidental death. Such schemes also lack a progressive dimension. The rate of return under social security is negatively related to contributions. This is more than just a redistributive feature: it is a form of career income insurance that ensures that even if a worker's career income stream is disrupted, workers still end up with a reasonable old age pension.

Strongly privatized schemes also fail to provide real income protection. Such schemes are vulnerable to both market performance and the effects of inflation, and affordable

private annuity markets that provide guarantees against the effects of inflation do not exist. Finally, market schemes are also exposed to the risk that participants may out live their wealth, either by dint of long life or by squandering it. Social security guards against this risk by insuring people for as long as they live, while borrowing against social security income is difficult because it is not vested in the form of private property.

Transition costs.

A final problem which afflicts both weak and strong privatization schemes concerns transition costs. Both weakly and strongly privatized schemes rely on full pre-funding. This means that contributions are used to purchase financial assets that pre-fund future retirement incomes. However, given the past PAYG nature of social security, the fund still has to make benefit payments to current retirees, and it also has to fund the future benefits of those who have made contributions in the past but have not yet reached retirement age. Meeting these "transitional" obligations therefore requires raising taxes, and once the cost of this tax increase is figured in, the cost of privatized schemes rises dramatically and their rate of return falls.

PRE-FUNDING, PRIVATIZATION AND NATIONAL SAVING

The pre-funding debate hinges on the causality between saving and investment, while the debate over privatization hinges on concerns with guaranteeing economic security during retirement. The matrix in figure 3 treats these issues as separable. However, those favoring privatization argue that the two are linked, and that strong privatization will

increase the level of national saving, thereby increasing investment and capital accumulation. This argument has been made by Feldstein (1997).

Feldstein argues that the strong privatization of social security carries two benefits. First, it would increase national saving, and second it would increase the level of employment by eliminating the distortionary effect of the social security payroll tax on labor markets. In effect, Feldstein claims that the elimination of social security can provide a free lunch that is large enough to deal with any future retirement income problem.

Feldstein's arguments are contestable on the basis of their own logic, on the grounds of rational choice theory, and on the grounds of Keynesian economic theory.

With regard to rational choice theory, Barro (1974) has shown how social security has no effect on national saving in a world with rational forward looking households who are concerned about the well-being of future generations and who leave bequests to their offspring.

With regard to Keynesian theory, the claim that an increase in national saving would result in increased investment reflects the assumptions of classical economics whereby saving causes investment. However, if Keynesian theory is correct, increased saving could actually reduce the pace of capital accumulation by creating a deflationary economic environment.

In addition to these rational choice theory and Keynesian critiques, Feldstein's arguments are flawed in terms of their own logic. A move to strong privatization with full pre-funding would deprive government of the revenues it currently receives through the social security payroll tax. To finance this shortfall, government would need to increase taxes by an equal amount, thereby driving personal disposable income down to its initial

level. Consequently, private saving would be unchanged and so too would net national saving.

The above argument reveals that the debate over privatization of social security may really be a Trojan horse, the real purpose of which is to starve government of revenue. Given the unpopularity of taxes, it is unlikely that government could raise taxes sufficiently to compensate for the loss of the social security payroll tax. Government would therefore be forced to cut spending in order to prevent the deficit from exploding. It is true that this would increase the national saving rate, but it would be done only by reducing government's provision of services. Thus, privatizers' claims that privatization increases national saving argument is actually predicated upon shrinking government. This can be accomplished without any change in the pension system, and arguments about privatization are merely camouflage. If the goal is to cut government, then this is the debate we should be having.

An alternative to increasing income taxes to make up for the lost social security payroll tax is for government to run a deficit financed by bond sales. However, in this case the public must buy these bonds with its pension contributions. In effect, rather than the social security trust fund buying government bonds with social security payroll contributions, the public must buy them. Once again, there is no increase in national saving: instead, the only change is that the public holds the bonds directly rather than the social security trust fund owning them on their behalf. Worse than that, such an arrangement could drive up interest rates. Currently, the social security trust fund automatically invests all contributions in bonds. However, private individuals might choose to invest part of their contributions in equities, resulting in a decline in the demand for bonds. To get people to hold all the bonds

the government would still need to sell to finance itself, interest rates would have to rise, thereby choking off investment. In this fashion, strong privatization could actually lead to decreased saving and capital accumulation (Palley, 1998).

Another reason why fully pre-funded strong privatization could decrease national saving concerns the possibility that households may spend part of their pension contributions. Replacing social security contributions with a mandatory private saving scheme may induce households to reduce other forms of private discretionary saving. This is because saving in a fully pre-funded strongly privatized scheme is a closer substitute for private discretionary saving than is social security wealth, so that increasing households holdings of strongly privatized pension holdings provides an incentive to cut back on discretionary saving.

A second argument for privatization concerns labor markets. Here, the argument is that the social security payroll tax is a distortionary tax that lowers after-tax wages to households, thereby reducing labor supply and employment. Removing the tax would therefore increase labor supply and employment, thereby boosting national income and saving.

However, this labor market distortion argument contradicts the claim that social security displaces private saving. The saving displacement hypothesis is predicated on the claim that social security is a substitute for private saving, and hence households willingness to cut back on private saving. Such reasoning assumes that households view social security wealth as theirs (hence their willingness to cut back on private saving), which implies that they treat it as part of their compensation. However, the labor market

distortion argument assumes that households do not view social security contributions as compensation, which is why they reduce their labor supply.

The empirical evidence suggests that there is a considerable degree of private saving displacement by social security wealth (Feldstein, 1974; Gale, 1995). This evidence suggests that households view social security as wealth, and therefore implicitly view social security contributions as part of their compensation. This in turn rejects the claim of labor market distortion.

In sum, neither the claim that social security distorts competitive labor markets nor the claim that it reduces net national saving stand up to close inspection. The empirical evidence is that households view social security wealth as compensation, while economic theory suggests that replacing the social security tax with a fully pre-funded strongly privatized pension scheme will not increase national saving. Indeed, if the size of government were left unchanged, there is a strong argument that privatization could actually decrease national saving.

CONCLUSION: KEEPING THE SCALE OF THE PROBLEM IN FOCUS

The U.S. social security system is currently under attack, as are PAYG public pension systems in general. These systems have worked well in the past, but there are real financing problems owing to the ageing of populations, slower wage growth, and shifts in the distribution of income. Arguments for privatization encourage a mentality whereby these real economic problems can be side-stepped by just changing the pieces of paper that people hold. This is an illusion. More than that, privatization may compound the retirement

income provision problem if Keynesian arguments about saving - investment causation are right.

To avoid being misled by the rhetoric of "crisis" it is important that the scale of the problem be kept in focus. The 1996 Advisory Council Report identified a social security financing shortfall over the next 75 years equal to 2.23% of taxable payroll. Over this 75 year period taxable payroll is projected to average 37.7% of GDP (in 1997 it was 40.5% of GDP). Putting the pieces together, this means that fully funding social security requires finding 0.84% of GDP and permanently transferring it for use by social security. 0.84% of GDP is a large amount of money, but such shifts of national output have been readily accomplished before when the U.S. has sought to implement defence build-ups. With an ageing population, a shift of this magnitude is neither impossible nor unjustified.

The fact that taxable payroll is projected to shrink as a percentage of GDP highlights the significance of income distribution for resolution of the public pension problem. The projected shortfall is 2.23% of taxable payroll, while the current payroll tax rate is 12.4%. This implies a need to find an 18% increase in net revenues. If taxable payroll were to remain at its 1997 level of 40.5% of GDP, instead of shrinking to 37.7%, this would generate a 7.4% increase in net revenues. Deleterious shifts in the distribution of income and compensation therefore account for 41% of the projected shortfall.

The implication is clear: the distribution of income matters for the viability of public pension systems. Not only must the economy grow and there be a well designed pension distribution mechanism for getting income into the hands of retirees, but growth must be accompanied by an appropriate functional distribution of income. The issues of pre-funding and privatization which concern growth and the mechanism for distributing

income to retirees, sit atop the problem of income distribution. In all schemes, retirement income is related to career income. If people are going to have an adequate retirement income, then they must have an adequate career income out of which they can make appropriate saving into the public pension scheme, however organized. The problem of pension adequacy cannot be hived off and considered separately from the rest of the economy: instead, it is intrinsically connected to economic performance regarding growth and income distribution.

This significance of income distribution is evident in the current funding shortfall that afflicts social security. The Greenspan Commission of 1983 believed it had solved social security's funding shortfall by raising the payroll tax rate. However, the wage stagnation and increase in wage inequality that has since afflicted the U.S. economy has resulted in a renewed shortfall. Slower wage growth has led to a drop-off in the overall level of contributions (decreased revenues). Increased wage inequality has increased the proportion of low wage contributors who earn a higher rate of return on their contributions, and it has also increased the share of non-taxable payroll. The former has increased the liabilities of the trust fund by increasing the pay-out rate of return, while the latter has reduced contributions. Remedying wage stagnation and wage inequality are therefore both intrinsic parts of solving the public pension problem where it is payroll funded.

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Year	1950	1960	1970	1980	1995	2020	2040
Workers	100	100	100	100	100	100	100
Children	78	94	85	62	56	50	48
Non-Working Adults	50	44	38	31	25	29	28
Retirees	14	18	19	21	22	29	39
Effective Workers	100	134	181	220	255	327	400
Retiree dependency ratio	0.14	0.18	0.19	0.21	0.22	0.29	0.39
Economic dependency ratio	1.42	1.56	1.42	1.14	1.03	1.08	1.15
Effective economic dependency ratio	1.42	1.16	0.78	0.51	0.40	0.33	0.29

Table 1 Children, non-working adults and retirees per 100 workers plus alternative measures of the dependency ratio.

Source: H.Aaron, Brookings Institution and author's calculations. The number of effective workers was calculated using 3% productivity growth for 1950-70, 2% for 1970-80, and 1% for 1980-2040.

		PRE-FUND		
		FULL	PARTIAL	NONE
PRIVATIZE	STRONG	Privately held accounts	Privately held accounts + govt. pension	X
	WEAK	Bonds and stocks held by soc.sec. trust fund	Bonds and stocks held by soc.sec. trust fund	X
	NO	Govt. Bonds only	Govt. bonds only (current U.S. system)	P.A.Y.G.

Figure 1 Different schemes of financing social security.

THE PROBLEM OF FUNDING AND CAPITAL ACCUMULATION

Though the greying of America does not constitute a crisis, there will undoubtedly be an increase in the proportion of old age persons to working age persons owing to the demographics generated by the baby boom. Handling this bulge poses problems that cannot be avoided.

If social security is funded on a PAYG basis, then there will be a need either to raise taxes or cut government spending when the boomers retire. Raising taxes creates potentially creates two sets of problems. First, it is disliked and risks generating an age war between retirees and workers. Second, it risks adverse supply-side effects that lower the level of output if economically active agents respond to tax increases by reducing their level of productive activity.

If social security is pre-funded by accumulating government bonds, there is a need to sell off the accumulated stock once boomers retire. This risks driving bond prices down and interest rates up, which could have adverse consequences for the level of economic activity. This could be mitigated by having the Federal Reserve monetize these bond sales, but this in turn risks generating a monetary inflation. With a relative shortage of young workers, pumping money into the economy could lead to excess demand.

Finally, if social security is funded by the acquisition of equities (be it in private accounts or the social security trust fund), there is the buy high - sell low problem. When boomers retire there will be a need to liquidate the accumulated portfolio of equities, and this sell-off risks driving stock prices down. This could inflict large capital losses and reduce retirees wealth, thereby undermining their ability to provide sufficient retirement

income. In short, the objective fact of an unusually large cohort of retirees poses financing problems that are unavoidable. Tampering with the scheme of arrangement merely replaces one set of problems with another.

On the financial side, the method of funding is problematic, with each raising its particular set of difficulties. On the real side, the ability to accumulate a sufficient level of capital is problematic....

SOME NORMATIVE PRINCIPLES FOR PENSION DESIGN

The design of public pension arrangements involves both economic and social concerns. Social concerns inform what is desirable, while economics informs how society can best achieve its desired outcomes. With regard to the U.S. system of social security, some "core principles" that should always inform the system include:

(a) Participation must be mandatory. It is the near universal aspect of social security that allows extensive risk-pooling that underwrites their insurance function. Mandatory participation guards against "cherry picking". In its absence, private schemes will cream off the best risks, leaving the public pension scheme to cover the worst risks, those risks the market can't cover, and those who can't afford market coverage.

(b) Social security constitutes a retirement programs and not welfare. Persons receiving pensions have earned their retirement and can retire with dignity. They are not a charge upon the state.

(c) Social security must serve the needs of families. Thus, not only should it provide retirement income, but it must also provide a range of insurance benefits including disability benefits and surviving spouse and dependent child benefit.

(d) Social security must ensure a a secure source of retirement income. Retirement should honor a lifetime of work, and the level of retirement income should reflect this. It should not be contingent upon the whims of the stock market.

(e) Social security must ensure that the old cannot outlive their income. People are living longer owing to improved medical care and lifestyles, and there is a need to ensure that they do not become destitute because of the blessing of an extended life. social security must ensure that the honor of old age is not stained by the fear that one might live too long.

Which schemes satisfy these core principles? Here the issue is the nature of privatization rather than pre-funding. Strong privatization fails to satisfy these principles because it exposes people to massive retirement income uncertainty and the prospect of out living their wealth, while failing to meet the insurance needs of families. However, schemes with weak privatization and no privatization do satisfy these principles

The extent pre-funding is not relevant. The argument about pre-funding turns on the extent to which it aids the process of capital accumulation and the extent to which it is deflationary