Optimal Retirement Portfolios: Social Security Personal Accounts in the Context of the Four Pillars

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The United States debate on Social Security reform is centered on the transition of the public pension system from a pure defined benefit plan to one that would include individual defined contribution accounts. Largely missing from the debate on personal accounts are analyses of potential interactions with other Social Security programmes and the aggregate shift in risk burdens concerning retirement security. This paper provides insights into both issues within the context of personal accounts and the four pillars. We argue that a transition to a personal account system places additional stress on other Social Security programmes and shifts retirement security risk burdens from the national government to individual households. As well, the change would not effectively reduce potential long-run liabilities for the national government since U.S. society is unlikely to tolerate increases in elderly poverty or homelessness. Indeed, potential long-run liabilities may be greater due to the increased investment and longevity risks that would be borne by households.

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Introduction

Many developed nations, motivated by growing fiscal and demographic pressures, are reconsidering the structure of their social welfare programmes. In the United States the current restructuring debate centres on the Social Security system, and in particular the public pension component of that system. One position in this debate advocates the creation of a new system of personal defined contribution style accounts that would be carved out of the current defined benefit system. Proponents of personal accounts point to the potential for increased household retirement wealth since personal accounts could be invested in private equity markets, thereby offering greater long-term average returns than the current Social Security system. Largely missing from the debate on personal accounts are analyses of potential interactions with other Social Security programmes and the shift in risk burdens for retirement security. The objective of this paper is to provide insights into both issues within the context of personal accounts and the four pillars. We argue that a transition to a personal account system places additional stress on other Social Security programmes and shifts retirement security risk burdens from the national government to individual

households. As well, this shift in risk burdens may not effectively reduce potential long-run liabilities for the national government as U.S. society is unlikely to tolerate increases in elderly poverty. Indeed, potential long-run liabilities may be greater due to the increased investment and longevity risks that would be borne by households.

In the early 1980s, the U.S. instituted a series of changes that resulted in partial pre-funding of the Social Security system.¹ While these changes extended the solvency of the programmes within the system, they have not been sufficient to provide long-run actuarial balance to any programme.² Given the current expectations of trust fund exhaustion, there is an appeal to diversification proposals that could add greater yield and perhaps lower risk. Of the two basic approaches to diversification, either managing the assets in aggregate or letting participants manage them individually, almost all current proposals advocate the individual approach.³ The appeal is reasonable and consistent with recent private sector experience. Indeed, in the past 25 years roughly 50 per cent of U.S. workers covered by employer-sponsored retirement plans have experienced a transition from a defined benefit environment with aggregated assets and risk burdens to a defined contribution environment with individual assets and risk burdens. A primary issue addressed in this paper is whether it is socially efficient and equitable for individual workers to take on even larger responsibilities for their own retirement security.

This article continues with an overview of the system and provides economic and programmatic analysis, of current considerations for reform in the broad context of the four pillars. The next section provides an overview of the U.S. retiree social insurance programme, including consideration of programme generosity and current dynamic stresses. The forthcoming section discusses perceptions of public pensions as assets or insurance. In the subsequent section we consider system dynamics in terms of personal accounts and given current pay-as-you-go system legacy costs.⁴ The section on the distribution of retirement risk burdens discusses the distribution of retirement risk burdens in the context of the four pillars. After developing this framework, we consider optimal public pension programmes in the context of observed U.S. retirement security risk allocations. Finally a summary and some final thoughts are given.

Social security: a system of programmes

The modern U.S. Social Security system is comprised of several retirement security programmes. The Social Security Act, as first enacted in 1935, introduced the first two

¹ These changes increased contribution rates and decreased expected lifetime benefits.

² There is a dynamic tension between the adequacy of social insurance programmes to prevent poverty and the sustainability of such programmes given any standard of adequacy. Richardson and Seligman (2005) explore attributes of systems that meet both conditions.

³ All sides in the debate recognize that widespread public ownership of the private capital stock is anathema to U.S. society.

⁴ Legacy costs arise as a first generation benefited from the pay-as-you-go programme without paying in to the programme, and have increased marginally several times as the programme(s) expanded – as expansions tend to create windfalls for all persons in covered employment who are past the age of labour force entry (20–25) at the time the changes are implemented. A detailed description of legacy costs can be found in Diamond & Orzag (2004).

components – Old Age and Survivors Insurance (OASI) and Supplemental Security Insurance (SSI). A national programme for Disability Insurance (DI) was added in 1954, with national programmes of Hospital Insurance (HI) and Supplemental Medical Insurance (SMI) enacted in 1967.⁵ In this section, we discuss national programmes basics, coverage, and interactions.

OASI is a near-universal coverage,⁶ mandatory public retirement income security programme designed to provide anti-poverty insurance for covered retirees, their spouses, and dependents. In general, workers become fully insured under the programme by earning income subject to at least a minimum level of OASI tax each year for at least 10 years. Once fully insured, workers are eligible to receive a full retirement annuity beginning at a statutory-determined normal retirement age (ranging from age 65 to 67 years, depending on birth cohort) or receive a reduced retirement annuity beginning as early as age 62 years. The OASI tax rate is currently 10.6 per cent of taxable labour earnings, of which half is paid out of employee salary and half from employer contributions. Since there is a maximum amount of earnings subject to the tax, higher income workers can contribute at an average rate below that of lower income workers, making the contribution system slightly regressive. By contrast the benefit system is highly progressive; workers with lower lifetime earnings receive an annuity that replaces a larger proportion of their average lifetime earnings. In the event of a worker's death, qualified spouses, ex-spouses, and dependents are eligible to receive the worker's benefit. Current programme benefits are paid out of the OASI Trust fund, which is financed through payroll tax contributions, interest payments from intra-governmental debt, and income tax payments from a means-tested tax on OASI benefits. By law, benefits may not be paid from general revenue. The OASI trust fund is projected to be exhausted by 2043.

DI is a near-universal coverage, mandated disability income programme for covered workers, their spouses, and dependents. In general, workers become fully insured by paying a minimum level of DI tax each year for at least 10 years. In addition, a worker must have significant recent work experience to be eligible for disability insurance benefits. The DI tax rate is currently set at 1.8 per cent of taxable labor earnings, with half paid out of employee salary and half from employer contributions. An important consideration for readers and others developing reform proposals is the calculation of DI benefits; these calculations are purely a function of insured status and projected OASI benefits. The administration of the DI programme is similar to that for OASI, with contributions and benefits flowing through a government managed trust fund. By law, benefits may not be paid from general revenue. The DI trust fund is projected to be exhausted by around 2027.

SSI is a universal coverage income security programme, whose main purpose is the alleviation of poverty for retirees and disabled workers who are not otherwise adequately covered or protected by the OASI or DI programmes. Unlike those programmes, SSI does not require contributions to become insured and does not have

⁵ The latter two programmes are commonly referred to as Medicare.

⁶ OASI covers about 95 per cent of workers, with exceptions for some state and local government employees, federal workers hired prior to 1984, and those who opt out due to religious convictions.

a trust fund. Rather, benefit payments are drawn from the general fund of the U.S. Treasury.

HI is a universal coverage, retiree hospital insurance programme. In general, base eligibility for benefits begins at the age of 65, though there is an exception for disabled workers receiving benefits from the DI programme.⁷ Most workers become fully insured by paying at least a minimum level of HI taxes each year for at least 10 years. Workers who are in jobs not covered by the HI programme have the option of buying into the programme by paying a monthly premium. Prior to 1991, the HI programme used the same tax base as the OASI and DI programmes. After 1994, contributions to the HI programme were uncapped, with all labour earnings covered by the HI programme now subject to a 2.9 per cent tax, of which half comes from employee salary and the remainder from employer contributions. The HI programme provides insurance coverage for a range of benefits covering hospital, nursing home, hospice, and home health care. Participating retirees are required to pay a portion of the cost of care in the form of deductibles and co-payments. Note that while the minimum age for full OASI benefits is currently increasing from 65 to 67 years, eligibility for HI benefits begins at 65 years. Benefits paid out of the HI trust fund are financed by worker contributions, interest and principal payments on intra-governmental debt, and retiree premiums. By law, the benefits may not be financed from general revenue. The HI trust fund is projected to be exhausted by 2020.

SMI is a universal coverage, retiree Supplemental Medical Insurance programme. It covers all aspects of medical care (within limits) not covered by the HI programme. In general, base eligibility for benefits begins at age 65 years; disabled workers receiving benefits from the DI programme may become eligible prior to reaching this age. Participants become eligible for benefits by paying monthly premiums,⁸ the level of which is determined by HI eligibility. Participants are also required to pay a portion of the cost of care in the form of a deductible and co-payments. Benefits paid out of the SMI trust fund are financed by participant premiums and dedicated funds from the general fund of the Treasury. By law, the SMI trust is adequately funded in the long-run.

Programme generosity and standards of living

In addition to the expansion of benefit programmes, the various programmes have become more generous over time. For example, the introduction of early retirement benefits in the early 1960s, automatic cost of living and wage indexing of OASI benefits in the 1970s, and the expansion of Medicare benefits have all contributed to a dramatic decline in elderly poverty rates. Official poverty rates for those over age 65 years have fallen from 35 per cent to about 10 per cent in the U.S. since the early

⁷ Qualified disabled workers can receive HI benefits 2 years after first becoming eligible for DI benefits.

⁸ These premiums are not inconsequential. For 2005, Part B premiums for HI covered retirees are \$78.20 per month. For 2006, the premium will rise to \$89.20. For the 10-year period 1996–2005 Medicare Part B Premiums increased by 84 per cent. During the same period the general price level rose by roughly 24 per cent and the price of medical goods and services increased by roughly 41 per cent in the U.S., as measured by the Consumer Price Index (CPI-U), U.S. Bureau of Labor Statistics, Centers for Medicare and Medicaid Services, and Connolly (2005).

Table 1 U.S. public insurance programs

<i>Program</i>	<i>Trust fund</i>	<i>Payroll taxes</i>	<i>Exhaustion year^a</i>
Old age and survivors insurance	Yes	Yes	2043
Disability insurance	Yes	Yes	2027
Hospital insurance	Yes	Yes	2020
Supplemental medical insurance	Yes	No	None
Supplemental security insurance	No	No	NA

NA, not applicable.

^aSource: 2005 Social Security and Medicare Trustees' Reports.

1960s. In turn, this has enabled more workers to exit the workforce earlier and to enjoy higher standards of living in retirement. In fact by some measures the current OASI programme can be argued to be too generous,⁹ thus for the poorest covered workers, Social Security is at least adequate. For those further along the income distribution, Social Security replacement rates are not sufficient to provide for adequate income replacement against retirement poverty risk. For these populations, the other three pillars of retirement income remain very important.

Trust fund dynamics, regulation, productivity and demographics

Table 1 and Figure 1 provide synopses of the national programmes. Interestingly, the OASI trust fund is most financially sound, with trust fund assets sufficient to pay full benefits until 2043. The HI trust fund is in the most severe crisis, which may lead one to speculate why the U.S. government is focusing on a long-horizon, relatively manageable problem while ignoring a short-term funding crisis.¹⁰

While there has always been an OASI trust fund, for most of the programme's history the asset balances have been negligible, with benefits financed by contributions on a pay-as-you-go basis. Since the 1983 reforms,¹¹ the fund has been in an accumulation phase, but at some point in the next 10–15 years, the trust fund will begin to draw against these assets (as shown in Figure 1). Some time around 2043 the trust fund will be exhausted, and collections from then-current workers will only cover roughly 75 per cent of yearly obligations. As noted above, current law prohibits the national government from covering the shortfall with general revenue. We should note here however that there is nothing to preclude the government from amending the Social Security Act to allow for general fund payments. Indeed, in the year prior to

⁹ The basis for this argument relies on a comparison of poverty rates across age groups. In the U.S., the poverty rate among the elderly is lower than for any age group below them (poverty among children is almost double the proportion of poverty among the aged in the U.S., at 20 per cent).

¹⁰ Public opinion supports focusing on health care. A recent New York Times/CBS News poll indicated that 28 per cent of Americans think health care is the nation's most pressing problem, while only 14 per cent deemed Social Security most serious.

¹¹ These reforms raised the normal retirement age for future cohorts, increased contribution rates, expanded the base of covered employment, and began means-testing of benefits receipt.

Figure 1. Trust fund ratios as a per cent of annual expenditures. *Source:* Social Security Administration (2005a, b).

trust fund exhaustion, the national government will finance approximately 25 per cent of benefit payments out of general revenues. In addition, the national government is currently supplementing the DI and HI trust funds with general fund transfers. The mechanism for these intra-governmental transfer payments are the redemption of special issue Treasury bonds currently held by the various trust funds. Continued use of the general fund would require a societal decision to use this source of revenue to finance retiree security programmes. However, in the absence of new dedicated sources of revenue, future retirees face a substantial risk of loss of social insurance benefits.

The possibility of future funding shortfalls is a primary factor motivating the current debate on a transition to personal accounts. This possibility is fundamentally a function of demographics – pay-as-you-go programmes have many dynamics to consider, but the basic structure is the same from country to country over time. Each generation makes a payment to the one just before it, by mandate. Like many pay-as-you-go funded programmes, holding mortality rates and productivity rates constant, a growing population will allow for adequate funding of the U.S. programme including the repeated financing of its legacy costs. Similarly, productivity growth can help to cover programme costs – indeed, current high U.S. productivity works in the programmes' favour. However, most analysts and policy makers agree that long-term demographic changes will overwhelm any likely productivity dividends, given the construction of social insurance benefit amounts and U.S. economic fundamentals. In particular, falling birth rates coupled with increases in life expectancy, both from time of birth and from age 65 years, have resulted in retiree-to-worker ratios that make the programmes unsustainable under current contribution and benefit parameters.

Social security: perceptions as insurance or asset

By definition, Social Security is a social insurance programme. However, for many its value as an annuity remains their most important “asset” in retirement. Currently, nearly half of retired Americans would have incomes below the poverty line in the absence of Social Security.¹² Thus many view Social Security as an implicit asset. This view is strongest among those who consider only longevity risk, and only in a particular and discrete sense.

Historically, the prospects of retirement were much less certain. In fact, as first proposed, the Social Insurance offered by the 1935 Act is rightly viewed as a contingent contract, in which one agrees to pay net sums in certain states of nature in order to protect themselves from severe hardships should morbidity (the traditional cause for retirement) occur before mortality. For social insurance systems, it is reasonable to assume that, as a contingent claims market, the ratio of what is forgone and what is gained is a simple function of a probability of the occurrence of each state, and any transaction costs (which should be small). However, improvements in mortality and morbidity have resulted in a greater proportion of working Americans living to, and long after, retirement age, leading many to believe that OASI is no longer rightly viewed as insurance but rather as an asset. When judged solely as an asset Social Security provides sub-optimal returns for current generations of workers, who must finance the legacy costs of earlier generations of retirees. Authors such as Kotlikoff and Gokhale¹³ have pointed out that, historically, other investments provide substantially higher expected returns, with even U.S. Treasuries offering slightly higher returns and no significant financial risk. To summarize, when viewed in the context of an asset, proponents of personal accounts claim that workers can do better, in terms of potential retirement wealth, at little or no risk.

Viewing OASI solely as an asset however fails to consider the many types of insurance that have been built into current OASI regulations since the 1935 Act.¹⁴ These include inflation insurance, longevity insurance, partial protections for negative earnings shocks (through the progressive benefit structure), voluntary and involuntary labour force absences, and long periods of persistent poor outcomes in labour or equity markets, or both.¹⁵ The DI component adds an important protection against some of the most severe misfortunes that can be visited on working age persons trying to save for retirement. The HI component works to keep unanticipated medical expenses from overwhelming the fixed incomes on which both the aged and the disabled depend. Thus, it is proper to consider the modern Social Security system as an

¹² A 1999 report by the Center on Budget and Policy Priorities estimates that 47.5 per cent would have incomes below the poverty line. Of course, in the absence of Social Security some increase in savings should be expected, however the impact of Social Security on poverty has been enormous – since its advent, poverty rates for the elderly have declined considerably.

¹³ Kotlikoff and Gokhale (2000).

¹⁴ For a historic overview of the Social Security programme, see Tynes (1996).

¹⁵ Recent evidence shows that even less-severe business cycles can lead to disproportionate losses of potential equity market accumulations (Seligman and Wenger (2005)), by nature of the timing of the spells.

insurance programme, one designed to accommodate a basket of correlated risks within an integrated system of products.

It should also be noted that unlike many other insurance programmes, Social Security was legislated in a time of persistent poor labour markets, and the experience of workers in the 1930s are embedded in its legacy costs. Thus Social Security should be considered as an insurance programme that began by paying a claim to a first generation who were granted policies by fiat and without compensating premiums. Legacy costs create a significant difficulty in transitioning Social Security to a system of private accounts, either in whole or in part, because carving out even a portion of payroll tax contributions reduces OASI trust fund balances used to pay current and future generations, but only reduces trust fund liabilities for future generations. As a result, real net returns from any reform will be less than rates of return quoted for private savings in the financial markets, regardless of risk characteristics of the financial products chosen for comparison. Arguments that point to higher returns in the current financial markets often ignore legacy costs, but unless a general default on current obligations is envisioned, then these commitments must be borne and the all-in return from any future programme will continue to reflect the financial implications of the past.

Public pension reform and system dynamics

Even if the issue of legacy costs is handled convincingly, there is still a very major challenge to reform – system dynamics. The system of programmes that now exists in the U.S. was developed over time in response to perceived market or programme failures. Thus for example, Disability Insurance (a programme developed to provide for those who experience severe morbidity during normal working years) is integrated with OASI. DI recipients transfer to OASI at Normal Retirement Age. A reform that changes OASI must consider what DI recipients will transition to – and thus creates another important issue.¹⁶ As one might imagine from this example and the previous description of programmes, all the U.S. pension programmes interact; changes in the OASI programme will impact DI, HI, and SSI, sometimes directly, and sometimes through a secondary, or behavioural channel.¹⁷

As an example of a direct interaction effect, consider that increases in HI premiums reduce recipients' net OASI checks. This can be seen in Figure 2, where the direct effect is found within the HI programme and an indirect effect is found by tracing the dashed arrow to the OASI programme box (the indirect effect is listed in italics). Similarly, if as a result of current debate, OASI benefits are reduced, then while the OASI Trust Fund's situation improves, we might also expect some reduction in the number of

¹⁶ Seligman (2005) considers different constructions of the current DI programme if OASI is changed to become a DC programme. This work identifies significant challenges to the U.S. fiscal situation would remain through the DI programme. Many of these may be amplified by relative incentives for old and marginally disabled workers.

¹⁷ These types of programme interactions followed in the aftermath of U.S. welfare reform efforts (as documented in Bound *et al.* (1998)).

persons who can afford HI premiums, and thus participation in Part B (SMI) may decline. As well any of these changes will have a positive impact on SSI expenditures (general fund), as the number of persons eligible for SSI payments increases, and a negative impact on states' finances (many U.S. states help the needy afford their monthly SMI premiums). There are many of these simple types of direct linkages within the programme. Another type of indirect linkage exists when a change in one programme changes behaviour across several. For example, as mentioned above, the Normal Retirement Age in the U.S. is increasing gradually from 65 to 67 years, resulting in greater reductions in Early Retirement Age benefits. DI pays "as-if" Normal Retirement Age Benefits, thus as the NRA increases, more dual-eligible early retirees are likely to apply to DI, and put further strain on that programme. This type of indirect effect demonstrates just how difficult it is to "fix" the combined trust fund problem with changes that focus exclusively on the OASI component. In Figure 2 below two HI policy changes and three OASI policy changes are described in terms of a few of their possible direct and indirect effects.

The distribution of retirement risk burdens

Any discussion regarding retirement security requires several benchmarks. First, there is a minimum standard of living that societies desire for the aged. This standard, which varies from country to country, provides a benchmark for measuring future liability exposures. These liabilities arise due to the need to devote current and future resources to retiree consumption. Second, there are various risks inherent to any system of

Figure 2. Six examples of interaction among programmes from five proposed policy changes.

retiree security. These risks – which are both idiosyncratic and systematic to any household – will be distributed across society. Third, demographic and labour market dynamics can alter the existing societal equilibrium regarding the adequacy of retiree security and associated risk burdens. This section discusses recent trends in U.S. experience, making the point that any public pension reform which creates a system of personal accounts may be viewed as continuation of a societal dynamic which has increasingly shifted risk towards households and away from employers and government.

The trend towards defined contribution retirement income programmes

Most U.S. experience with retirement security programmes has occurred within a defined benefit environment. Indeed, the OASI, DI, HI, and SMI programmes have historically been DB programmes. In addition, employer-sponsored retirement programmes were, until relatively recently, overwhelming DB plans. Figure 3 shows trends for participation in DB and DC plans for private sector employees between 1979 and 1999.

There are several interesting implications from the time series data. First, participation rates in private employer plans have been fairly constant at between 45 to 50 per cent of the labour force. Second, it was not until around 1989 that a private sector worker was more likely to be covered by a DC plan than a DB plan. Finally, there has been a strong trend towards DC-only participation.

The move towards DC plans means employers have actively shifted the risks associated with retirement security programmes away from firms and towards workers. Given the nature of DC programmes, an increasing share of workers are responsible for the three main risks for retirement income security – funding risk, investment risk, and longevity risk. The funding risk arises since most employer-based DC plans allow employees to determine the level of the contribution. Likewise, investment risk is attributable to employees' ability to allocate the holdings in the employment-based retirement account across various investments. Longevity risk

Figure 3. Workers participating in retirement plan by plan type: 1979–1999. *Source:* U.S. Department of Labor (2004).

stems from several sources. First, workers are not required to annuitize any of the DC assets at retirement. Second, workers may take large lump-sum distributions, spending as much of the account as desired in the first stages of retirement. Third, U.S. tax law requires workers to take required minimum distributions from the account, insuring a stream of tax revenue but enhancing longevity risk to the retiree.

The erosion of employer sponsored retiree health insurance

A second source of increased risk burden for retirees is the rapid erosion of retiree health insurance benefits. As noted in Weller *et al.*,¹⁸ the percentage of workers in large firms (those with more than 200 workers) receiving retiree health insurance benefits fell by almost half between 1998 and 2002, with only 34 per cent of employees covered in retirement at the end of this period. Uninsured health risk is significantly greater in magnitude for employees of small firms, with approximately 5 per cent of workers offered retiree health insurance coverage.

Rapidly rising health insurance costs are putting tremendous pressure on households, employers, and the government. It is clear that employers are responding to this price pressure by shifting the risk burdens to their employees and governments (society at large). At the national level, the government has responded by greatly expanding resources devoted to Medicare. However, this still leaves considerable risk on employees who retire prior to the age of 65 years.

There is also a significant shift towards defined contribution health benefits, both for current employees and retirees. This shift is being facilitated through two relatively new tax-advantaged programmes. Health Savings Accounts (HSA) are income tax exempt savings accounts that are designed to be used with high deductible (catastrophic) health insurance contracts. Health Reimbursement Accounts (HRA) are pure DC plans – with employers providing employees and retirees with a fixed contribution towards health-care costs. The design of both programmes has the effect of truncating health-care risk to employers, with additional risk borne by households and subsidized by the national government. Proponents of the programmes claim that the shift could result in less inflationary pressure since it forces households to think about the cost of services – potentially lowering demand for elective health-care procedures. Critics contend that the programmes can also result in under-provision of necessary health-care services such as preventative care. Therefore, health-care costs may rise more rapidly due to an increase in demand for high-cost intensive care services.

Personal accounts in context with shifting retirement risk burdens

The previous sections outlined how there have been significant shifts in retirement risk burdens over the past 25 years. This shift is primarily attributable to employers re-designing or dropping retiree security programmes. In this context, personal accounts can be viewed as a continuation of a retirement security dynamic that is shifting an increasing amount of the retirement risk burden onto households. The main issue is whether this is a socially efficient outcome. That is, what proportion of household,

¹⁸ Weller *et al.* (2004).

employer, and/or government management of assets is most capable (efficient) at managing the risks associated with retirement security programmes?

To be capable of managing the risks of retirement security programmes, a household requires a minimum amount of financial education. Households need to understand the importance of saving, the risks of various investments, how to structure distributions to minimize longevity risk, and the importance of estate planning. In addition, most households require access to regular financial advice and planning. Ideally, these services would help households with life cycle portfolio decisions, enabling households to realize the potential gains from taking on the additional risks. It follows that a system of personal accounts carved out of the existing Social Security programme will increase the need for households to acquire financial education and advice, as the risk-free portion of their retirement portfolio will decline. Currently it is probably not reasonable to expect widespread financial sophistication among the U.S. population, even among some highly educated subsections of the population.¹⁹ If personal accounts do not incorporate provisions for significant financial guidance, then reform is less likely to be correlated with an increase in expected returns to households. Even if personal accounts include a significant role for financial guidance, poor outcomes could occur due to any combination of poor information, irrational behaviour, or macroeconomic shocks. Therefore, a main issue is whether any public pension reform of this type reduces the unfunded liabilities of the U.S. government. In fact, it is unlikely, based on historic outcomes, that U.S. society would tolerate an outcome where a large proportion of senior citizens live in poverty. Figure 4 gives results from a recent New York Times/CBS News poll in which 80 per cent of Americans believe it is the government's

25. On the whole, do you think it should or should not be the government's responsibility to provide a decent standard of living for the elderly?

Date	Should	Should not	Don't Know
2/24-28/05	79	17	4
5/20-24/05CBS	81	15	4
6/10-15/05	80	16	4

26. Which do you agree with more: 1. It should be the government's responsibility to provide a decent standard of living for ALL elderly people, 2. It should be the government's responsibility to provide a decent standard of living only for those elderly people with lower incomes and less assets, or 3. It should not be the government's responsibility to provide a decent standard of living for elderly people?

Date	All elderly	Low income elderly	Not government's responsibility	Don't Know
6/10-15/05	49	37	12	2

Figure 4. U.S. views on government's responsibility to the elderly. *Source:* New York Times/CBS News Poll for week of June 10–15, 2005.

¹⁹ Indeed this can be true for both the migrant day worker and the college chemistry professor.

(society's) responsibility to insure a decent standard of living for the elderly, and reports that one-half of Americans think this right extends to all elderly.

Optimal retirement portfolios: personal accounts in the context of the four pillars

Given an environment where employers are rapidly shifting risk burdens to households, it is important to assess whether a similar shift in public pensions is socially efficient. In this section, we argue that unless significant changes in financial education are possible, then it is likely to be socially optimal for Social Security to remain a DB-only programme with government assuming all risks.

Table 2 provides a synopsis of the allocations of risk burdens for retirement security programmes. We examine this allocation within the context of the four pillars. In any environment, workers and retirees are responsible for risks associated with household saving and continued work. As demonstrated in the previous section, employers used to bear most risks associated with employer-based plans since these plans were overwhelming DB plans. The current dynamic is for workers to bear an increasing share of the risks since employer plans have becoming overwhelmingly defined contribution type plans.

Therefore, government programmes are the only area where workers are guaranteed the ability to diversify retirement security risks away from themselves. Even then, it is only the investment and longevity risk that is borne by the government. Under the personal accounts proposal, the government will shift some of its traditional risk burden onto households. The big question is whether households, in aggregate, are ready and capable to manage all the majority of risks associated with all four pillars.

By the evidence given in Figure 4, and Table 2, we contend that it is important that the national government maintain its role in managing the investment and longevity risks associated with the OASI programme. Given public opinion, a low state of financial education by households, and the possibility of periodic negative shocks to capital markets,²⁰ it is possible that an individual account-based reform will increase government's long-run liability exposure for retirement security. There is a significant probability that retiree wealth (and well-being) could be lower with a system of personal accounts relative to the current *status quo*.

There are several ways the government could reduce the increased risk burdens on households from a system of personal accounts. For example, any system of personal accounts could require annuitization of some or all of the personal account balance upon retirement.²¹ This would provide a role for private markets to help diversify risks away from households while maintaining the possibility of enhanced retiree wealth. Alternatively, the government could restrict the set of investment options to government bonds and provide a guaranteed floor on bond returns.²²

²⁰ This shock could occur through stock and bond markets or, as many now feel, through a substantial price correction in the market for residential real estate.

²¹ Brown (2003).

²² Some would argue that this does not shift risk to the government but rather to the future generations of workers. We consider this a tautological argument with respect to democratic societies.

Table 2 U.S. allocation of retirement risk burdens within the four pillars

<i>Pillar/Plan</i>	<i>Funding Risk</i>	<i>Investment Risk</i>	<i>Longevity Risk</i>
<i>Current law environment</i>			
<i>Employers plans</i>			
DB plans	Employer	Employer	Employer
DC plans	Worker	Worker	Worker
<i>Household saving</i>	Worker	Worker	Worker
<i>Government programmes</i>			
OASI	Employer, worker	Government	Government
DI	Employer, worker	Government	Government
HI	Employer, worker	Government	Government, retiree
SMI	Government, retiree	Government	Government, retiree
<i>Continued work</i>	Worker	Worker	Worker
<i>Personal account environment</i>			
<i>Employers plans</i>			
DB plans	Employer	Employer	Employer
DC plans	Worker	Worker	Worker
<i>Household saving</i>	Worker	Worker	Worker
<i>Government programmes</i>			
OASI			
Traditional	Employer, worker	Government	Government, retiree
Personal account	Employer, worker	Worker	Worker
DI	Employer, worker	Government	Government
HI	Employer, worker	Government	Government, retiree
SMI	Government, retiree	Government	Government, retiree
<i>Continued work</i>	Worker	Worker	Worker

Alternatives to personal accounts are also possible. For example, the government could renew efforts to have employers provide defined benefit retirement programmes to workers. Rather than subsidizing risk burdens on the household level, the government would make this commitment at the employer level through income tax subsidies and actuarially fair government sponsored insurance. As discussed in Richardson,²³ the government could encourage these types of arrangements by allowing workers to exempt a proportion of their earnings from the OASI tax base, so long as the exempted earnings are placed in a government approved, employer sponsored retirement plan. This would be a hybrid programme which would add a marginal dollar of personal savings for a discounted carve out of roughly 10 cents on that dollar. The credit can be subjected to a phase out as well.

²³ Richardson (2005).

Final thoughts

In the United States, the current Social Security debate centres on creating a system of personal accounts that would be carved out of the existing pension programme. Proponents of personal accounts point to the potential for increased household retirement wealth since personal accounts could be invested in private equity markets, thereby offering greater long-term average returns than the current Social Security system. Largely missing from the debate on personal accounts are analyses of potential interactions with other Social Security programmes and the shift in retirement security risk burdens. Our objective in this paper was to provide insights into both issues within the context of personal accounts and the four pillars. We contend that a transition to a personal account system places additional stress on other Social Security programmes and shifts retirement security risk burdens from the national government to individual households. However, this shift in risk burdens does not effectively reduce potential long-run liabilities for the national government since U.S. society is unlikely to tolerate increases in elderly poverty or homelessness. Indeed, potential long-run liabilities may be greater due to the increased investment and longevity risks that would be borne by households.

While true that the U.S. Social Security system faces many financial challenges, the programme has served its main purpose of diversifying old-age poverty risk for 70 years, and constructing a successful replacement programme is a difficult proposition. Simply moving from a DB to a DC-type system, either in-whole or in-part, may not be advantageous for households within the context of the four pillars. With U.S. personal savings at historic low levels,²⁴ proposals to foster personal savings through a publicly mandated system of personal accounts have significant merit. However, given the current nature of household retirement portfolio risks, reducing the government's commitment to retirement security is questionable. Americans overwhelmingly support the role of government in ensuring adequate retirement income. Therefore, it is reasonable to suspect that any system that increases household retirement risk burdens will not indemnify the public sector's responsibility to the aged.

If the main societal objective of Social Security reform is continued guaranteed retirement security (as opposed to simply reducing the national government's share of GDP), then there are many alternative proposals that may help restore system balance. For example, increasing Social Security maximum taxable earnings would generate revenue without putting higher income households at risk. Alternatively, the government could move to mortality-indexed retirement ages, as Sweden has done this past decade. Many have proposed reducing real-benefit growth by switching to price indexing, as opposed to wage indexing, of benefits. Indeed, many claim that simply moving to price indexing will restore actuarial balance to the system while guaranteeing the old-age anti-poverty promise.²⁵ As well, the national government should increase its effort to strengthen the other three pillars, encouraging employers to take up retirement programmes, encouraging personal savings, and providing

²⁴ Between 1960 and 1980, the net personal savings rate fluctuated between 8 and 12 per cent of national income. Since 1980, the rate has fallen steadily, and is currently at about 2 per cent of national income.

²⁵ See Biggs *et al.* (2005) for a discussion of the transition from wage indexing to price indexing.

incentives for individuals to work longer, perhaps in phased retirement. In total, reform of the U.S. public retirement system requires more than a marginal change to one component; rather a comprehensive overview of retirement security in the U.S., with an emphasis on how best to allocate risk burdens while providing adequate protections for elderly well-being will secure the value of these programmes for current and future generations.

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