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Saving Social Security With a Cash Balance Plan

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Abstract

The Social Security system is vastly underfunded. According to the Social Security actuaries, benefits will exceed trust fund income in 2016, and trust fund assets will be exhausted in 2038. Put differently, the current Social Security system has an unfunded liability of about \$11.7 trillion, which stands as a serious impediment to replacing the current system with a privatized system of fully funded individual retirement savings accounts.

But there is another approach that could achieve many of the same advantages of a privatized system of individual accounts. We could replace all (or a portion) of the current Social Security system with a cash balance plan.

Basically, a cash balance plan is a defined benefit (DB) pension plan that looks like a bank account or an Internal Revenue Code (IRC) § 401(k) plan. A cash balance plan accumulates, with interest, a *hypothetical* account balance for each worker. The balances are determined by the plan's benefit formula and consist of two components: an annual cash balance credit and an interest credit.

For example, a simple cash balance plan might allocate 3% of salary to each worker's individual account each year and credit the account with 7% interest on the balance in the account. Under such a plan, a worker who earned \$50,000 in a given year would get an annual cash balance credit of \$1,500 (3% x \$50,000), plus 7% on the starting balance.

This article considers how to replace all (or a portion) of the current Social Security system with a cash balance plan. Section 1 of this article introduces the

topic, and Section 2 provides an overview of the current Social Security system. Section 3 discusses the need for Social Security reform, and Section 4 discusses some of the major reform proposals. Finally, Section 5 discusses how to replace all (or a portion) of the current Social Security system with a cash balance plan, and Section 6 offers some concluding remarks.

1. Introduction

It's no secret that the Social Security system is vastly underfunded. For example, according to the year 2001 report of the Social Security Trustees, benefits will exceed trust fund income in 2016, and trust fund assets will be exhausted in 2038 (SSMBT 2001a). To fix this shortfall, the trustees tell us, we need to hike payroll taxes by another 1.86%.

No wonder there is so much interest in Social Security reform alternatives, especially privatization (Forman 1999, pp. 109-114). Proponents of privatization typically call for replacing all (or a portion) of the current Social Security system with individual retirement savings accounts (IRSAs) that would operate pretty much like today's individual retirement accounts (IRAs) and IRC § 401(k) plans. Under this approach, Social Security taxes that workers now pay to the federal government would go instead into individual defined contribution (DC) accounts and be invested in the stock market.¹

Unfortunately, Social Security's underfunding problem would not just disappear if we replaced Social Security with a system of individual accounts. A recent estimate suggests that if the government were to shut down the current Social Security system and replace it with a system of individual accounts, we would need \$11.7 trillion to cover the Social Security liabilities that have already accrued (SSA 2001).²

¹ Under a typical DC plan, an employer simply contributes a specified percentage of the worker's compensation to an individual investment account for the worker. For example, contributions might be set at 3% of annual compensation. Under such a plan, a worker who earned \$50,000 in a given year would have \$1,500 (3% × \$50,000) contributed to an individual investment account. The worker's benefit at retirement would be based on all such contributions plus investment earnings thereon.

² The \$11.7-trillion figure is an estimate of the maximum transition cost as of Jan. 1, 2001, in connection with replacing the current form of Social Security benefits with a new form of benefits. Thus, the maximum transition cost represents the cost for terminating the current Social Security program but continuing to pay benefits that have already been earned. This maximum transition cost is computed as the difference between (1) the present value of all future benefits payable after the valuation date based on earnings prior to the valuation date (earnings credited under the old form); and (2) the value of the assets on the valuation date plus the present value of revenue from taxation of future benefits payable on the old form. Future benefits payable on the old form for workers who

In principle, the government could issue \$11.7 trillion in so-called “recognition” bonds to formalize the government’s unfunded Social Security liability and finance the transition to a new system. Under this approach, each worker or beneficiary would receive recognition bonds equivalent to the present value of their accrued benefits under the current Social Security system.

In practice, however, having the government issue and distribute \$11.7-trillion worth of recognition bonds would be a daunting task. Moreover, government creation of \$11.7 trillion of new and explicit debt could wreak havoc on both the bond and stock markets, even if individuals were prevented from trading their recognition bonds until retirement.

In short, Social Security’s \$11.7-trillion dollar unfunded liability stands as a serious impediment to replacing the current system with a system of individual DC accounts.

But there is another approach that can achieve many of the same advantages of a system of individual DC accounts. We could replace all (or a portion) of the current Social Security system with a cash balance pension plan (Forman 2000c and 2001b).

Basically, a cash balance plan is a DB plan³ that looks like a bank account or a 401(k) plan.⁴ A cash balance plan accumulates, with interest, a *hypothetical* account balance for each worker (Forman and Nixon 2000). The individual account balances are determined by the plan’s benefit formula and consist of two components: an annual cash balance credit and an interest credit.

have not reached benefit eligibility age (62) are calculated on a proportional past service credit basis. Also see Goss (1999) explaining the methodology and estimating Social Security’s unfunded liability at about \$9 trillion as of Oct. 1, 1997.

³DB plans typically provide each worker with a specified annual retirement benefit that is tied to the worker’s compensation and number of years of service. For example, an employer-sponsored DB pension plan might provide that a worker’s annual retirement benefit is equal to 2% times years of service times final average compensation ($B = 2\% \times \text{yos} \times \text{fac}$). Under this “final-average-pay” formula, a worker with 30 years of service would receive an annual retirement benefit equal to 60% of pre-retirement earnings ($B = 60\% \times \text{fac} = 2\% \times 30 \text{ yos} \times \text{fac}$). Final average compensation is typically computed by averaging the worker’s salary over the three or five years immediately prior to retirement.

⁴ See IRC § 401(k). Under a 401(k) plan, a worker can choose between receiving cash currently or deferring taxation by placing the money in an employer-sponsored retirement account. Consequently, they are sometimes called cash or deferred arrangements—CODAs (see, e.g., Langbein and Wolk 2000, pp. 50-54).

For example, a simple cash balance plan might allocate 3% of salary to each worker's account each year and credit the account with 7% interest on the balance in the account. Under such a plan, a worker who earned \$50,000 in a given year would get an annual cash balance credit of \$1,500 (3% x \$50,000), plus 7% on the starting balance.

Like the current system, a cash balance Social Security plan would be a DB plan. But instead of defining the worker's benefit as a monthly annuity payable at retirement age, a cash balance plan would define the worker's accrued benefit as the balance in a hypothetical individual account.

The government would establish a hypothetical individual account for each participant in the Social Security system. From then on, all (or a portion) of each worker's annual payroll tax "contributions" would be added to the account, and each year the starting balance in that account would be credited with interest.⁵ Moreover, if we wanted to replace the current Social Security system completely, all participants in the current system would be given large starting balances to reflect their already-accrued benefits, and all future payroll tax contributions would be credited to their hypothetical individual accounts.

Admittedly, replacing the current Social Security system with a cash balance plan would not diminish the Social Security system's \$11.7-trillion unfunded liability. But with a cash balance plan, the government could create individual accounts immediately and have greater flexibility about when to come up with that \$11.7 trillion.

This paper considers how to replace all (or a portion) of the current Social Security system with a cash balance plan.

2. An Overview of the Current Social Security System

The current Social Security system includes two programs that provide monthly cash benefits to workers and their families. The Old-Age and Survivors Insurance (OASI) program provides monthly cash benefits to retired workers and their dependents and to survivors of insured workers, and the Disability Insurance

⁵ The interest rate could be set at the Treasury-bill rate. Alternatively, a higher rate could be achieved if plan assets were pooled and invested in the stock market.

(DI) program provides monthly cash benefits for disabled workers under age 65 and their dependents.⁶ A worker builds protection under these programs by working in employment that is covered by Social Security and paying the applicable payroll taxes. At present, about 96% of the work force are in covered employment (*Staff-Green Book* 2000, p. 4).

At retirement, disability, or death, monthly Social Security benefits are paid to insured workers and to their eligible dependents and survivors. In 1999, for example, the OASI program paid more than \$334 billion in benefits to more than 38 million retired workers and their spouses and dependents (“Current” 2000). The average benefit paid to a retired worker was about \$805 per month. Also in 1999, the DI program paid about \$50 billion in benefits to another 6.5 million disabled workers and their spouses and dependents.

The OASI program is, by far, the larger of these two programs, and it is usually what people mean when they talk about Social Security. Consequently, for the remainder of this paper, the term “Social Security taxes” will refer to OASI taxes, and the term “Social Security benefits” will refer to OASI benefits.

2.1 Social Security Taxes

Social Security benefits are overwhelmingly financed through payroll taxes imposed on individuals working in employment or self-employment that is covered by the Social Security system. For example, in 2001, employees and employers each paid a tax of 5.3% on up to \$80,400 of wages earned in covered employment, for a combined OASI rate of 10.6% (the lion’s share of the total rate of 15.3% that is collected for OASI, DI, and Medicare) (*SSA* 2000 and *Staff-Green Book* 2000). Employees are not allowed to deduct their portion of Social Security taxes for income tax purposes.⁷ On the other hand, the employer’s portion of Social Security taxes is excluded from the employee’s income for income tax purposes (*U.S. House Report* 1983, pp. 414-415).

Self-employed workers paid an equivalent OASI tax of 10.6% on up to \$80,400 of net earnings (*SSA* 2000 and *Staff-Green Book* 2000). To put self-employed individuals in an approximately equivalent position as employees, self-employed

⁶ See, generally, Social Security Act, Public Law No. 74-271, 49 Statutes at Large 620 (1935) (codified as amended at 42 United States Code (U.S.C.) § § 301-1397f); also see *Staff-Green Book* (2000), pp. 1-96.

⁷ I.R.C. § § 275(a)(1)(A), 3502(a); Treasury Regulations § 1.164-2(a).

individuals can deduct half of these taxes for both Social Security and income tax purposes.⁸

In addition, as much as 85% of a taxpayer's Social Security benefits are subject to income taxation.⁹ The actual amount to be included is determined by applying a complicated two-tier formula. Basically, single taxpayers with incomes over \$25,000 and married couples with incomes over \$32,000 must include as much as half of their Social Security benefits in income, and single taxpayers with incomes over \$34,000 and married couples with incomes over \$44,000 must include as much as 85% of their Social Security benefits in income. For the year 2000, an estimated 12.5 million OASI and DI beneficiaries paid tax on at least some of their benefits (32% of all beneficiaries). All in all, the federal government collected about \$17.3 billion in taxes from those beneficiaries (*Staff-Green Book 2000*).

2.2 Social Security Benefits

This section describes how benefits are computed under the OASI program with respect to worker benefits and auxiliary benefits.

2.2.1 Worker Benefits

Workers over age 62 generally are entitled to OASI benefits if they have worked in covered employment for at least 10 years.¹⁰ Benefits are based on a measure of the worker's earnings history in covered employment known as the average indexed monthly earnings (AIME).¹¹ Basically, the AIME measures the worker's career-average monthly earnings in covered employment.

The AIME is linked by a formula to the monthly retirement benefit payable to the worker at full retirement age, a benefit known as the primary insurance amount (PIA).¹² Historically, "full retirement age" was age 65, but it is gradually increasing to age 67 for workers reaching age 62 in or after 2022 or age 67 in or after 2027 (*Staff-Green Book 2000*). For example, for a worker turning 62 in 2001, the PIA was equal to 90% of the first \$561 of the worker's AIME, plus 32% of the AIME over \$561 and through \$3,381 (if any), and plus 15% of the AIME over \$3,381 (if any) (SSA 2000). It

⁸ I.R.C. §§ 164(f), 1402(a)(12).

⁹ I.R.C. § 86.

¹⁰ 42 U.S.C. §§ 402, 414(a)(2).

¹¹ 42 U.S.C. § 415(b).

¹² 42 U.S.C. §§ 415(a), 416(l).

is worth noting that, on its face, the benefit formula is progressive, meaning that it is designed to favor workers with relatively low career-average earnings.

A worker's benefits may be increased or decreased for several reasons. Most important, benefits are indexed each year for inflation as measured by the increase in the Consumer Price Index.¹³ Also, benefits payable to workers who choose to retire before their full retirement age are actuarially increased through the delayed retirement credit.¹⁴ In contrast, workers who retire before their full retirement age have their benefits actuarially reduced.¹⁵ Moreover, the so-called retirement earnings test can reduce the benefits of individuals ages 62–64 who continue to work after retirement.¹⁶ For example, in 2001, workers ages 62–64 lost \$1 of benefits for every \$2 of annual earnings over \$10,680 (SSA 2000).

2.2.2 Auxiliary Benefits

Dependents and survivors of the worker may also receive additional monthly benefits.¹⁷ These so-called auxiliary benefit amounts are also based on the worker's PIA.¹⁸ In particular, a retirement-age wife or husband of a retired worker is entitled to a monthly spousal benefit equal to 50% of the worker's PIA.¹⁹ Consequently, a retired worker and spouse generally can claim a monthly benefit equal to 150% of what the retired worker alone could claim. Also, a retirement-age widow or widower of the worker is entitled to a monthly surviving spouse benefit equal to 100% of the worker's PIA.²⁰ In March of 2000, almost 3 million spouses of retired workers were collecting benefits averaging \$411 per month ("Current" 2000). Similarly, almost 5 million surviving spouses were collecting benefits averaging \$763 per month.

¹³ 42 U.S.C. § 415(i).

¹⁴ 42 U.S.C. § 402(w). The delayed retirement credit increases the monthly benefit to be paid to a worker who delays receipt of benefits until after full retirement age because the worker has not filed an application for benefits or was working. The delayed retirement credit is 7% per year for workers age 62 in 2001 and will increase by one-half of 1% in 2003 and every other year thereafter until it reaches an actuarially fair 8% in 2005 (Staff-Green Book 2000).

¹⁵ 42 U.S.C. § 402(q).

¹⁶ 42 U.S.C. § 403(f).

¹⁷ 42 U.S.C. §§ 402(b) (wife), (c) (husband), (d) (child), (e) (widow), (f) (widower), (g) (mother and father), and (h) (parents).

¹⁸ Auxiliary benefits are subject to a variety of limitations. In particular, under the so-called dual entitlement rule, when an individual can claim both a worker benefit and a benefit as an auxiliary of another worker, only the larger of the two benefits is paid to the individual. 42 U.S.C. § 402(k).

¹⁹ 42 U.S.C. § 402(b).

²⁰ 42 U.S.C. §§ 402(e), (f).

2.3 Social Security Funding

The Social Security system operates largely on a pay-as-you-go (PAYGO) basis. Social Security benefits are primarily paid out of current-year Social Security payroll taxes, and the Social Security Trust Funds maintain only enough reserves to cover a year or two of benefits (see, e.g., Seidman 1998 and Thompson 1998). For example, in 1999, the OASI Trust Fund received \$396 billion in payroll tax contributions, paid out \$334 billion in benefits, and had \$799 billion on hand at the close of the year (“Current” 2000). Similarly, in 1999, the DI Trust Fund received \$63 billion in payroll tax contributions, paid out \$51 billion in benefits, and had \$97 billion on hand at the close of the year. As of Jan. 1, 2000, the unfunded liability of the Social Security system was estimated to be about \$11.7 trillion (SSA 2001).

3. The Need for Reform

Social Security needs to be reformed for two principal reasons. First, Social Security is in financial trouble and will not be able to meet its future benefit commitments. Second, Social Security redistributes payroll tax revenues in many ways that are quite simply unfair.

3.1 The Social Security System is Vastly Underfunded

The Social Security system is in financial trouble. The trustees of the Social Security trust funds estimate that Social Security benefits will exceed trust fund income starting around 2016, and the Social Security system will be unable to pay full benefits after about 2038 (SSMBT 2001a). In fact, the trustees estimate that the deficit over the traditional 75-year projection period is about 1.86% of payroll, and the unfunded liability of the Social Security system is \$11.7 trillion (SSMBT 2001a and SSA 2001).

The primary reason that Social Security is in financial trouble is that people are living longer and retiring earlier.²¹ As a result, there are a lot of Social Security

²¹ For example, the life expectancy for a male born in 1940 was just 61.4 years; in the year 2000, it was 73.9 years (Staff-*Green Book* 2000, p. 993). Also, a man reaching age 65 in 1940 could expect to live another 11.9 years, but a man who reached 65 in the year 2000 could expect to live another 15.8 years. Moreover, as the years go by, an increasing percentage of Americans will survive to old age. While just 54% of men born in 1875 survived from age 21 to age 65 in 1940, some 83% of men born in 1985 are expected to survive from age 21 to age 65 in 2050 (Steuerle and Bakija 1994, p. 41). Despite the fact

beneficiaries, and there are fewer workers to support them.²² That's not necessarily bad. After all, it's great that we are living longer, and it's great that we can expect to have long and leisurely retirements. But it has led to the current financing problem. Social Security must either find new sources of revenue, or benefits will have to be cut.

3.2 The Current Social Security System Unfairly Redistributes Economic Resources

A casual observer of the current Social Security retirement system would see that it is a PAYGO social welfare system that takes payroll taxes from current workers and redistributes those funds to current retirees and their families. On closer inspection, however, most experts agree that the best way to understand Social Security's distributional features is to evaluate the program's impact over the course of a worker's lifetime (see, e.g., Leimer 1999, Forman 1992, and Forman 1998b). This lifetime perspective leads to a comparison between the Social Security taxes paid by a worker and the expected benefits.²³

Numerous studies have made just such comparisons (see, e.g., sources cited in Leimer 1999 and in Forman 1992). Their results clearly show that the link between the Social Security taxes paid by a worker and the expected benefits is quite loose and can vary dramatically depending on such factors as family status, income, and age. In particular, the current Social Security system favors early generations of retirees over later generations, workers with low career-average earnings over workers with high career-average earnings, married couples over single individuals,

that life expectancies have gone up throughout the century, there has been a trend toward earlier and earlier retirements (CED 1997, p. 6). For example, the average age at which workers begin receiving their Social Security retirement benefits has fallen from 68.8 years old for men in 1940 to 63.7 years old for men in 1999 (Staff-Green Book 2000, p. 53). Moreover, in 1999, only 16.9% of men and 8.9% of women aged 65 or over remained in the work force (Staff-Green Book 2000, p. 994).

²²The ratio of workers-to-beneficiaries has been declining for years. In 1950, there were 16.5 covered workers for each beneficiary; in 1975, there were about three workers per beneficiary; and by 2015 there will be about 2.7 workers per beneficiary (see, e.g., Thompson 1997).

²³For example, one might compare the expected value at age 65 of the OASI taxes that a worker paid over a career, together with interest at a market rate on those tax payments, with the expected value at age 65 of the stream of OASI benefits that the worker could expect to receive for life. The worker will receive her "money's worth" if the expected value of benefits to be received equals the expected value of all taxes paid. If the expected value of taxes paid exceeds the expected value of benefits, then the worker would, in effect, be paying other program participants. But if the expected value of benefits exceeds the expected value of the taxes paid, then the worker would be receiving extra benefits from other participants.

one-earner couples over two-earner couples, larger families over smaller families, and elderly retirees over elderly workers.²⁴

In short, the current Social Security system is wildly redistributive. Not everyone gets her “money’s worth.” In effect, the current Social Security system takes money from some workers and gives it to other workers and their dependents and survivors.

Not surprisingly, concerns about *unfair* redistribution have led many analysts to recommend sweeping changes to Social Security. Of course, whether or not a particular form of redistribution is unfair is a matter over which there is great dispute. At one extreme, defenders of the current system argue that Social Security is an insurance program, that redistribution is inherent in any insurance program, and that the redistribution that occurs in Social Security is all fair.

At the other extreme, some analysts seem to believe that virtually all forms of redistribution are unfair. Not surprisingly, these critics are inclined to replace Social Security with a program that has little or no redistribution, perhaps by allowing workers to deposit their payroll tax “contributions” into their own private IRAs. Of course, most reformers fall somewhere in between these two extremes (see, e.g., Moore 2000b). Most analysts believe that some forms of redistribution are appropriate for a Social Security system, even though other forms of redistribution may strike these analysts as unfair.

²⁴ Of particular note, the current Social Security system is fraught with work disincentives that push elderly workers out of the work force (see, e.g., Forman 1998a). Once a worker reaches age 62 and is eligible to receive benefits, delaying retirement can actually be quite costly. Those who delay retirement can lose current benefits, but the increase in benefits that can result from an additional year of work rarely compensates for the benefits lost. And those who work until they drop may leave nothing behind for their heirs. So it is no surprise that more than half of the elderly retire as soon as they can – at age 62 (Technical Panel 1997).

4. Recent Proposals to Reform Social Security

Given the current problems with the Social Security system, it's no surprise that Social Security reform has been a hot topic for the past few years (see, e.g., National Academy 1999 and Copeland et al. 1999).

4.1 Maintaining Benefits

Historically, the simplest way to fix the Social Security system has been to raise payroll taxes. Indeed, the Social Security payroll tax has been increased 20 times since the program began in 1937 (EOP 2001, p. 45). Moreover, some analysts would like to see the Social Security system move toward a more fully funded status (see, e.g., Seidman 1998 and Ho 1997).²⁵

Sometimes, benefit cuts have been used to help restore financial solvency to the Social Security trust funds. In 1983, for example, Congress passed the legislation that is gradually increasing the full retirement age from 65 to 67 in the year 2022 (Staff-*Green Book* 2000).²⁶ Similarly, the Committee for Economic Development (CED) recently recommended increasing the full retirement age to 70 (CED 1997, p. 39), and a number of the members of the Social Security Advisory Council recommended gradually increasing the early retirement age from 62 to 65 (Advisory Council 1997, p. 31). Another way of cutting benefits would be to reduce future cost-of-living adjustments.²⁷

4.2 Towards an Individual Account System

On the other hand, many analysts have called for replacing all (or a portion) of the current Social Security system with a system of IRSAs (see, e.g., World Bank

²⁵ Funding Social Security would require two essential elements: fund accumulation and portfolio diversification. Fund accumulation could require substantially higher payroll tax rates (or lower benefits), and portfolio diversification could be achieved by having the Social Security Administration invest in the stock market. Presumably, the Social Security system would continue to operate as a defined benefit plan with the beneficiary's benefits linked by a legislated formula to the retiree's wage history, but Social Security benefits would be paid out of a mix of payroll taxes and portfolio investment income, rather than just out of payroll taxes and Treasury debt instruments.

²⁶ 42 U.S.C. § 416(l) (Public Law No. 98-21, 97 Statutes at Large 65 (1983)).

²⁷ Actuarial estimates for this and many other benefit and revenue options can be found in "Appendix III: Actuarial Estimates for Various Benefit and Revenue Options" in Advisory Council 1997, Vol. 1, pp. 231-39.

1994, Forman 1999, US-GAO 1999, Campana 1999, and Moore 1998). These would operate pretty much like today's employer-sponsored 401(k) plans or IRAs.²⁸

For example, in January 1997, the 1994–96 Social Security Advisory Council issued a report on how to reform the Social Security system (Advisory Council 1997). The council members were unable to achieve a consensus, but a majority of the council agreed that at least a portion of Social Security payroll tax contributions should be redirected into IRSAs that would invest in the stock market. Under the so-called "individual accounts" (IAs) approach, these IAs would be held by the government, invested in secure equity funds, and annuitized on retirement.

Alternatively, under the so-called "personal security accounts" (PSAs) approach, these IAs would be held by financial institutions and their investment would be directed by individual workers (Advisory Council 1997).²⁹ These PSAs would be financed by reallocating five percentage points of the employee's share of Social Security payroll taxes. Every worker under age 55 (at the time of adoption of the proposal) would participate in the 5% payroll reallocation and receive PSA benefits based on their accumulations plus interest. Individuals could begin withdrawing funds from their PSAs at age 62, and any funds remaining in their accounts at death could be passed on to their heirs.

These days, it is common for proponents of IAs to talk about adding or "carving out" 2% or 3% of payroll to fund IAs. For example, the CED recently issued a report (CED 1997) in which it advocated leaving the basic Social Security system pretty much intact but creating a second tier of privately owned, personal retirement accounts (PRAs).³⁰ Both employers and employees would be required to contribute 1.5% of payroll to these PRAs, and the self-employed would be required to contribute the entire 3%. Similarly, the National Commission on Retirement Policy recently offered a proposal that would allocate two percentage points of the current payroll tax into Social Security Individual Savings Accounts (National Commission 1998b; see also Feldstein and Samwick 2000).

²⁸ I.R.C. § § 219, 401(k).

²⁹ See also Borden 1995, Ferrara 1985, and Ferrara 1998 (calling for the complete replacement of the current Social Security system with a system of individual accounts).

³⁰ See also Eisner (1998) calling for voluntary supplemental contributions to IAs.

Unlike the current DB Social Security system, an individual account system would be a DC plan (National Academy 1999). Consequently, unlike the current Social Security system, there would be no redistribution at all. Payroll contributions and the earnings on those contributions would remain in IAs, and no money would ever be taken from a worker's account to provide benefits for other workers or their families.

Moreover, unlike the current Social Security system, which tends to push older workers into early retirement, an individual account system would be neutral as to the timing of retirement (see, e.g., Forman 2000b and Forman 2001a). Individuals who worked beyond full retirement age would continue to have additional contributions made to their accounts, and they would continue to earn income on the balances in those accounts. In short, they would not face financial penalties for staying in the work force.

5. A Cash Balance Plan Alternative

Social Security's \$11.7-trillion unfunded liability stands as a serious impediment to replacing the current system with a system of individual DC accounts (SSA 2001). But there is another approach that could achieve many of the same advantages as a system of individual DC accounts. We could replace all (or a portion) of the current Social Security system with a cash balance pension plan. Let me explain how.

5.1 An Overview of Cash Balance Plans

A cash balance plan is a DB plan that looks like a DC plan (Forman and Nixon 2000, US-GAO 2000a, and US-GAO 2000b). The plan accumulates, with interest, a hypothetical account balance for each participant. The individual account balances are determined by the plan's benefit formula and consist of two components: an annual cash balance credit and an interest credit. For example, a simple cash balance plan might allocate 3% of salary to each participant's cash balance account each year, and credit the account with 7% interest on the balance in the account.

In the private pension world, cash balance account statements are issued to participants on a regular basis. Cash balance statements look like DC plan statements and are generally easier for participants to understand than a traditional DB plan formula. Cash balance plans may pay out account balances in the form of a

lump-sum distribution or as an annuity, but some sponsors encourage the selection of an annuity by specifying a favorable actuarial basis to convert accounts to annuities.

Table 1 provides an example of a simple cash balance plan (Brennan and Coleman 1992). This example illustrates how an employee's cash balance account grows over five years. A new employee in this example earns \$30,000 per year. Each year the employee will earn cash balance pay credits equal to 5% of \$30,000, or \$1,500, and an interest credit of 7%.

For purposes of this example, assume that each year's pay credit earns one-half of the annual interest credit rate in that year (i.e., 3.5%), since pay credits normally will be credited throughout the year.

The balance after the first year would be \$1,552.50 ($\$1,500 + 3.5\%$ of \$1,500). To determine the interest credit for the second year, add 7% of the balance at the beginning of the year (\$108.67) to 3.5% of the pay credit for the year (\$52.50) to arrive at \$161.17. Continuing in this manner, at the end of five years, the account value will be \$8,928.01, or almost 30% of annual pay.

5.2 Cash Balance Plans and DC Plans Compared

The key to cash balance plans is the hypothetical account balances they provide for employees. However, the accounts are merely bookkeeping devices for cash balance plans. The payment and interest credits of a cash balance plan are designed to be similar to those used in DC plans. However, cash balance plans differ in some key ways from DC plans.

Cash balance plans differ from DC plans because the plan formula defines the future benefit an employee will receive rather than the amount of the employer's contribution. Among other things, that means that a cash balance plan may be underfunded. In contrast, DC plans, once funded, are always fully funded.

Also, under a cash balance plan, the plan sponsor (e.g., an employer) assumes the investment risk. The plan sponsor must make up the difference if plan assets underperform. However, if investment returns are high, the plan sponsor can keep any investment returns that the plan earns over and above the amounts promised to employees.

DC plans allocate the financial risks to employees. The employer's only funding obligation is to make the initial contribution. As a result, the employer makes no guarantees concerning the level of benefits an employee will receive.

DC plans can also be cumbersome in some respects. Because contributions are kept in separate accounts and not pooled, capital is often locked into low-risk investments. This result occurs because employees often invest too conservatively (Stein 1999). In contrast, cash balance plans offer pooling of assets and management by professionals rather than individual employees.

5.3 A Cash Balance Plan for Social Security

It would be fairly easy to replace all (or a portion) of the current Social Security system with a cash balance plan. For example, the government might want to replace completely the current Social Security system with a cash balance system. To do so, the government would simply establish a hypothetical account for each participant in the Social Security system, and participants in the current system would be given large starting balances to reflect their already-accrued benefits. From then on, each worker's annual payroll tax "contributions" would be added to his or her individual account, and, each year, the starting balance in the account would be credited with interest.

Alternatively, it seems more likely that the government would maintain much of the current Social Security system, but add or carve-out, say, 3% of payroll for a system of cash balance accounts. Here again, the government would establish a hypothetical account for each participant in the Social Security system, this time with a \$0 starting balance. From then on, three percentage points of each worker's annual payroll taxes would be credited to the worker's individual account, and each year the starting balance in the account would be credited with interest.

There are a number of design issues that would need to be resolved in connection with replacing all or a part of the current Social Security system with a system of cash balance accounts. In particular, decisions would need to be made about how these hypothetical IAs would be funded, managed, and invested—and about how account balances would be distributed. For the most part, these are the same kinds of questions that arise in connection with proposals to replace all (or a portion) of the current Social Security system with a system of individual DC accounts (see, e.g., National Academy 1999, US-GAO 1999, and Thompson 1999). Before focusing on those design issues, however, it is worth considering the experiences of other countries with hypothetical IAs.

5.4 What Can We Learn from Other Countries?

A cash balance plan is a DB plan with hypothetical IAs. Unlike a system of individual DC accounts, a cash balance plan can be fully funded or it can be funded on a PAYGO basis. The key is that the IAs are not real; rather they are “notional” or hypothetical.

In that regard, several countries have recently replaced their PAYGO Social Security programs with so-called “notional DC” (NDC) plans, where notional contributions are used to “purchase” annuities at retirement (see, e.g., Fox and Palmer 1999 and Disney 2000). Under this approach, the bulk of a country’s underfunded Social Security system is reconstituted into a system of unfunded (i.e., notional) IAs that mimic individual DC accounts. These NDCs are given a rate of return that is “explicitly linked by law to a formula that takes account of current and prospective demographic and productivity changes” (Disney 2000, pp. 7–8).

In short, under the NDC approach, a country’s underfunded Social Security system is replaced with a system of IAs that are also financed on a PAYGO basis. Sweden, Latvia, Poland, and Italy have already adopted the NDC approach, and many other countries are actively considering it (Disney 2000).

For example, in 1998, Sweden enacted legislation that transformed most of its social security system into an NDC plan (Sundén 2000, Normann and Mitchell 2000, and Sweden Ministry 1998). Under the new system, each worker will have two IAs. These accounts will be financed by a payroll tax equal to 18.5% of payroll up to a ceiling (split equally between employers and employees). Sixteen percent of earnings will be credited to a *notional* individual account for each worker, and the remaining 2.5% of earnings will go to a *funded* individual account. In addition, the pension system will provide a means-tested minimum welfare benefit for those individuals who earn no or low pensions under the new system.

The key to Sweden’s new public pension system is the individual NDC accounts. While this part of the system continues to operate on a PAYGO basis, an individual’s pension benefits are tied to the hypothetical account balances in these new accounts. Individual NDC account balances are credited with annual “contributions” (16% of earnings up to the ceiling). In addition, NDC accounts are credited with “interest” at a rate of return that is tied to per capita wage growth

(Sundén 2000).³¹ As average wages go up, so do account balances. Finally, the administrative costs of running the NDC system are deducted from the individual NDC accounts, and the account balances of individuals who die before retirement age are redistributed to other individuals in the same age cohort. At retirement—anytime after age 61—the balance in a given worker’s NDC account is converted into an inflation-adjusted annuity.³²

In addition to the NDC accounts, each Swedish worker has 2.5% of payroll contributed to a funded individual account. These IAs are self-directed and can be invested in a variety of domestic or international diversified funds (Sundén 2000).

Similarly, in 1996, Latvia converted its PAYGO commitments under its previous social security system into a new system of individual NDC accounts (Fox and Palmer 1999). Also, in 1998, Poland replaced its PAYGO social security system with a new system with both funded and notional IAs. After a long transition, the Polish system will be transformed into a dual system where 50% of contributions will go to individual NDC accounts and 50% of contributions will go to fully funded individual DC accounts.

5.5 Designing a Social Security Cash Balance Plan

There are a number of design issues that would need to be resolved in connection with replacing all or a part of the current Social Security system with a system of cash balance accounts. At the outset, the government would need to decide how much of the current Social Security system to replace. In addition, decisions would need to be made about how these hypothetical or “notional” IAs would be funded, managed, and invested; and about how account balances would be distributed.

³¹ Two measures of wage growth were considered in Sweden: (1) total wage growth; and (2) per capita wage growth.

³² The annuity is the same for men and women.

5.5.1 How Much to Replace

The government could replace all (or a portion) of the current Social Security system with a system of cash balance accounts. To do so, the government would simply establish a hypothetical account for each participant in the Social Security system, and participants in the current system would be given starting balances to reflect that portion of their already-accrued benefits that is to be replaced by the new cash balance system. Thereafter, all (or a portion) of each worker's future payroll taxes would be added to her account, and each year the starting balance in that account would be credited with interest.

Most likely, our government would maintain most of the current Social Security system but add or carve-out, say, 3% of earnings for a system of cash balance accounts. Because Americans are living longer and retiring earlier, they will need more retirement savings than ever to ensure that they will have adequate incomes throughout their retirement years.³³ Indeed, a number of analysts have expressed concern about the financial prospects of elderly retirees in the 21st century (see, e.g., Radner 1998, Congressional Budget Office 1993, CED 1995, Salisbury and Jones 1994, and National Commission 1998a). Consequently, it would probably make sense to *add* a 2% or 3% of payroll cash balance plan on top of the current Social Security system.³⁴ Over time, however, the government might also want to convert an increasing portion of the current Social Security system's PAYGO obligations into the cash balance system by transferring portions of accrued benefits into the new hypothetical IAs.

5.5.2 Funding

One advantage for cash balance plans is funding flexibility. Whereas DC plans are, by their nature, always fully funded, cash balance plans are DB plans. As such, they can be underfunded or overfunded. The IAs are merely hypothetical and need not be fully funded.

Pertinent here, that means that the government could replace as much of the current Social Security system as it wants with a cash balance plan. The current system's \$11.7-trillion unfunded liability would not be an impediment to creating a

³³ See footnote 21, above.

³⁴ Even then, it would still be necessary to otherwise reform the current system to ensure a long-term match between payroll taxes and benefits.

system of hypothetical IAs, though it would surely be an impediment to creating a system of IAs (SSA 2001).

Most likely, the government would, in fact, fully fund all future payroll tax contributions and also slowly pay off the Social Security system's current unfunded liability.

5.5.3 Management and Administrative Costs

Creating and managing IAs for millions of American workers would surely be a daunting task (see, e.g., National Academy 1999, US-GAO 1999, Thompson 1999, Olson and Salisbury 1999, and Hart et al. 2001). The administrative costs associated with an individual account system can include all or most of the following functions: enrolling new participants, calculating required contributions, sending contributions to accounts, providing investment education, overseeing participant investment selection and fund transfers, managing funds, and sending periodic account statements to participants (Olson and Salisbury 1999).

Of course, it would be easier and cheaper to set up an individual account system within the Social Security system itself than it would be to create an individual account program outside of the current Social Security system. But even a centralized, wage-based, mandatory, national individual account program inside Social Security would entail significant administrative functions and costs not required under the current Social Security system. Indeed, even a fairly simple government-run individual account program would cost the Social Security Administration another \$700 million a year to run, and it would take at least three years and \$1.2 billion to set up (Hart et al. 2001).

Still, a cash balance system of hypothetical accounts would certainly have lower administrative costs than a privatized system with millions of privately held individual DC accounts. Just how expensive it would be depends largely on how many different investment and distribution choices and other services are provided to individual account holders.

5.5.4 Investments

Setting the rate of return is, perhaps, the hardest issue that would need to be decided for a cash balance Social Security system. At the outset, a decision would need to be made about whether the government would fix a rate of return or, alternatively, allow individuals to choose their own investment portfolios.

The government might, for example, simply set the rate of return equal to the Treasury-bond interest rate. In that regard, as of Sept. 30, 2000, the Old-Age and Survivors Trust Fund held about \$893 billion in assets (SSMBT 2001b), and the effective annual rate of interest earned on the Treasury bonds held by the trust fund during calendar year 2000 was 6.9%.

Alternatively, a higher rate might be achieved if cash balance plan assets were pooled and invested in the stock market. Indeed, if the government fully funds the plan, it could simply invest all the funds and credit IAs with the actual rate of return that it earns (less its administrative costs). Because of lower transaction costs and economies of scale, the government should be able to achieve a significantly higher rate of return on these funds than could be achieved under a system of millions of individually directed DC accounts.

Another approach would be to tie the rate of return to some measure of wage growth. In Sweden, for example, the rate of return on its NDC accounts is linked to wage growth (Sundén 2000). In that regard, two measures of wage growth were considered in Sweden: (1) total wage growth; and (2) per capita wage growth. Sweden chose per capita wage growth, but there is a danger that if the work force decreases, benefit rights will grow faster than the contribution base that finances those benefits.

As an alternative, the government might allow individuals to choose how they want their IAs "invested." Presumably, individuals would be given choices that would include government bonds, separate stock market index funds, and widely diversified mutual funds. And, it would be possible to permit individuals to have even greater investment freedom.

5.5.5 Preservation of Benefits and Distributions

When it comes to IRAs and DC plans in the private sector, leakage has been a significant problem.³⁵ Individuals often tap their retirement funds before reaching full retirement age, and many individuals will outlive their retirement savings. The same problem could arise in connection with Social Security IAs, be they real (i.e., DC) or hypothetical (cash balance).

Consequently, it could make sense to restrict premature withdrawals and require that benefits be paid in the form of inflation-adjusted annuities (Forman 1999 and Steuerle et al. 1999).³⁶ Moreover, the government might even want to require that married couples take their benefits in the form of joint-and-75%-survivor annuities (see, e.g., Forman 1998c, Forman 2000a, and Moore 2000a).

For example, the government might want to require that individuals take a basic distribution that, together with any traditional Social Security benefits, would provide them with the equivalent of an indexed annuity that is targeted to, say, 125% of the poverty level. In the year 2001, for example, the poverty level for a single individual was \$8,590, and the poverty level for a married couple was \$11,610 (US-DHHS 2001). Consequently, assuming a 125% of the poverty-level target, a single individual retiring in 2001 would need the equivalent of an indexed annuity that paid \$10,737.50 that year ($\$10,737.50 = 125\% \times \$8,590$) and appropriately inflation-adjusted amounts in future years. Similarly, distributions for married couples might be geared toward purchasing an indexed, joint-and-survivor annuity (i.e., paying \$14,512.50 in 2001 [$\$14,512.50 = 125\% \times \$11,610$]) and appropriately inflation-adjusted amounts in future years. Beyond that basic annuity, however, more relaxed distribution rules might apply.

³⁵ For example, a Hewitt (1999) study found that 57% of 401(k) plan participants chose to take cash payments when changing jobs, instead of rolling over the balance to their new employers' plans or IRAs. Another study by Burman et al. (1999) estimated that lump sum distributions reduce retirement income by \$1,000 to \$3,000 per year. Halperin and Munnell (1999) suggest that some \$20 billion a year leaks out of the retirement system. However, another study by Sabelhaus and Weiner (1999) found that most lump-sum distributions are small, leading them to conclude that the leakage from the pension system is not significant relative to retirement income.

³⁶ Annuities help ensure that workers and their families will not outlive their retirement savings, and inflation-adjusted annuities keep the purchasing power of benefits constant over time by lowering initial benefits enough to pay for higher benefits later on.

More specifically, the basic cash balance benefit for a retiree might be made available under just three options:

1. A 100% payout to purchase an indexed annuity that, when coupled with traditional Social Security benefits, results in sufficient annual income to meet the 125%-of-the-poverty-level standard.
2. Distributions as desired with only one constraint: The amount remaining in the account after withdrawal must always be at least 110% of the amount necessary to purchase an annuity guaranteeing the 125%-of-the-poverty-level standard.
3. A combination of 1 and 2.

Finally, at death, to the extent that any account balances have not been annuitized, it would make sense to let individuals pass those balances on to their spouses or other heirs.

6. Conclusion

Replacing the current Social Security system with a cash balance plan would have some significant advantages over the current system. In particular, a cash balance plan would help encourage elderly Americans to remain in the work force. The current DB-type Social Security system is so fraught with work disincentives that more than half of the elderly retire as soon as they can—at age 62—and fully 72% quit work by age 65. Under a cash balance system, however, additional payroll taxes would always result in additional contribution credits, and delaying retirement would result in additional interest credits as well. And, unlike the current system, in which those who work until they drop leave nothing behind, the balance in a cash balance account could be left to heirs.

In addition, a cash balance Social Security system would work better than a privatized system of individual DC accounts. First, a cash balance system of hypothetical accounts would have significantly lower administrative costs than a privatized system with millions of actual accounts. Second, because of lower transaction costs and economies of scale, a cash balance system could achieve a higher rate of return on investments than a system of millions of actual accounts.

Finally, a cash balance system would leave the government with greater flexibility about when to pay off the current Social Security system's \$11.7-trillion unfunded liability. We probably should have funded Social Security in the years that workers earned their benefit entitlements. Instead, we pushed those liabilities onto future generations. Now, even if we want to shift to a system of IAs, we still must meet that \$11.7-trillion obligation. But with a cash balance plan, we can have IAs sooner and come up with that \$11.7 trillion later. It's a politician's dream solution.

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Table 1
Cash Balance Plan Example

Year	Account Value (Beginning of Year)	Annual Pay	Pay Credit (5%)	Interest Credit* (7%)	Account Value (End of Year)
1	\$ 0.00	\$30,000	\$1,500	\$ 52.50	\$1,552.50
2	1,552.50	30,000	1,500	161.17	3,213.67
3	3,213.67	30,000	1,500	277.46	4,991.13
4	4,991.13	30,000	1,500	401.87	6,893.00
5	6,893.00	30,000	1,500	535.01	8,928.01

* Pay credits assumed to receive one-half of the annual interest credit.

Source: Brennan and Coleman (1992).