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The Better Deal

Estimating Rates of Return under a System of Individual Accounts

by Michael Tanner

Executive Summary

Advocates of reforming Social Security by allowing workers to privately invest a portion of their Social Security taxes through individual accounts have long argued that private investment would provide a higher rate of return and, therefore, higher retirement benefits than Social Security. After all, in any dynamically efficient economy the return to capital will exceed the return that can be generated by a labor-based system such as Social Security. Recently, however, some critics have suggested that that analysis is wrong. Among other things, they suggest that future returns to equity investment are likely to be far below historical rates of return. They also suggest that studies predicting higher returns for private investment do not adequately reflect the risk and administrative costs of those investments or the cost of transitioning to a private system.

However, a closer examination of each of these factors suggests that they are either incorrect or not relevant to comparisons of returns between individual accounts and Social Security. For example, although it is difficult to project future equity returns, the Social Security Administration's estimate of a 6.5 percent average annual return to equities is well within the range of reasonable financial estimates. Indeed, it may even be low by historical standards. Moreover, returns to private investment through individual accounts should not be risk adjusted. Although investors do consider risk in making investment decisions, that factor is better handled through the use of diversified portfolios than through the arbitrary reduction of expected returns. Finally, although the design of transition financing will affect net returns to individual accounts, it is possible to design a transition that does not reduce those returns. Therefore, it is not necessary to reduce returns to compensate for transition costs.

A fair comparison, therefore, shows that a system of private investment will in fact provide significantly higher rates of return than the current Social Security system, which means that the vast majority of younger workers would be better off switching to such a system.

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A system of private capital investment through individual accounts will yield a higher rate of return than a pay-as-you-go system.

Introduction

Proponents of allowing workers to invest a portion of their Social Security taxes in private markets through individual accounts have generally argued that such investment would provide a higher rate of return than Social Security and would also result in higher retirement benefits. Their reasoning was based on the simple proposition that in any dynamically efficient economy the return to capital will exceed the return that can be generated by a labor-based system such as Social Security.[1]

Opponents of individual accounts disagreed, arguing that a full accounting, including risk adjustment and transition costs—combined with expected lower returns on future investment—would produce returns far lower than those predicted by account supporters, perhaps even lower than the returns provided by Social Security. For example, Peter Orszag of the Brookings Institution argues that "when analytically accurate comparisons are undertaken, widely trumpeted gaps between rates of return for individual accounts and Social Security contributions essentially disappear."[2] Likewise, the AARP says that "many analyses that tout individual accounts employ an unfair comparison with Social Security. They claim rates of return on stocks assuming that there are no transition or administrative costs."[3]

Even some supporters of individual accounts, such as Olivia Mitchell of the Wharton School, have made similar arguments. In a widely cited paper, Mitchell, along with John Geanakoplos and Stephen Zeldes, wrote, "A popular argument states that if Social Security were privatized, everyone would receive higher returns. We show this to be false."[4]

Those making that argument, whether friends or foes of individual accounts, rely on one or more of several lines of reasoning:

- Analytically correct comparisons should reflect the risk and administrative costs of private investments.
- The actual return earned by individual accounts is not the gross return earned by private investment but the net return after accounting for transition costs.
- Estimates of returns to individual accounts should accurately reflect the likely investment mix in such accounts, rather than assume that all investments are made in equities.
- Future returns to equity investment are likely to be far below historic rates of return.

However, a closer examination of each of those factors suggests that they are either incorrect or are not relevant to comparisons of returns between individual accounts and Social Security. For example, although it is difficult to precisely project future equity returns, the Social Security Administration's estimate of a 6.5 percent average annual return to equities is reasonable and perhaps even low by historical standards. Moreover, returns to private investment through individual accounts should not be risk adjusted. Although investors do consider risk in making investment decisions, that factor is better handled through the use of diversified portfolios. Finally, although the design of transition financing will affect net returns to individual accounts, it is possible to design a transition that does not reduce those returns. Therefore, it is not necessary to reduce returns to reflect transition costs.

Many of these issues deserve thorough discussion, but ultimately they do not change the conclusion. A system of private capital investment through individual accounts will generally yield a higher rate of return than a pay-as-you-go Social Security system.

Social Security's Rate of Return

Social Security is a pay-as-you go program, which means that the taxes paid by workers today are not actually saved or invested for their retirement but rather are used to pay benefits for those who are retired today. Thus, the level of benefits received by each generation of workers is not directly related to the contribution of those workers. Instead, benefit levels are set by Congress on the basis of a variety of factors, some of which are related to wages, which are related to contributions.[5]

As a result, the term "rate of return" may be slightly misleading when applied to Social Security. Indeed, some observers object to the entire concept of applying rate-of-return analysis to Social Security, arguing that rate of return is no more applicable to Social Security taxes than to, say, the portion of income taxes used to pay for the defense budget. They also point out that, to the degree that Social Security functions

as insurance, rate-of-return calculations are not appropriate. After all, if your home does not burn down, what is the rate of return on your fire insurance?

However, most economists attribute an "implicit" rate of return to Social Security, based on a comparison of a person's contributions (taxes) and benefits.[6] This rate of return can be summed up as the average interest rate that a person would have to earn on his or her contributions to pay for all of the benefits that he or she will receive from Social Security, or more technically, "the constant discount rate that equates the present discounted value of contributions with the present discounted value of benefits."[7] It is important to note that this rate of return has nothing to do with the interest attributed to "assets" held by the Social Security Trust Fund.[8]

This formula raises a second issue: Which taxes and benefits should be included? On the one hand, Robert Myers, the Social Security Administration's first chief actuary, believes that only the portion of Social Security tax paid by the employee should be considered.[9] He argues that the employer's portion of the Social Security tax is a social contribution similar to income and other taxes that do not earn a specifically attributable benefit. On the other hand, most economists believe that both the employer's and the employee's portions of the tax should be included because the employee ultimately bears the full cost through reduced wages.[10] In addition, Social Security receives a transfer of funds from the Treasury's general revenues equal to a portion of the income taxes levied on Social Security benefits. However, the Social Security Administration's actuaries have not yet arrived at an adequate mechanism for attributing this revenue to individuals on a prospective basis. Therefore, they have not included these funds in determining rates of return, although they recognize that this omission may overstate projected rates of return.[11]

On the benefit side, there is the question of whether to include disability and survivors' benefits and, if so, how to do so. Some argue that there is a mutual exclusivity between, say, retirement and survivors' benefits, meaning that both sets of benefits should not be included in calculations. Moreover, there is a fundamental difference in the design and purpose of nonretirement benefits such as disability and survivors' benefits. The latter benefits are more of a true insurance benefit—death and disability can strike at any time—whereas workers can plan and save for retirement over a known period, making the retirement portion of Social Security benefits more a question of saving than insurance. Others suggest that disability and survivors' benefits provide a redistributive and insurance element that is integral to the design of Social Security, and can significantly alter the return to specific groups of beneficiaries. Moreover, they correctly point out that it is difficult to separate out the contributions attributed to these benefits. That is particularly true for survivors' benefits because there is no separate, dedicated tax rate for those benefits. Even disability benefits are not entirely separable, since, despite a distinct contribution rate for Disability Insurance, Congress has repeatedly adjusted the rates to manage the financial balances of the separate funds, transferring money from OASI to DI and vice versa.[12]

In the end, either approach to calculating rates of return is valid as long as it is applied consistently to both taxes and benefits. If both retirement and nonretirement benefits are included in the calculations, so too must be the full level of taxation paying for those benefits. Conversely, if nonretirement benefits are excluded, the portion of payroll taxes dedicated to those benefits should likewise not be considered.

For example, in designing its Social Security calculator, the Cato Institute did not include the portion of payroll taxes used to fund disability benefits. It considered only OASI benefits.[13] The Social Security Administration's Office of the Actuary, however, includes both the full payroll tax and survivors' and disability benefits, as do the other studies discussed below, unless otherwise noted.

For the first generation of recipients, the return on Social Security was extremely high (indeed, it could conceivably be infinite) because that generation paid little or no taxes into the system. The classic example is Ida May Fuller, Social Security's first recipient. She paid Social Security taxes for only three years before she retired in 1940 and began to collect benefits. Over those three years she paid a total of $44 in Social Security taxes. Nevertheless, Fuller collected a total of $20,933.52 in benefits over the next 35 years, until she died in 1975 at age 100.[14]

However, those enormous windfalls were a temporary phenomenon. Once a Social Security

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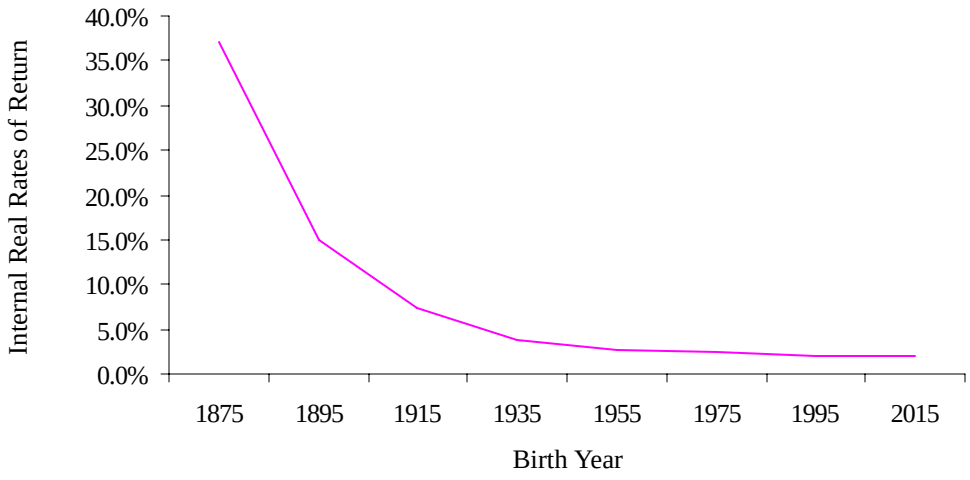
Figure 1
Inflation-Adjusted Internal Real Rate of Return from OASI



Source: Dean R. Leimer, "Cohort-Specific Measures of Lifetime Net Social Security Transfers," Social Security Administration, Office of Research and Statistics, Working Paper no. 59, February 1994.

system reaches maturity (that is, all beneficiaries have paid into the system for a complete working lifetime), each generation's rate of return should be equal to the rate of growth in the wage base covered by the system.[15] The growth of the wage base, in turn, is based on the growth in the labor force plus the growth in real wages. In theory, as long as wage growth remains positive, Social Security can continue to yield a positive rate of return.

But, in recent years the growth in the labor force has slowed dramatically, and productivity growth has been inconsistent. As a result, the overall internal rates of return have continued to decline (Figure 1). We can assume that workers retiring today receive a rate of return of approximately 2 percent and that future retirees will receive even lower rates of return.[16]

The rates of return received by an individual worker can vary significantly from internal rates of return for that worker's cohort because of the cross subsidies and redistributional elements within Social Security.

The rates of return received by individual workers, however, can vary significantly from internal rates of return for that worker's cohort because of the numerous cross subsidies and redistributional elements within Social Security as well as such exogenous factors as life expectancy. For example, Social Security has a progressive benefit formula designed to replace a higher percentage of average lifetime earnings for low-wage workers than for high-wage earners. Thus low-income workers should receive a higher rate of return than high-wage workers in their cohorts. At the same time, low-wage workers tend to have lower life expectancies on average, which offsets much of the system's progressivity and lowers their rates of return.[17] African Americans, regardless of age or income, have shorter life expectancies than do whites, which reduces their rates of return.[18] However, women have longer life expectancies, which improve their rates of return when compared with men.[19]

Family structure also affects rates of return. Social Security offers a spousal benefit equal to 50 percent of the higher-earning spouse's benefits. In addition, if the higher-earning spouse dies, the remaining spouse may receive benefits equal to the deceased spouse's benefits. Workers do not pay any additional taxes in exchange for these spousal benefits, meaning that married couples may receive higher rates of return than single persons. Moreover, both single-earner and dual-earner couples receive some combination of retired-earner and spousal benefits, but only one member of the single-earner couple pays Social Security taxes, while both members of the dual-earner couple do. As a result, one-earner couples receive significantly higher rates of return than two-earner couples.[20]

We can now examine rates of return for various individuals within any particular retirement cohort. Projections of future Social Security returns are by nature inexact. For persons already retired or nearing retirement, it is

possible to substantially base projections on actual work histories, although those data have not been widely available and there have been only a handful of studies that have used it. Most research, therefore, whether looking backward or forward, has relied instead on using hypothetical workers. Therefore, projected rates of return will vary depending on assumptions about such things as labor-force entry, labor-force participation and unemployment patterns, lifetime earnings patterns, ages of retirement, survival probabilities, and so forth.[21]

Trying to take all of this into account, the SSA offers two sets of projected rates of return for 16 categories of hypothetical workers, a total of 32 scenarios. First, the SSA provides estimated returns for hypothetical recipients representing differing gender and marital categories: single male, single female, one-earner couple, and two-earner couple. Second, workers are divided into low- , average- , high- , and maximum-earnings categories. The method assumes that low-wage workers earn 45 percent of the average annual wage; average-wage earners earn, not surprisingly, the average wage; high-wage earners earn 160 percent of the average wage; and maximum earners earn the maximum covered OASDI wage base. The method also assumes that workers start work at age 22; workers' wages increase every year at the same rate as the average wage; and workers remained employed except for periods of disability, until death or until retirement at the normal retirement age. Both spouses in two-earner couples are assumed to earn the same wage. [22]

The Social Security Administration, however, recognizes that few workers follow such steady earnings patterns. Therefore, they offer an alternative scenario for each of these categories on the basis of a different set of assumptions. Under this second set of assumptions, based on a sampling of work histories known as the Continuous Work History Sample, earnings are then adjusted to produce the same level of benefits as for the hypothetical steady-earning worker discussed previously.[23] The net result is a slightly higher rate of return, even though actual benefits are assumed to be the same.[24]

Finally, the SSA recognizes that the currently promised level of benefits cannot be paid with the current level of system revenues.[25] Either benefits must be reduced or taxes must be increased. Either action will reduce the rates of return. However, the method of closing the gap, whether by increasing taxes or by reducing benefits, can have a significant impact on rates of return, both the cohort-by-cohort return and the return received by various subgroups within each cohort. For example, benefit cuts can affect current and near-term cohorts, depending on how they are phased in. Tax increases tend to have a greater impact on future cohorts.

In making its calculations, the Social Security Administration assumes a level of future payroll taxation necessary to pay currently scheduled benefits—that is, a tax increase.[26] It is worth noting, however, that this may still overstate rates of return because it does not include general revenue transfers required to redeem funds from the Social Security Trust Fund. Those funds should be considered as contributions to the Social Security system, but, as with current general revenue transfers, it is difficult to attribute those costs to specific individuals. Therefore, they have been omitted in the calculations below.[27]

Figures 2–5 show the projected rates of return for three cohorts of workers (those born in 1937 and retiring in 2002; those born in 1973, currently age 30; and those born last year) under all 32 scenarios. In every case, single-earner couples have the highest rates of return, while single men have the lowest. Among today's 30-year-olds, the rates of return range from a high of 5.05 percent for a low-wage single-earner couple (using the alternative "scaled" earnings history) to a low of less than 1 percent for a maximum-earning single male (both scaled- and steady-earnings histories). For workers born in 2002, returns range from a high of 4.45 percent (scaled, single-earner, low-age couple) to negative (maximum-earning, single male).[28]

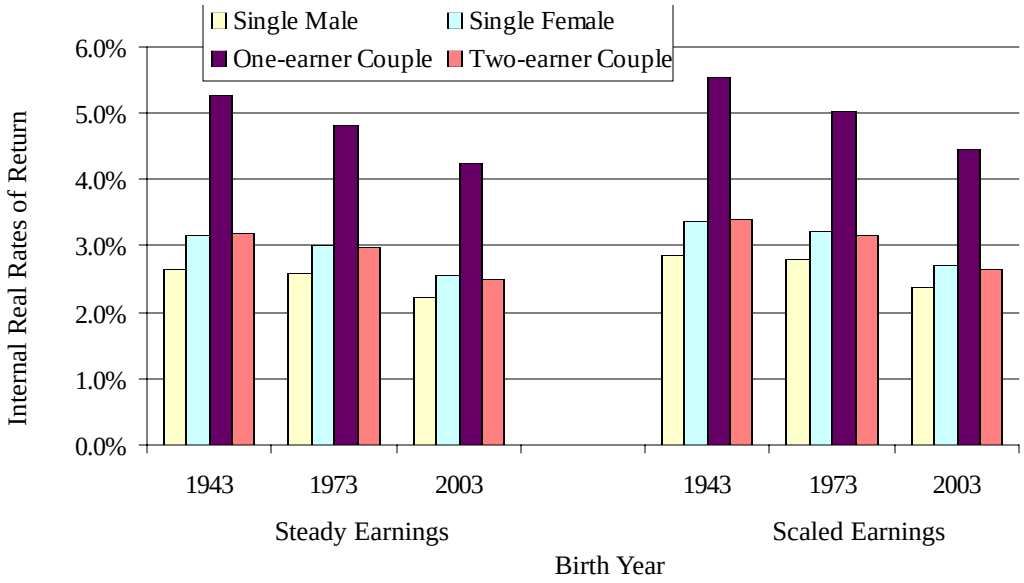
It should be noted however, that these estimates may overstate rates of return for low-income individuals and couples (as well as for African Americans in all categories) because the Social Security Administration does not fully take into account income and racial variations in life expectancy.[29]

Given the number of variables involved, it is not surprising that different analysts arrive at somewhat different rates of return for Social Security.[30] However, it is worth noting that the SSA's estimated rates of return are higher than those developed by most outside analysts.

For example, Peter Ferrara calculates rates of return ranging from 3.75 percent for low-income

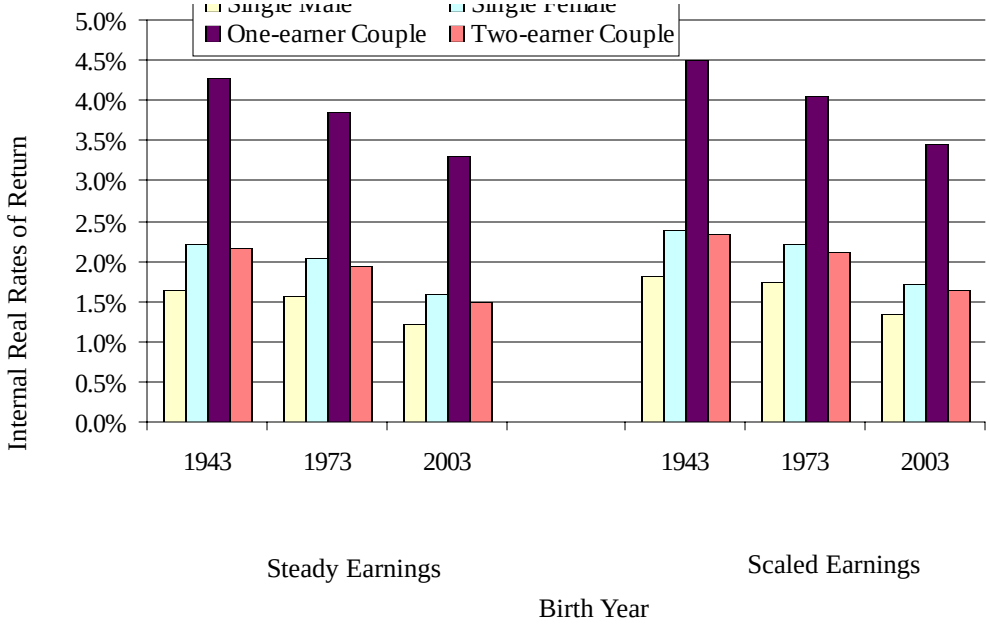
Among today's 30-year-olds, the rates of return range from a high of 5.05 percent for a low-wage single-earner couple to a low of less than 1 percent for a maximum-earning single male.

Figure 2
Internal Real Rates of Return for Low-Earnings Level Workers under Present Law PAYGO Modified OASDI Program, Selected Birth Years



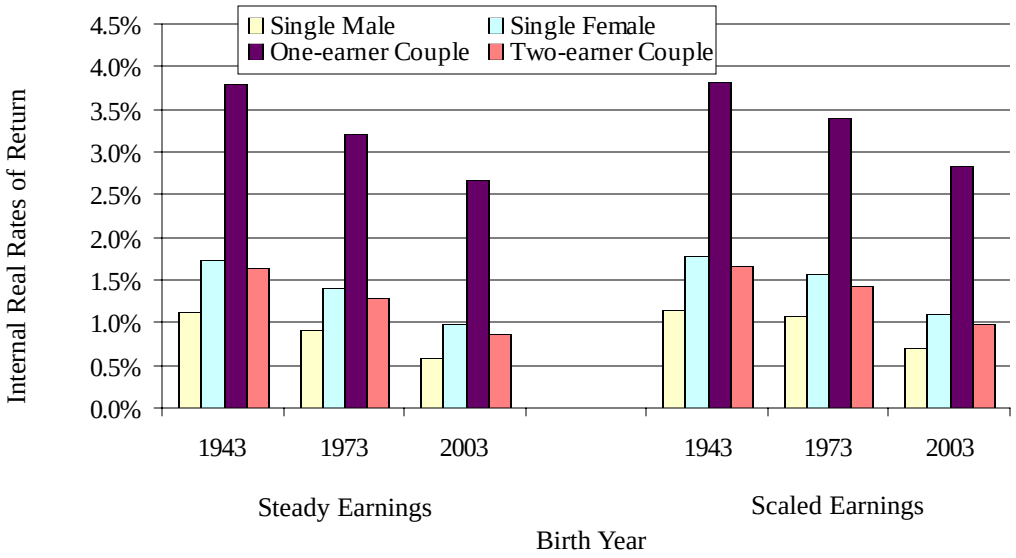
Source: Orlo R. Nichols, Michael D. Clingman, and Milton P. Glanz, "Internal Real Rates of Return under the OASDI Program for Hypothetical Workers," Social Security Administration, Office of the Chief Actuary, Actuarial Note no. 144, June 2001.

Figure 3
Internal Real Rates of Return for Medium-Earnings Level Workers under Present Law PAYGO Modified OASDI Program, Selected Birth Years



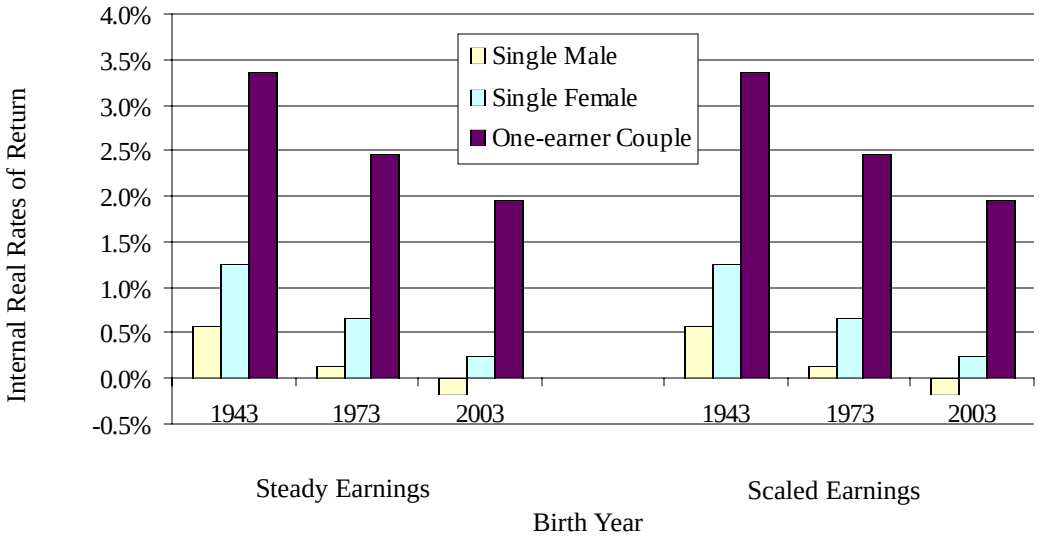
Source: Orlo R. Nichols, Michael D. Clingman, and Milton P. Glanz, "Internal Real Rates of Return under the OASDI Program for Hypothetical Workers," Social Security Administration, Office of the Chief Actuary, Actuarial Note no. 144, June 2001.

Figure 4
Internal Real Rates of Return for High-Earnings Level Workers under Present Law PAYGO Modified OASDI Program, Selected Birth Years



Source: Orlo R. Nichols, Michael D. Clingman, and Milton P. Glanz, "Internal Real Rates of Return under the OASDI Program for Hypothetical Workers," Social Security Administration, Office of the Chief Actuary, Actuarial Note no. 144, June 2001.

Figure 5
Internal Real Rates of Return for Maximum-Level Earners under Present Law PAYGO Modified OASDI Program, Selected Birth Years



Source: Orlo R. Nichols, Michael D. Clingman, and Milton P. Glanz, "Internal Real Rates of Return under the OASDI Program for Hypothetical Workers," Social Security Administration, Office of the Chief Actuary, Actuarial Note no. 144, June 2001.

Any way you look at it, Social Security's rates of return are low and declining.

single-earner couples to a negative 1 percent for a maximum-earning single male.[31] Gordon Goodfellow and Syl Scheiber put the return for high-income single men at less than 0.5 percent.[32] A study for the National Center for Policy Analysis predicts returns for average wage earners entering the workforce today ranging from 3.46 percent for a white single-income couple to 0.86 percent for a single black man.[33] The President's Commission to Strengthen Social Security, using calculations by Social Security's actuaries but slightly different assumptions, pegs the return for a 32-year-old medium-wage single-earner couple at 3.42 percent, and the return for a 22-year-old high-wage single male at less than 1 percent.[34] Gene Steuerle of the Urban Institute, who chairs the Social Security Advisory Board, says that if Social Security were to pay all promised benefits, a 40-year-old single male with average wages can expect a return of just 1 percent. An average-wage-earning two-income couple would receive a 2.3 percent return. But, because Social Security cannot pay promised benefit levels, those returns would actually be only 1.4 percent for the two-income couple and a nearly nonexistent 0.1 percent for the single male.[35]

Any way you look at it, Social Security's rates of return are low and declining. How, then, would these returns compare with those under a system of privately invested individual accounts? Of course, the expected returns from private investment will be higher than those under the current system. But there are several factors that complicate such comparisons.

Market Returns: Past and Future

If policy analysts could really predict future market returns, there would be many more rich policy analysts. Still, it is possible to make some projections.

The most common method of estimating future investment returns is to examine historical trends, generally using some average of past returns over a given period and projecting that average into the future, given similar conditions. However, there are two different methodologies used in determining past average returns, and the two can provide quite different results. The first is arithmetic averaging: simply adding up the annual returns and dividing by the number of years in the covered period. Mathematically, this would be expressed as

$$Ra = (R1 + R2\ldots+Rn)/n$$

Some observers, however, suggest that during periods of strong volatility, this method can overestimate actual returns. Consider, for example, a situation in which a stock costs $100. One year, the price rises to $150, a 50 percent gain. The next year it falls back to $100, a 33 percent decline. The investor has actually realized zero gain, but arithmetic averaging will show an average return of 8.3 percent.

Critics of arithmetic averaging prefer a different measure: geometric averaging, which corrects for the variance in returns. It is calculated as the nth root of the product of the total of the product of yearly returns over a period minus one, or

$$Rg = [\{(1+R1)(1+R2)\ldots(1+Rn)\}^{1/n}] -1$$

Put more simply, the arithmetic mean answers the question "If all the quantities had the same value, what would that value have to be in order to achieve the same total?" The geometric mean answers the question "If all the quantities had the same value, what would that value have to be in order to achieve the same product?"[36]

If returns are constant over time, both measures would provide the same results. However, in the real world, returns vary greatly from year to year, and, therefore, geometric averaging will result in a lower average rate of return. In the example above, geometric averaging would have accurately shown that the investor's return was zero.

William Shipman, among others, has strongly argued in favor of arithmetic averaging *combined with the standard deviation of returns*. He points out that geometric averaging is a backward-looking measure that assumes a constant rate of return, smoothing out the volatility of the markets.

> Using the S&P 500 historical annual returns for the last three quarters of a century a comparison of the two approaches can be made. The arithmetic mean of the series is 12.2, standard deviation is 20.49 and the geometric mean is 10.7. If $1.00 were invested for two years and earned the geometric mean return, then the future value would be $1.22

(1 * 1.107 * 1.107). If, more precisely, the probability-weighted average of all outcomes were sought, then the calculation must take into consideration the standard deviation of returns. Let us assume that in each year only two outcomes are possible: the arithmetic mean return +/- one standard deviation. The value of a dollar invested at the end of one year is either $1.33 (12.2 + 20.49) or $0.92 (12.2 - 20.49). Each has a 50/50 chance of happening. At the end of year two four outcomes are possible. The $1.33, earning the mean return +/- the standard deviation results in $1.76 or $1.22, each having a 50/50 chance. The $0.92 results in either $1.22 or $0.84, each having a 50/50 chance. At the end of year two there are four possible outcomes: $1.76, $1.22, $1.22 and $0.84 each having a 25% probability of happening. The probability-weighted average of all possible outcomes is $1.26. The rate of return that must be compounded for two years to achieve the future value of $1.26, the mean of the probability distribution of ending wealth, is the arithmetic mean of 12.2% not the geometric mean of 10.7%. The geometric mean achieves the median and modal outcomes, but not the average of all outcomes. The more volatile a return series, the more accurately the arithmetic mean accounts for the volatility or uncertainty, and is, therefore, the more appropriate measure for estimating future wealth.[37]

Or in the case of the $100 investment discussed earlier, use of the arithmetic mean together with the standard deviation would have accurately shown that the investor's ending wealth had remained unchanged.

On the other hand, the SSA, Congressional Budget Office, General Accounting Office, Congressional Research Service, and Treasury Department have all adopted geometric averaging. Economists and actuaries with those agencies suggest that the geometric mean provides a closer implicit representation of the linkage between equity prices and such outside factors as productivity and economic growth. They suggest that the arithmetic mean implies a more randomized series of data, such that equity prices could more easily diverge from the underlying economic factors that determine them. In addition, they warn that use of the arithmetic mean without consideration of the standard deviation will overstate the actual return. Therefore, if one is seeking a single number for the purpose of analysis, rather than a range of outcomes, the geometric mean will be the more accurate measure.

Jeremy Siegel of the Wharton School, generally considered the leading expert on historical investment trends, estimates that the arithmetic returns to equities ranged from 8.5 percent (using the period 1802–1997) to 8.7 percent (using the period 1871–1997), and geometric returns of 7.0 percent over both periods.[38]

Recently, a few critics have claimed that Siegel's methodology has inaccurately inflated long-term market returns through "survivor's bias." That is, Siegel's sample includes only companies that have survived. Failed companies, those that went out of business, are dropped from the calculations, thereby inflating rates of return.[39] Some financial analysts have suggested that fully accounting for survivor's bias would reduce historic rates of return by about 0.7 percent over short periods and as much as 1 percent over periods in excess of 15 years.[40] Siegel himself admits that his estimates for pre-1900 returns may be overstated by as much as 1 percent. However, the 19th century was a period of far greater financial and corporate instability. The further one goes into the 20th century, the less that survivor's bias distorts results. In addition, Siegel's estimates also do not include recent years that have seen both increased volatility and steep declines in the stock market. Therefore, a better benchmark of past returns might be Ibbotsen Associates' estimate for the S&P 500 from 1926 to 2002, providing an arithmetic average annual real rate of return of 9.0 percent and a geometric return of 6.9 percent.[41]

Of course, as portfolio managers explain, past performance is no guarantee of future returns. Therefore, in estimating future market performance we should examine several additional factors.

Valuation Ratios

Many analysts use the ratio of stock prices to various accounting measures as a means of projecting future returns, the two most common being corporate earnings and dividends.

The price-to-earnings (P/E) ratio is equal to the price of a share of stock divided by the per-

In short, we cannot grow our way out of Social Security's financial problems.

share earnings of the stock. The ratio of share prices to corporate earnings has varied widely over time. Just in the years since World War II, it has ranged from a low of 7.4:1 in 1979 to a high of 28:1 in 1998.[42] Those analysts who put a priority on P/E ratios as a predictor of market performance suggest that a ratio of around 15:1 is normal, with higher ratios indicative of an overvalued market.[43] Currently, P/E ratios average about 21:1, which, while below 1998 levels, are still high by historical standards.[44] This formula would seem to indicate that stocks remain overvalued.

Although not considered as reliable an indicator as P/E ratios, especially for short-term valuation, the relationship between dividends and prices can also be used to forecast equity returns.[45] The most widely used formula for using dividends to forecast stock prices is the Gordon Growth Model, which assumes that total returns are equal to dividend yields plus capital gains:[46]

$$R=(Dt+1/Pt) + (DPt+1/Pt)$$

where R is the discount rate or expected equity return, D is the dividend paid out, T is time, and P represents the stock price. Or, measuring this as a dividend-to-price ratio, we can rewrite this formula as

$$D/P = R-G$$

with G being the growth rate of dividends. Historically, the dividend/price ratio has averaged around 4.7 percent. But since 1982 it has fallen dramatically, hitting a low of 1.2 percent in January 2000, and has risen only slightly to 1.4 percent thereafter.[47] Many experts suggest that these numbers overstate the actual decline in the dividend/price ratio. First, these numbers do not take into account corporation's repurchase of its own shares, which has been occurring at an unusually high rate over the past decade.[48] Second, dividends are currently at a very low level relative to corporate earnings. Historically, dividends are paid out at a rate of nearly 60 percent of earnings. Currently, dividends are closer to 40 percent of earnings. That percentage suggests that either dividend yields will be higher in the future or that dividends may no longer be a useful marker of corporate earnings or an accurate predictor of future market performance.[49]

It appears that economic growth *per capita* is a far more important measure of future equity returns than economic growth by itself.

In addition, Stephen Goss, the Social Security Administration's chief actuary, believes that dividend yields could increase in the future as the U.S. labor force contracts. Slower growth in employment means that companies may devote a smaller percentage of corporate earnings to labor costs, allowing a greater proportion of those earnings to be paid out in the form of dividends.[50] As a result, most observers are projecting a future adjusted dividend/price ratio of 2.5–3 percent.

Some pessimistic forecasters warn that if current valuations are indeed inflated, we may have entered a prolonged period during which returns will be substantially below historical averages. Robert Schiller and other pessimists argue that current P/E ratios suggest returns in the range of 3.7–4.7 percent.[51] Dean Baker focuses on the dividend/price ratio and concludes that future equity returns will be barely 3.5 percent.[52] Remember that the Gordon formula assumes that stock returns equal the total of the adjusted dividend yield plus the growth rate of stock prices. In a steady state, it is assumed that stock prices will rise at the same rate as GDP growth. (There is reason to dispute this—see below—but we will accept this formulation for purposes of this example.) The SSA assumes future GDP growth of 1.5 percent. Assuming an adjusted dividend yield of 2.5 percent results in a total return of 4 percent (1.5 percent plus 2.5 percent).

Others such as Peter Diamond, while agreeing that current levels of valuation are inconsistent with future projections of returns in excess of 7 percent annually, suggest that, rather than a long period of low returns, there is likely to be a short-term correction, followed by a return to historical rates of return.[53] (Whether the down market of the past three years constitutes such a correction remains to be seen. Recent trends suggest that the market may be moving upward again, but there is no way to know if that is sustainable over the long term, or whether another correction is coming.)

However, a number of theories have been put forth recently to suggest that current valuations are not, in fact, excessively high. For example, Jeremy Siegel argues that advances in information and communications technology have substantially reduced transaction costs.[54] Moreover, the economy and inflation are better managed and wages are more dependable and stable than they were during most of the 200 years Siegel has studied. Those

factors make people feel they can afford to tie up money in long-term investments like stocks without expecting a large risk premium. Lower transaction costs have also made it easier to diversify investment portfolios, which is particularly true since the advent of index funds. Greater diversification makes equity investment less risky, again leading people to accept a lower risk premium.[55] Accounting for all these factors, Siegel believes the appropriate P/E ratio now and in the future should be in the low 20s rather than the historical average of about 15. That means today's market is fairly valued.[56]

Another theory is that there is an inverse relationship between inflation and P/E ratios, with low inflation leading to high P/E ratios.[57] This relationship has been particularly strong since the end of World War II, with scholars estimating that inflation rates of between zero and 2 percent will yield a P/E ratio between 17 and 21.[58]

It is also worth noting that even if prices are high compared with earnings, that does not necessarily mean that prices must decline. It is possible that there will be a rapid increase in earnings and dividends, both of which are below their long-run trend levels, which will restore traditional valuations without any decline in equity returns. John Campbell and Robert Schiller, among the nation's leading experts on stock performance, consider that unlikely, noting that historically there is no guarantee that a profitable decade (like the 1990s) will be followed by a subsequent profitable decade. The 1920s, for example, were followed by the 1930s.[59] However, there is no reason to believe that given pro-growth tax and regulatory policies, we might not see a return to the strong profit and dividend growth of the 1990s.[60]

One side note: both dividends and earnings are tied to economic growth. Slower economic growth leads to lower corporate profits, which, in turn, lead to lower stock prices. That logic has led some critics of individual accounts to suggest that projections for high future stock returns are incompatible with the low economic growth projections that are used to predict Social Security's insolvency. The point is that if the economy grows enough to generate 7 percent market returns, that growth will also keep Social Security solvent. Conversely, they say, if Social Security's trustees are correct in their projections of future economic growth, stocks cannot produce historical rates of return.[61]

However, that critique ignores several factors. First, increases in economic growth do not necessarily translate to employee compensation, employee compensation does not necessarily translate to wage growth, and wage growth does not necessarily occur below the level of the payroll tax cap.[62] Second, because growth in Social Security benefits, not just revenue, is linked to wage growth, increased economic growth may lead to greater long-term obligations. In short, we cannot grow our way out of Social Security's financial problems.

More relevant to the equity return question, economists have not been able to find direct empirical evidence of a link between economic growth per se and stock prices.[63] For example, one study of 31 countries found that developing countries, such as Chile and Pakistan, grew 1.4 percentage points faster on average than did developed countries, such as the United States and Great Britain. Yet, equity returns in developed countries were 2.4 percentage points higher than those in developing countries. That is because developing countries were more likely to expand their gross domestic product (GDP) through an increase in labor-force participation than through increases in productivity. As a result, it appears that economic growth *per capita* is a far more important measure of future equity returns than economic growth by itself.[64] That is an important distinction because the slowdown in economic growth predicted by Social Security's trustees is almost entirely a function of declining labor-force growth.

Likewise, a study by Roger Ibbotson and others showed that from 1925 to 2002 the stock market, earnings, and dividends all grew at approximately the same rate as GDP per capita.[65] As with the international study cited above, productivity is the key factor, driving GDP per capita growth, corporate earnings, and stock prices.

The Social Security Administration and other government economic forecasters predict that future productivity growth will likely remain at about the 1.5 percent per year that the United States has averaged since 1968, and that that rate will result in steady, if unspectacular, GDP per capita growth rates.[66] Therefore, despite potential declines in simple GDP, we can expect continued growth in equity returns.

The Social Security Administration's own independent actuaries assume a 6.5 percent real annual return from equities over the long run.

Risk Premium

Equities generally provide a higher rate of return than bonds because they are considered riskier. Investors, therefore, require an extra reward in exchange for bearing the extra risk. This reward is known as the risk premium.

Historically, stocks have paid a risk premium of 6–7 percentage points over investments perceived to be safer, such as short-term government bonds.[67] Longer-term bonds such as those held by the Social Security Trust Fund also receive a premium of about one percentage point over shorter-term bonds, primarily due to the increased risk of inflation eating away the real returns.[68]

Some analysts believe that the relative increase in stock returns in recent decades reflects a reduction in the equity risk premium demanded by investors. Such a change in investor attitudes would increase returns in the near term, because the price of an asset will rise if it is perceived to be less risky. Once the price is adjusted, however, the risk premium would be smaller than in the past.[69] Although there is merit to this argument, it remains true that stocks are far riskier than bonds in the short run and that the average share on the New York Stock Exchange today is held for less than one year.[70] For shorter-term investors, a substantial risk premium continues to make sense.

A 2000 survey of 226 financial economists found an average forecast for the equity risk premium over the next 30 years of roughly 5 percent, with pessimistic and optimistic case forecasts at 2–3 percent and 12–13 percent, respectively.[71] The average of the economists' forecasts was an arithmetic mean equity premium of 7 percent; given historical volatility, this translates to a geometric mean equity premium of roughly 5 percent. The Technical Panel to the independent Social Security Advisory Board recommended an equity premium of 3 percent over the 3 percent real return assumed for the bonds in the Social Security Trust Fund, thus implying 6 percent real annual returns from equities in the future.[72]

The full before-tax return more accurately reflects the overall gain to the economy and should be kept in mind when considering returns earned by private accounts.

The Impact of Social Security Reform

One wild card in these calculations is the impact of Social Security reform itself. For example, a properly structured system of individual accounts could lead to a significant increase in national savings.[73] That increase would lead to an increase in both economic growth and—perhaps more important—productivity,[74] which, in turn, would increase corporate profits and the return to investments.

Greater investment, however, may create a "capital deepening" effect, which would lead to a reduction in the average rates of return. According to standard economic theory, the most productive investments are the first to be made. Hence, an increase in savings and investment could be forced into less productive investments. The result would be that the average return on investments would decline. Martin Feldstein suggests that the decline would be modest, perhaps 15 percent of current returns, and would not occur until savings from individual accounts had accumulated sufficiently to completely offset any dissaving resulting from Social Security reform.[75] However, not everyone agrees that capital deepening will lower future returns. For example, W. Michael Cox of the Federal Reserve Bank of Dallas believes that we live in an age of such rapid technological innovation that increases in capital may actually accelerate the growth in new technology, which would lead to an increase in the return to capital.[76] This is part of the so-called "New Growth Theory."

An Educated Best Guess

The foregoing discussion shows how difficult it is to project future stock market returns. Taking all of these factors into account, the Social Security Administration's own independent actuaries assume a 6.5 percent real annual return from equities over the long run.

This estimate falls well within the range of estimates provided by other experts. For example, John Campbell of Harvard University suggests a future geometric average return of 5–5.5 percent and an arithmetic average of 6.5–7 percent.[77] John Shoven of Stanford estimates future equity returns at 6–6.5 percent.[78] Financial analysts tend to be slightly more optimistic. Ibbotson Associates forecasts a noninflation adjusted return of 9.37 percent, which translates to a real rate of return of around 6.5 percent. Analysts at T. Rowe Price suggest a real rate of return near 7 percent, while those at AQR Asset Management call for returns of between 7 and 7.5 percent.[79] *Fortune* magazine's panels of experts estimate long-term future returns of 6–8 percent.[80] Other forecasts fall within a similar range.

Indeed, it may even be that SSA's estimate is too conservative. William Shipman, for example, believes that, given the wide variation in opinion and theories on future returns, forecasters should simply dispense with predictions and rely on past returns. He suggests that since no one can know for certain what future returns will be, past performance is the most reliable guide. That is particularly true when the data on past performance cover both a long period of time and many intervening events and economic conditions, such as wars, depressions, recessions, stagflation, and so on. As mentioned earlier, the average geometric return on the S&P 500 since 1926 has been 6.9 percent, and the average arithmetic return has been 9.0 percent.

Bonds

The previous discussion has been focused on equities because they are far more volatile and difficult to predict. However, because portfolios in individual accounts are likely to contain both corporate and government bonds as well as stocks (see below), it is also important to estimate future bond returns as well.

Taking a historical perspective, corporate bonds have produced an average real rate of return of 2.9 percent since 1916. This time frame includes, however, the period from 1941 to 1951 when government-imposed price and interest rate controls appear to have had unnaturally reduced returns on corporate bonds. If those years are excluded, the average annual rate of return on corporate bonds has been nearly 4 percent.[81] Long-term government bonds have produced an average rate of return of 2.7 percent on an arithmetic mean basis, 2.2 percent on a geometric basis.[82]

Because over the long run, most of the return received from a bond is from the interest it pays, plus the reinvestment of that income, projections of future bond returns are usually based on the current coupon rate, which for 10-year Treasury bonds is now a bit under 4 percent, only about a percentage point ahead of inflation. The increases and decreases in bond prices in response to changing interest rates have a big impact on short-term returns but not on long-term returns.

The Social Security Administration projects future returns to government bonds to be 3 percent.[83] Returns for corporate bonds are estimated to be slightly higher, around 3.5 percent.[84]

The Full, Before-Tax Rate of Return

To complicate matters still further, some economists, such as Martin Feldstein, argue that rather than consider the return actually realized by the investor, it is more accurate to use the real before-tax return to capital.[85] Peter Ferrara and I also used this approach in our 1998 book, *A New Deal for Social Security*.[86]

Feldstein estimates that return to be 9.3 percent.[87] More recent work puts the number slightly lower, at 8.5 percent.[88] Individual investors receive a lower rate of return because a portion of their actual returns is taxed away. Nonetheless, the full before-tax return more accurately reflects the overall gain to the economy and should be kept in mind when considering returns earned by private accounts.

Realistic Portfolios

Many rate-of-return comparisons have assumed that individual accounts are composed entirely of stocks. Realistically, though, few persons maintain such a portfolio over their entire lives.

Most financial advisers suggest that their clients adjust their portfolios over the course of their lives, putting their investments primarily in stocks when they are young, and gradually converting to bonds as they age. Take, for example, 401(k) plans. The average worker age 60–65 has only 40 percent of his or her assets invested in stocks, with the remainder in fixed-income assets such as bonds.[89]

In addition, evidence shows that low-income individuals, women, and minorities are more likely to be risk averse in their investments, investing a greater proportion of their assets in low-risk, low-return fixed-income assets such as bonds.[90]

The President's Commission to Strengthen Social Security based its scenarios on a hypothetical portfolio of 50 percent stocks, 30 percent corporate bonds, and 20 percent government bonds.[91] Many other analysts offer a range of portfolio options that include all stock or all bond portfolios and also mixed funds. William Shipman takes this approach in his work for the Cato Institute.[92] The Cato Institute's website calculator enables individual users to vary the composition of their hypothetical portfolios to reflect their individual preferences.[93]

Risk adjustment may measure a psychological factor—how people "feel" about investments—but it does not measure the return that people actually receive.

Simply applying transition costs to the returns from individual accounts ignores both the distributional effects and the true cost of different financing methods.

Risk Adjusting Returns

By its nature, private capital investment contains a degree of risk. A general assumption of economics is that most individuals are averse to risk, although individual risk tolerance varies. Thus investments that offer the possibility of higher returns along with a substantial possibility of loss are often not as attractive as an investment with low returns but substantially lower risk. In fact, the trade-off between potential gains and the risk of loss is what leads to the equity risk premium discussed earlier.

This trade-off has led some analysts to suggest that investments should be "risk adjusted," that is, a penalty should be subtracted from the expected returns of riskier investments to reflect the higher risk that they carry. It is suggested that this allows for a fairer, "apples-to-apples" comparison of returns.[94]

This analysis assumes that stocks are inherently riskier than bonds. That may not, in fact, be true, given a long time horizon. Certainly, stocks are far more volatile, which makes for much greater short-term risk. However, at least in U.S. history, stocks outperform bonds in the long term. In fact, there has never been a 22-year period in U.S. history in which stocks have not outperformed bonds.[95] However, when investors decide how they are going to invest, their decisions are frequently based, not on actual risk, but on their perceptions of risk. If they perceive that stocks are riskier than bonds, they will act accordingly, regardless of whether their perceptions are accurate.

Of course, investors perceive risk differently. They also have differing tolerances for risk. After all, if everyone had the same risk aversion (or preference), all investors' portfolios would look identical. It is presumed, therefore, that investors adjust their portfolios to fit their own individual risk preference. But once they have achieved their preferred level of risk, they are then indifferent at the margin to whether additional investments are in stocks or bonds. They will simply adjust the remainder of their portfolios to keep their overall preferred levels of risk unchanged.

Some observers take this line of reasoning to its logical conclusion and suggest that the risk-adjusted return on all investments should be the same as the bond rate of return.[96] Even the Bush administration has sometimes seemed to take that position. In arguing against a proposal to allow the Railroad Retirement Trust Fund to directly invest in equities, the Office of Management and Budget noted:

> Economic theory suggests . . . that the difference between the expected return of a risky liquid asset and the Treasury [bond] rate is equal to the cost of the asset's additional risk as priced by the market. Following through on this insight, the best way to project the rate of return on the Fund's balances is to use a Treasury rate.[97]

At the other end of the spectrum are those such as Peter Ferrara who argue that workers receive whatever return they receive, not a return reduced by risk adjustment. Risk adjustment may measure a psychological factor—how people "feel" about investments—but it does not measure the return that people actually receive. If a stock sells for 10 percent more this year than it did last year, that is a 10 percent return, no matter how people perceived the risk of that investment.[98]

In this case, it would appear that Ferrara's argument is much closer to the mark. Steve Goss, the Social Security Administration's chief actuary, provides a useful analogy:

> Consider a similar simplification where meteorologists collapse two distinct dimensions, temperature and wind velocity, into the "wind chill" factor, or "wind adjusted" temperature. The approach is based on human perception, indicating that a temperature of, say, 40 degrees with a wind of 20 mph "feels" the same as a temperature of 25 degrees with no wind. This may be a useful construct for some purposes, but you will wait a long time if you try to freeze water in 40 degrees with a 20 mph wind.[99]

Another way to look at this argument is, though investors may be indifferent at the margin to whether their next purchase is a stock or a bond, that indifference is only at the margin. Investors would not be indifferent to, say, swapping all of the stocks in their portfolios for bonds or vice versa. Individual investors not only are aware that stocks are riskier than bonds but also believe that stocks provide a higher expected rate of return.[100] They therefore make their risk-based decisions through their portfolio allocations rather than expected rates of return. Thus, if the risk-adjusted return is the return at the mar-

gin—and that return is the same as the rest of the investor's portfolio—shouldn't we use that return rather than the government bond rate?

Moreover, while about half of Americans have some form of investments, half do not. For those "asset constrained" persons who have no investments today, there are no current asset holdings to rearrange. They would not have already arrived at their preferred degree of risk and would not be indifferent to whether they are able to add equities to their holdings. Even Mitchell and her coauthors agree that for such constrained households an initial small movement of Social Security taxes into the stock market would yield the risk-free rate of return.[101] Even a much larger movement into the stock market for constrained investors, they concede, should be discounted at a rate higher than the bond rate, though not at the full risk-free rate.[102] The same line of reasoning, Mitchell agrees, holds for those investors who currently have some small exposure to equities but would like more.[103] Call those investors "partially constrained."[104]

It should be noted that it is possible for two different portfolios to have identical risk levels but entirely different expected returns because of differences in the way in which risks are managed.[105] Moreover, the General Accounting Office suggests that a well-diversified portfolio has a different and often lower risk than would be indicated by the risks of its individual components.[106]

Finally, as Ferrara has pointed out, if there really was no difference in returns between stocks and bonds, stock exchanges would simply shut down.[107]

It would seem preferable, therefore, to account for the risk of equity investment, not by arbitrarily lowering expected rates of return, but by using balanced portfolios as discussed earlier. Using portfolio allocation as a proxy for risk would be a logical way to permit consideration of the actual expected rate of return, while adjusting for risk in the way that investors actually do.

A second alternative would be to provide not a single risk-adjusted return for funds invested through individual accounts but a range of potential outcomes reflected in a stochastic analysis indicating the likelihood of these outcomes. Doing so is beyond the scope and capability of this study, but some of this type of analysis has been undertaken by Martin Feldstein and others. It is particularly worth noting that Feldstein concluded that contribution rates well below those of the PAYGO system would have a 95 percent probability of producing returns equal to or in excess of the current Social Security system.[108]

Applying Transition Costs

A number of analysts have suggested that any estimate of rates of return to individual accounts must also account for the cost of paying off currently accrued obligations and making the transition to a funded system.[109] As the AARP points out:

> The nation has to make good on the promises it has made to current beneficiaries, and to people who are so close to retirement that they cannot adjust their retirement savings plans. Yet if some of Social Security's revenue is carved out and diverted to individual accounts, the resulting revenue shortfall would have to be made up somewhere, and it would have to come from the same group of workers contributing to individual accounts in the first place, through the income tax, the budget surplus, or debt. In other words, they would pay twice. So, in a sense, the "carve-out" is really an "add-on" for current workers—but instead of being up front and open, it is hidden.[110]

On the surface, this statement is simply a straightforward assertion that what counts is not the gross returns to a worker's account but the net return after deducting all costs, including the cost of transition. To cite a crude example, if a worker received a 5 percent return on the investments in his or her account, but those investments were then taxed at a rate of 5 percent in order to pay for the cost of the transition, the worker would not actually realize that 5 percent return.

But simply applying this cost to the returns from individual accounts ignores both the distributional effects and the true cost of different financing methods. Neither taxes nor government spending are distributed equally across the American population. Therefore, the mix of taxes and spending cuts and the type of taxes raised or spending cut will have different impacts on different people.

General revenue financing of the transition creates a highly progressive situation with nearly the entire transition burden falling on the wealthiest Americans.

For example, the 1.5 percent increase in the payroll tax suggested as a possible transition financing mechanism by individual account proponents on the 1996 Social Security Advisory Council comes close to the type of direct and simple apportionment of costs described earlier because the increased tax rate would have been uniform and would have fallen equally on all workers.[111] In this case, it seems entirely reasonable to reduce returns to reflect the additional costs.

Similar results might be seen under proposals that reduce traditional benefits under the portion of Social Security that continues to be paid out of the traditional PAYGO system (assuming a two-tier system under which only a portion of a worker's payroll taxes are diverted to the individual account). Because the worker continues to pay the same level of tax but receives a reduced level of benefits, the impact would be substantially the same as if payroll taxes had been raised. The exact distributional impact would depend on the method of benefit reduction.

Nevertheless, a proposal to finance the transition out of general revenues, either directly or through debt, would apportion costs unequally both across and within cohorts. General revenues are primarily financed through income taxes, which, unlike payroll taxes, are not equally apportioned. The top 1 percent of U.S. taxpayers (annual income more than $313,469) made 20.8 percent of the income earned in 2000 and paid 37.4 percent of the total federal individual income taxes collected that year. That fraction of the tax burden paid by the top 1 percent—well over a third of the total—is up from 25.1 percent 10 years earlier. At the other end of the income spectrum, the bottom 50 percent of the nation's taxpayers earned only 13 percent of all income in 2000, but they paid an even smaller fraction of the federal individual income taxes collected—3.9 percent.[112]

Thus, with an income tax–financed transition, most workers would pay little or none of the transition cost. Indeed, general revenue financing of the transition creates a highly progressive situation with nearly the entire transition burden falling on the wealthiest Americans.[113] For this relatively small number of taxpayers, the net return on individual accounts would be quite low and could even be negative. On the one hand, some older and wealthy individuals might have no individual accounts at all yet would still have to bear some of the cost, a pure tax in their case. On the other hand, for middle- and especially low-income workers, the net returns would be essentially the same as their gross returns.

However, financing the transition through increased taxes is hardly the optimum approach. A much better approach would be to reduce current government spending. Of course, spending cuts still amount to a general revenue transfer, and some would therefore claim that the cuts would have a distributional impact similar to the income tax scenario described earlier because the funds freed up through the spending reductions came originally from income taxes. Others would point out that because workers are already paying taxes to support a certain level of spending, they are indifferent to how that spending is allocated. Therefore, excluding those who are the direct recipients of the forgone spending, the average worker finds his or her situation unchanged. There are no new costs.

Moving from an individual comparison to an aggregate approach based on cohorts removes many of the distributional questions, though the distinction between a transition financed by tax increases and one financed through spending cuts remains. If a transition were financed out of tax increases, it might well be fair to reduce a cohort's rate of return to reflect the cost of those taxes.

The same is not necessarily true of a transition financed through reductions in government spending. In that case, one could argue that returns to the accounts should be reduced by the amount of return that would have been earned by the forgone government spending (assuming that the benefits of the spending accrue not to individuals but to society at large). The true rate of return to the investments in the private accounts would be the difference between the returns on private capital investment and the returns on government spending.

However, in reality, the vast majority of government expenditures are simply consumption and therefore cannot be considered to provide any rate of return. Only a small proportion of government spending can be considered investments, even in the broadest sense of investment in human capital. True, infrastructure and education spending, as well as spending on basic scientific research, would likely qualify under most definitions of investment. But, even so, studies show little productivity gain from such expenditures. There is, therefore, little or no return on those investments.

Social Security reform offers an almost unique opportunity for creating the pressure to curb government spending.

For example, Douglas Holtz-Eakin, currently director of the Congressional Budget Office, concluded in a 1994 study that there was no evidence that public-sector capital increased private-sector productivity.[114] Even more telling is a study by Paul Evans of Ohio State University and Georgios Karras of the University of Illinois that looked at aggregate productive functions for the nonagricultural gross state product in each of the 50 states, and considered the impact of government capital and government services as well as private capital and labor. With the exception of education, they found no evidence that providing government services increased productivity. More significant, they found that government capital actually had a negative impact on productivity.[115]

Of course, it could be argued that the preferred course of action would be simply to cut spending and return the money to individual workers in the form of tax cuts while allowing Social Security to continue at its sustainable PAYGO benefit level. That approach would theoretically produce a rate of return higher than either the current or a reformed Social Security system for some of today's workers (though not for future generations).

For example, assume that a worker can expect a 1.5 percent rate of return from Social Security and a 4.6 percent rate of return from private investment (given the return and portfolio assumptions cited earlier). If spending was cut and the money was used to finance the transition to a system of individual accounts, workers would presumably earn a 4.6 percent return rather than a 1.5 percent return, a significant improvement. However, if that money were simply returned in the form of a tax cut, and the worker subsequently invested that money, he or she would receive the full 4.6 percent return on that money, *plus* a 1.5 percent return from Social Security.[116]

The problem with this line of reasoning is that, while economically sound, it ignores political reality. It assumes that spending could be reduced by identical amounts in the presence or absence of Social Security reform. But if Congress had the will to reduce spending, it would have done so.

Advocates of Social Security reform assume that the prospect of reform, with its attendant benefits of ownership and control, would provide an impetus for reducing spending. As Laurence Kotlikoff has suggested, making the need for additional revenues explicit, as opposed to implicit and hidden under the current system, could create pressure for spending cuts (or tax increases) that otherwise would not occur.[117]

Advocates of this approach to transition financing, then, are making a political economy argument. One reason that it is easy to increase but difficult to reduce government spending is that benefits are concentrated while costs are diffuse. The small number of beneficiaries of any particular government program often receive very large rewards, while the much larger number of nonrecipients bear only a small incremental cost. Politicians are unlikely to hear from the majority who hardly notice the additional tax burden they are bearing, but will hear a great deal from the few who are benefiting from the program. Thus, constituencies and interest groups are created for each particular political benefit program, and it becomes nearly impossible to get rid of them.[118] Indeed, according to one study, 96 percent of witnesses appearing before congressional committees testified in support of government programs or spending.[119]

Therefore, to reduce spending or eliminate programs, a countervailing benefit must be created, a benefit sufficient to create a public demand for action that will be as great as or greater than the demands of a program's beneficiaries. Social Security reform, with the benefits of ownership and control, as well as the potential for establishing sustainability and solvency within the most popular and widespread government program, offers an almost unique opportunity for creating the pressure to curb government spending. The question that reformers want to ask, in effect, is, "Which is worth more to you: program X or a personal retirement account?"

One additional point is that if transition costs are to be deducted from the returns earned through individual accounts, then it seems logical that those returns should be based on the full before-tax return to capital rather than the return realized by the investor. After all, the difference between the pretax and realized returns reflects revenue to the government. Additional investment in the form of individual accounts would presumably yield additional revenue, which would finance at least part of the transition cost.[120]

In considering the impact of transition financing on rates of return, the key question, therefore, is program design. Clearly, it is possible to design a transition that reduces rates of return, but it is not necessary to do so. Opponents of individual

Proposals to finance the transition through reductions in current government spending would not reduce the returns received by most American workers.

accounts implicitly argue that a transition must be funded through new taxes. However, most supporters of individual accounts have suggested spending cuts as a superior financing mechanism. Funding a transition through increased taxes might reduce rates of return, though the distribution of the impact would vary widely. Financing a transition through reduced government spending would not reduce returns.

Administrative Costs

Finally, the return that investors receive on the investments in their accounts should be adjusted to reflect the costs of administering and managing those accounts.[121] That point has never been disputed by advocates of individual accounts, and most rate-of-return comparisons put forward by individual account supporters have deducted such costs.

Private capital investment provides a higher rate of return for all high- and average-wage workers born after 1937.

However, the range of administrative costs suggested by individual account opponents are several orders of magnitude higher than evidence would indicate. Many opponents of this reform estimate administrative costs of 100 basis points (1 percent of assets managed) or higher.[122] Although a full discussion of administrative costs depends on the program's ultimate structure and is well beyond the scope of this paper, a study by the Cato Institute suggests that administrative costs are more likely to fall in the range of 30–65 basis points.[123] The President's Commission to Strengthen Social Security estimated administrative costs at 30 basis points. But evidence exists that even those numbers may be too high.[124] Experience with broad-based retirement funds such as TIAA-CREF and the federal Thrift Savings Plan suggests that administrative costs could be as low as 10–20 basis points.

To the degree that funds are annuitized at retirement, there would be additional costs. However, as with general administrative costs, critics may be overstating the cost of annuitization. On average, individual annuitization policies pay out 80–85 cents of every premium dollar paid, with the best plans paying out in excess of 90 cents.[125]

Conclusion

Economic theory holds that private capital investment should provide a higher rate of return than a mature PAYGO Social Security system. If one accepts the Social Security Administration's assumptions about future bond and stock returns, a balanced portfolio (50 percent stocks, 30 percent corporate bonds, and 20 percent government bonds) could be expected to yield a return of 4.9 percent. Subtracting 30 basis points of administrative costs provides a net yield of 4.6 percent.[126]

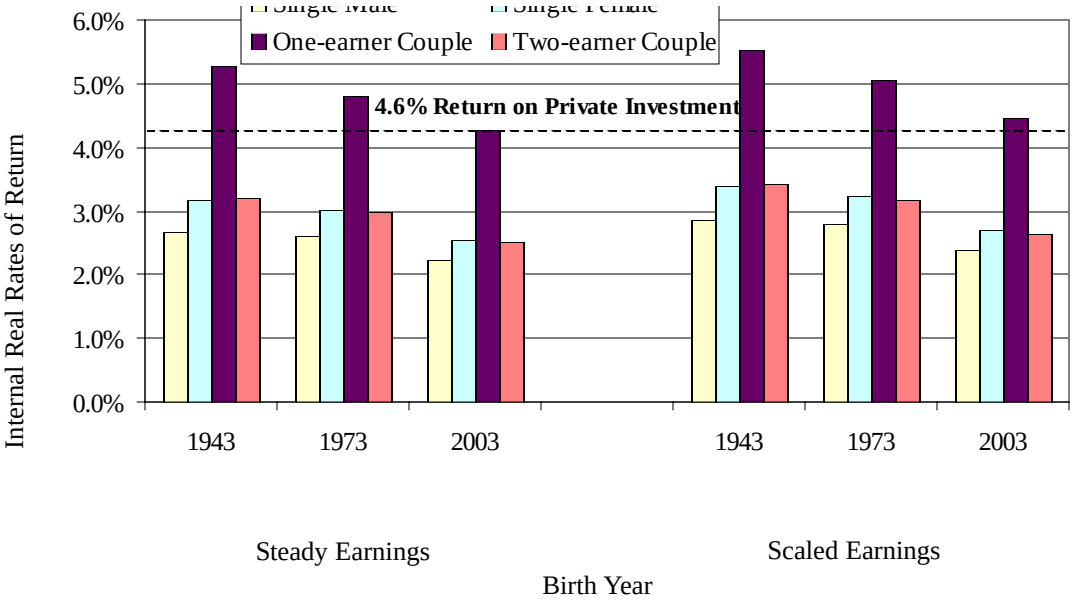
The SSA's basis for this estimate appears not only realistic but conservative. Moreover, returns to private investment through individual accounts should not be risk adjusted. Although investors do consider risk in making investment decisions, that factor is better handled through the use of diversified portfolios. The SSA accomplishes this through the use of the 50/30/20 portfolio. Finally, although the design of transition financing will affect net returns to individual accounts, it is possible to design a transition that does not reduce those returns. In particular, proposals to finance the transition through reductions in current government spending would not reduce the returns received by most American workers. Other forms of transition financing could reduce the net returns of some workers, but most of the cost would fall on high-income workers.

Using the foregoing estimates to compare returns from the current pay-as-you-go Social Security system with a system of private investment clearly demonstrates the superiority of the investment-based system.

On a cohort basis, there is no contest. Clearly, the 4.6 percent return to private capital markets exceeds the 2 percent or less available through Social Security. This return amounts to a substantial amount of money for the average worker. To provide a vastly oversimplified example, a worker earning $30,000 per year will pay $120,000 in Social Security taxes over a 40-year working lifetime. A 2 percent return on that money yields Social Security benefits equivalent to $185,000. But a 4.6 percent return would yield $344,000, nearly twice as much.

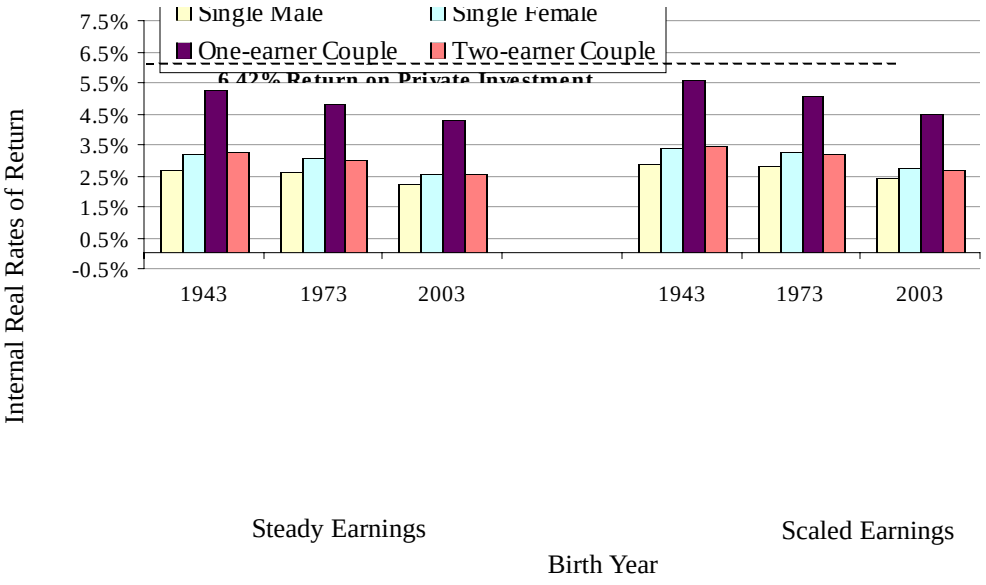
On an individual basis, the internal redistribution within Social Security creates a somewhat more complex situation—but only somewhat. Private capital investment provides a higher rate of return for all high- and average-wage workers born after 1937. Most low-income workers also receive a higher rate of return from private investment. Only low-wage single-income cou-

Figure 6
Social Security Rates of Return for Low-Level Earners vs. Individual Accounts (4.6% Return)



Source: Orlo R. Nichols, Michael D. Clingman, and Milton P. Glanz, "Internal Real Rates of Return under the OASDI Program for Hypothetical Workers," Social Security Administration, Office of the Chief Actuary, Actuarial Note no. 144, June 2001.

Figure 7
Social Security Rates of Return for Low-Level Earners vs. Individual Accounts (6.42% Return)



Source: Orlo R. Nichols, Michael D. Clingman, and Milton P. Glanz, "Internal Real Rates of Return under the OASDI Program for Hypothetical Workers," Social Security Administration, Office of the Chief Actuary, Actuarial Note no. 144, June 2001.

Clearly, investment in private capital assets provides a higher rate of return than can be earned through the current PAYGO Social Security system.

ples receive a slightly better return from Social Security, and even that advantage disappears in the future (Figure 6).

Using only slightly more optimistic assumptions shows an even larger gap between Social Security's returns and those provided by private accounts. For example, using the actual geometric average return to equities since 1926, 6.9 percent, rather than SSA's estimate of 6.5 percent, yields an average return of 4.8 percent, for a 50/50 stock/bond portfolio (after subtracting administrative costs). A portfolio of 60 percent stocks and 40 percent bonds would yield a return of 5.16 percent. Using the historical arithmetic rate of return, 9.0 percent, yields a return of 5.85 percent for a 50/50 portfolio and 6.42 percent for a 60/40 portfolio (Figure 7). For the vast majority of workers, private investment would clearly provide far better returns than Social Security.

Any remaining disparities can be addressed through other means, particularly in a mixed or two-tier system such as that proposed by the President's Commission to Strengthen Social Security. Under its Plans 2 and 3, the commission would have the portion of Social Security provided under the traditional structure be more progressive and would also increase the minimum benefit levels.[127]

Clearly, investment in private capital assets provides a higher rate of return than can be earned through the current PAYGO Social Security system. That is true both on an age cohort basis and for different categories of recipients. Even those groups that receive the highest returns under Social Security, such as low-income, single-earner couples, would receive higher rates of return through private investment. Higher returns would, in turn, mean higher retirement benefits.

Given the other advantages of individual accounts, such as inheritability, ownership, and equity, Social Security reform based on private capital investment is clearly superior to the current Social Security system.

Notes

1. Alan D. Viard, "Pay-As-You-Go Social Security and the Aging of America: An Economic Analysis," *Federal Reserve Bank of Dallas Economic and Financial Review*, November 4, 2002.

2. Peter Orszag, "Individual Accounts and Social Security: Does Social Security Really Provide a Lower Rate of Return?" Center on Budget and Policy Priorities, March 9, 1999, p. 1.

3. "Ten Points Concerning Carve-Out Individual Social Security Accounts," AARP Research Center, October 2002, http://research.aarp.org/econ/dd80_carve.ht ml#accounts.

4. Olivia S. Mitchell, John Geanakoplos, and Stephen Zeldes, "Social Security's Money's Worth," in *Prospects for Social Security Reform*, ed. Olivia S. Mitchell, Robert J. Myers, and Howard Young (Philadelphia: University of Pennsylvania Press, 2000), pp. 79–151.

5. Orlo Nichols, Michael Clingman, and Milton P. Glanz, "Internal Rates of Return under the OASDI Program for Hypothetical Workers," Social Security Administration Actuarial Note no. 144, June 2001.

6. Rate of return is the most commonly cited way to measure the money's worth value of Social Security, but certainly not the only one. A very simple measure is the "payback period," or the length of time required for a beneficiary to receive back in benefits the value of taxes that he or she paid into the system while he or she was working. Using this measure, for example, the Congressional Research Service estimated that a worker born in 1965 would have to live until age 91 and nine months. See Congressional Research Service, "Social Security: The Relationship of Taxes and Benefits for Past, Present, and Future Retirees," June 22, 2001. Another common measure is the benefit-to-tax ratio, which provides a ratio of the present value of benefits expected to be received divided by the present value of taxes expected to be paid (PVB/PVT). A variation on this is the lifetime net tax rate or lifetime transfer, which calculates the excess of the present value of payroll taxes over the present value of benefits, measured as a percentage of the present value of lifetime earnings. This measure is frequently used by Jagadeesh Gokhale and Laurence Kotlikoff among others. See, on the other hand, Jagadeesh Gokhale and Laurence Kotlikoff, "Social Security's Treatment of Postwar Americans: How Bad Can It Get?" in *The Distributional Aspects of Social Security and Social Security Reform*, ed. Martin Feldstein and Jeffrey B. Liebman (Chicago: University of Chicago Press, 2002). Mitchell et al. prefer to use a net present value metric, which looks at the present value of Social Security's cash inflows minus the present value of the program's cash outflows. Mitchell, Geanakoplos, and Zeldes. Although specifics may vary, all of these measures provide similar overall results. The money's worth of Social Security is declining and below that which can currently be provided through private capital investment. For a discussion of all these money's worth measures, see Dean Leimer, "A Guide to Social Security Money's Worth Issues," *Social Security Bulletin* 58, no. 2 (Summer 1995): 3–20.

7. General Accounting Office, "Social Security: Issues in Comparing Rates of Return with Market Investments," GAO/HEHS-99-110, August 1999, p. 16.

8. The special-issue securities held by the Social Security Trust Fund are said to earn a return equal to the average market rate yield on all U.S. government securities with at least four years remaining until maturity, rounded to the nearest one-eighth of a percent. Robert J. Myers, *Social Security*, 4th ed. (Philadelphia: University of Pennsylvania Press, 1993), p. 142. However, this rate of interest is actual-

ly only "attributed" to the bonds in a paper transaction. No money actually changes hands. Thus, many observers suggest that there is no actual investment of trust fund monies at all. Moreover, it is important to point out that most Social Security taxes are not invested in even this limited sense, but are simply used to pay current benefits. There is, therefore, no rate of return on this portion of Social Security funds. For a better understanding of the nature of the Social Security Trust Fund and its investments, see June O'Neill, "The Trust Fund, the Surplus, and the Real Social Security Problem," Cato Institute Social Security Paper no. 26, April 9, 2002.

9. Myers, pp. 512–13.

10. Jonathan Gruber, "The Incidence of Payroll Taxation: Evidence from Chile," National Bureau of Economic Research Working Paper no. 5053, March 1995.

11. Nichols, Clingman, and Glanz, p. 1.

12. General Accounting Office, p. 20.

13. www.socialsecurity.org.

14. "The Ghost of Social Security," *Wall Street Journal*, July 12, 2000.

15. Paul A. Samuelson, "An Exact Consumption Loan Model of Interest with or without the Contrivance of Money," *Journal of Political Economy* 66 (1958): 467–82.

16. General Accounting Office, p. 6.

17. Daniel Garrett, "The Effects of Differential Mortality Rates on the Progressivity of Social Security," *Economic Inquiry* 33 (July 1995): 457–75.

18. Constantijn WA Panis and Lee Lillard, "Socioeconomic Differentials in the Return to Social Security," RAND Corporation Working Paper no. 96-05, 1996; Jeffrey Liebman, "Redistribution in the Current U.S. Social Security System," Lecture delivered at Harvard University, July 2001; Michael Tanner, "Disparate Impact: Social Security and African Americans," Cato Institute Briefing Paper no. 61, February 5, 2001. Because there are so many variables to be considered, including earnings patterns, income, marital status, family status, and employment and unemployment, studies of rates of return for African Americans have not been as consistent in their results as studies that have looked at factors such as income or gender. A small number of studies, including those by Dean Leimer of the Social Security Administration—"Lifetime Redistribution under the Social Security Program," *Social Security Bulletin* 2 (1999): 43–51—and Treasury Department Researchers James Duggan, Robert Gillingham, and John Greenlees—"Progressive Returns to Social Security? An Answer from Official Records," Department of the Treasury Research Paper no. 9501, November 1995—have found that the system's progressivity offset longevity problems. Charles Meyer and Nancy Wolf, "Intercohort and Intracohort Redistribution under Old-Age Insurance: The 1962–1972 Retirement Cohorts," *Public Finance Quarterly* (July 1987): 259–81, found mixed results. Married African Americans received an advantage under Social Security, but single African Americans were at a disadvantage. However, the weight of evidence increasingly supports the idea that returns for African Americans are lower than those for whites. See, for example, Alan Frieden et al., "Internal Rates of Return to Retired Worker-Only Beneficiaries under Social Security," *Studies in Income Distribution* 5 (October 1976); Michael Hurd and John Shoven, "The Distributional Impact of Social Security," in *Pensions, Labor, and Individual Choice*, ed. David Wise (Chicago: University of Chicago Press, 1985), pp. 193–215; Ronald Lee, "Race-Ethnicity and Social Security Transfers: Who Gains and Who Loses?" Paper presented at the 1994 Annual Meeting of the Population Association of America, Miami, Florida, May 1994, in addition to those studies cited in the main text.

19. Panis and Lillard.

20. Leanne Abdnor, "Social Security Choices for the 21st Century Woman," Cato Institute Social Security Paper no. 32, forthcoming.

21. Dean Leimer, "A Guide to Social Security Money's Worth Issues," *Social Security Bulletin* 58, no. 2 (Summer 1995): 3–20.

22. Nichols, Clingman, and Glanz, pp. 1–2.

23. The CWHS is based on a sampling of 1 percent of Social Security work histories of all persons who have paid FICA taxes at some point during their lifetime. The SSA's rate-of-return methodology ignores those workers in the CWHS who have not paid payroll taxes for at least 40 quarters, and are therefore not considered fully insured.

24. Nichols, Clingman, and Glanz, pp. 2–3.

25. According to the 2003 report of the Social Security trustees, the system will begin running cash deficits within 15 years, and the Social Security Trust Fund will be exhausted by 2042. At that time, by law, Social Security cannot continue to pay the promised level of benefits. *The 2003 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (Washington: Government Printing Office, 2003).

26. Nichols, Clingman, and Glanz, p. 3.

27. As a corollary to this line of reasoning, it could be argued that payroll tax rates from 1983 to 2018 should be considered lower than their actual levels because surplus taxes were not actually a contribution to Social Security. That case seems somewhat weaker, however, because workers certainly believed that they were paying for Social Security benefits. The question of whether surplus payroll taxes constitute a contribution toward Social Security benefits underscores the ultimate problem in a system in which no real connection exists between contributions and benefits. At any rate, the SSA does not adjust for either past payroll tax surpluses or future repayment of trust fund assets.

28. Ibid, Table 4, p. 5.

29. The SSA also does not account for the higher use of disability and survivors' benefits by these groups. That would not affect rate-of-return estimates that consider only OAI benefits but might affect estimates attributing a return to DI and SI benefits.

30. In addition, the Social Security Administration uses a somewhat different interest rate measure in determining present values. The most common measure of present

value is based on the after-tax rate of return to long-term government bonds, which is thought to be the best reflection of the interest rates that workers face with regard to their borrowing or lending decisions. Leimer, "A Guide to Social Security Money's Worth Issues." SSA, however, uses the effective yield on trust fund assets, a slightly higher number.

31. Peter Ferrara, "Rates of Return for Today's Young Workers," National Chamber Foundation, Washington, 1986.

32. Gordon Goodfellow and Syl Scheiber, "Simulating Benefit Levels under Alternative Social Security Reforms," in *Prospects for Social Security Reform*, ed. Olivia S. Mitchell, Robert J. Myers, and Howard Young (Philadelphia: University of Pennsylvania Press, 1999).

33. Liquin Liu and Andrew J. Rettenmaier, "Social Security and Race," National Center for Policy Analysis Policy Report no. 236, December 2000.

34. President's Commission to Strengthen Social Security, *Interim Report*, August 2001, p. 7.

35. Cited in Richard Jackson and Neil Howe, "Does Social Security Give Us Our Money's Worth?" Concord Coalition Facing Facts Alert no. 35, June 23, 1997.

36. "Application of the Geometric Mean," University of Toronto Mathematics Network, Question Corner and Discussion Area, May 22, 1997.

37. William Shipman, Memorandum to the Social Security Administration, June 20, 2003.

38. Jeremy Siegel, *Stocks for the Long Run* (New York: McGraw-Hill, 1998).

39. Stephen Brown et al., "Survivor's Bias in Performance Studies," *Review of Financial Studies* 5 (1992): 553–80.

40. Mark M. Carhart et al., "Survivor Bias and Mutual Fund Performance," Goldman Sachs Asset Management, August 9, 2001.

41. Total return numbers, assumes dividends are reinvested. Calculated by Ibbotsen Associates. e-mail to Helen Mitchell, Cato Institute, August 19, 2003.

42. Ruben Trevino and Fiona Robertson, "P/E Ratios and Stock Market Returns," *Journal of Financial Planning* (February 2002).

43. Pu Shen, "The P/E Ratio and Stock Market Performance," Federal Reserve Bank of Kansas City, 2002.

44. ww.investment-tools.com.

45. John Shoven of Stanford University among others believes that dividend-based forecasting models are obsolete in today's financial markets. John Shoven, "What Are Reasonable Long-Run Rates of Return to Expect on Equities?" Social Security Advisory Board, August 2001.

46. Myron J. Gordon, *The Investment, Financing, and Valuation of the Corporation* (Homewood: Illinois: Irwin, 1962).

47. John Y. Campbell, "Forecasting U.S. Equity Returns in the 21st Century," Social Security Advisory Board, August 2001.

48. Diamond., p. 27.

49. Ibid.

50. Stephen C. Goss, "Equity Yield Assumptions Used by the Office of the Chief Actuary, Social Security Administration, to Develop Estimates for Proposals with Trust Fund and/or Individual Account Investments," Social Security Advisory Board, May 8, 2001.

51. John Y. Campbell and Robert J. Schiller, "Valuation Ratios and the Long-Run Stock Market Outlook: An Update," National Bureau of Economic Research Working Paper no. 8221, September 2001.

52. Dean Baker, "The Stock Market Bubble and Investing Social Security in the Stock Market," Center for Economic and Policy Research, July 22, 2002.

53. Peter Diamond, "What Stock Market Returns to Expect for the Future?" Boston College Center for Retirement Research Issue Brief no. 2, September 1999.

54. John Carlson, Eduard Pelz, and Mark Wohar, "Will the Valuation Ratios Return to Historical Means? Some Evidence from Breakpoint Tests," Federal Reserve Bank of Cleveland Working Paper no. 01-13, September 2001.

55. New investment vehicles such as Exchange Traded Funds, which track the composition of entire exchanges, may make it even easier to diversify portfolios, meaning that the trend toward lower-risk premiums could accelerate. See Gary Gastineau, *The Exchange-Traded Funds Manual* (Indianapolis: John Wiley, 2002).

56. Jeremy Siegel, "The Shrinking Equity Premium," *Journal of Portfolio Management* (Fall 1999): 10–17.

57. Jay R. Ritter and Stephen Warr, "The Decline of Inflation and the Bull Market of 1982 to 1997," University of Florida, June 1999; Stephen Sharpe, "Stock Prices, Expected Returns, and Inflation," Finance and Economic Discussion Series no. 1999-2, Board of Governors of the Federal Reserve, July 1999.

58. Carlson, Pelz, and Wohar, p. 12.

59. Campbell and Schiller.

60. For example, passage of President Bush's proposed elimination of the taxation of dividends will almost certainly lead to an increase in dividend growth.

61. Dean Baker, "Saving Social Security with Stocks: The Promises Don't Add Up," Century Foundation/Economic Policy Institute, 1997.

62. For a more detailed discussion, see Andrew Biggs, "Social Security: Is It 'A Crisis That Doesn't Exist'?" Cato Institute Social Security Paper no. 21, October 5, 2001.

63. Philippe Jorion and William N. Goetzmann, "Global Stock Markets in the Twentieth Century," *Journal of Finance*, June 1999.

64. Philippe Jorion, "Global Stock Markets and Economic

Growth," paper presented at a conference on The Equity Premium and Stock Market Valuation, Anderson School of Management, University of California, Los Angeles, April 30, 1999.

65. Roger Ibbotson and Peng Chen, "Stock Market Returns in the Long-Run: Participating in the Real Economy," *Financial Analyst Journal* (July 2002): 9, 22, Figure 5.

66. 2003 Trustees Report, Tables II.H1, II.C1, *2000 Economic Report of the President* (Washington: Government Printing Office, 2000), 2000–2075 projected.

67. Nineteen Ninety-Nine Technical Panel on Assumptions and Methods, "Report to the Social Security Advisory Board," November 1999, p. 27, www.ssa.org. Over the past 60 years, roughly since the end of World War II, the equity premium has steadily increased. There are several factors that may account for this. First, in the wake of the Great Depression and the fear of investing caused by the 1929 crash, investors may have demanded a higher premium for stocks in exchange for the higher risks they perceived. Therefore, stock returns from 1946 to 1997 averaged 7.5 percent after inflation, half a percentage point higher than the overall average since 1802. At the same time, rising inflation reduced the real returns from fixed income investments such as bonds. The Consumer Price Index rose at an annual rate of 4.3 percent from 1946 to 1997, compared with a 1.3 percent average annual rate of increase throughout U.S. history. The effect of this increased inflation was to reduce the real return from short- and long-term bonds to 0.5 and 1.1 percent annually, compared to their historical returns of 2.9 and 3.5 percent after inflation. Siegel, p. 15. In the absence of similarly traumatic events in the future, one could expect that the equity premium would return to something closer to its historical average.

68. For details see Stephen C. Goss, "Equity Yield Assumptions Used by the Office of the Chief Actuary, Social Security Administration, to Develop Estimates for Proposals with Trust Fund and/or Individual Account Investments," in "Estimating the Real Rate of Return on Stocks over the Long Term," Report to the Social Security Advisory Board, August 2001.

69. The *Dow 36,000* thesis takes this argument to its logical extreme. In their book, James Glassman and Kavin Hassett argue that because stocks are no riskier over the long run than bonds, rational investors should be willing to pay the same for stocks as they would for bonds producing a similar cash flow. Once the correct price had been reached—36,000 for the Dow Jones Industrials Index, the authors speculated—stocks would produce long-term returns similar to those of bonds. Therefore, a larger equity premium (with higher returns) in the short term would be followed by a smaller premium (with lower returns) in the long run. James K. Glassman and Kevin A. Hassett, *Dow 36,000: The New Strategy for Profiting from the Coming Rise in the Stock Market* (New York: Times Business, 1999).

70. New York Stock Exchange statistics archive.

71. Ivo Welch, "Views of Financial Economists on the Equity Premium and Other Issues," *The Journal of Business* 73–74, (October 2000): 501–37.

72. 1999 Technical Panel on Assumptions and Methods, "Report to the Social Security Advisory Board," November 1999, p. 27.

73. See, for example, Martin Feldstein, "Privatizing Social Security: The $10 Trillion Opportunity," Cato Institute Social Security Paper no. 7, January 31, 1997.

74. Paul A. Samuelson and William Nordhaus, *Economics* (New York: McGraw Hill, 1985), p. 800.

75. Martin Feldstein, "National Savings in the United States," Harvard Institute of Economic Research Discussion Paper no. 506, October 1976.

76. W. Michael Cox and Richard Alm, "Technology and Growth in the Information Age—And Beyond," Federal Reserve Bank of Dallas, 1997 *Annual Report*, January 1, 1997.

77. Campbell, "Forecasting U.S. Equity Returns in the 21st Century."

78. Shoven.

79. Jeanne Sahadi, "Will You Have Enough to Retire?" *CnnMoney*, July 26, 2002.

80. www.pbs.org/wsw/news/fortunearticle_20030602_01.html.

81. Calculated from Moody's Investment Service, Moody's Industrial Manual, Moody's Bond Survey, 1920–1996.

82. Shoven.

83. Using intermediate projections. The actual range of projected returns on bonds ranges from 2.2 percent to 3.7 percent. *The 2003 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds.*

84. Memorandum from Stephen C. Goss and Alice Wade to the President's Commission to Strengthen Social Security, January 31, 2002.

85. Martin Feldstein, "The Missing Piece in Policy Analysis: Social Security Reform," *American Economic Review* 95 (August 1995).

86. Peter Ferrara and Michael Tanner, *A New Deal for Social Security* (Washington: Cato Institute, 1998), pp. 180–81.

87. Martin Feldstein, Louis Dicks-Mireaux, and James Poterba, "The Effective Tax Rate and the Pre-Tax Rate of Return," *Journal of Public Economics* 21 (July 1983): 129–58.

88. James Poterba, "The Rate of Return to Corporate Capital and Factor Shares: New Estimates Using Revised National Income Accounts and Capital Stock Data," National Bureau of Economic Research, April 1999, pp. 9–10.

89. Robert Clark et al., "Making the Most of 401(k) Plans: Who's Choosing What and Why?" in *Forecasting Retirement Needs and Retirement Wealth*, ed. Olivia S. Mitchell, P. Brett Hammond, and Anna M. Rappaport (Philadelphia: University of Pennsylvania Press, 2000) pp. 95–138.

90. See, for example, General Accounting Office, "Social Security Reform: Implications for Women's Retirement Income," GAO/HEHS-98-42, December 1997, p. 14. However, there are indications that as women and minorities become more experienced investors, their portfolios begin to resemble those of other investors. The conservative nature of their investing, therefore, is more likely a matter of inexperience and lack of information than of other characteristics. See, for example, "When It Comes to Investing, Women Are Paying More Attention," Press Release, Oppenheimer Funds, January 14, 1998.

91. President's Commission to Strengthen Social Security, *Report of the President's Commission: Strengthening Social Security and Creating Personal Wealth for All Americans* (Washington: Government Printing Office, December 2001), p. 97.

92. William G. Shipman, "Retiring with Dignity: Social Security vs. Private Markets," Cato Institute Social Security Paper no. 2, August 14, 1995; Melissa Hieger and William G. Shipman, "Common Objections to a Market-Based Social Security System: A Response," Cato Institute Social Security Paper no. 10, July 22, 1997.

93. www.socialsecurity.org.

94. Peter Diamond and Peter Orszag, "Reducing Benefits and Subsidizing Individual Accounts: An Analysis of the Plans Proposed by the President's Commission to Strengthen Social Security," Center on Budget and Policy Priorities and the Century Foundation, June 2002.

95. Siegel.

96. The logical extension of this argument seems to be that all projected investment returns should be reduced to the "risk-free" return. But even 10- and 20-year Treasury bonds contain some risk. Would this theory then require that bond returns be risk adjusted to, say, the return on one-day notes?

97. Office of Management and Budget, *Budget Systems and Concepts*, FY 2003, pp. 15–16.

98. Peter Ferrara, "Social Security: The Money's Worth Question," Unpublished manuscript, 2002.

99. Stephen C. Goss, "Another View on the Equity Premium," Presentation to a conference on Risk Transfers and Retirement Income Security, Pension Research Council, April 23, 2002.

100. Ibid.

101. Mitchell, Geanakoplos, and Zeldes, p. 124.

102. Ibid.

103. Ibid., pp. 145–46, n 57.

104. Significantly, those persons most likely to be fully or partially constrained are low- and moderate-income workers. Because these workers tend to receive the highest rates of return from the current Social Security system, comparing their returns to a risk-rated private investment return is likely to produce a result severely biased in favor of Social Security. In reality, however, these workers would be most likely to benefit from the higher rates of return provided by private capital investment. Being asset constrained, low-income workers will almost certainly be adding higher-yielding (i.e., riskier) investments to their portfolios. The actual returns that these workers would receive will almost certainly exceed the return that Social Security provides. However, higher-income individuals, whose portfolios already reflect their risk preferences, are more likely to be indifferent to the bond/stock mix of individual accounts. If there is a case to be made at all for risk adjusting returns from individual accounts, it would make more sense to apply it to high- rather than low-income individuals.

105. General Accounting Office, p. 35.

106. Ibid.

107. Peter Ferrara, "Social Security Is Still a Hopelessly Bad Deal for Today's Young Workers," Cato Institute Social Security Paper no. 18, November 29, 1999.

108. Martin Feldstein and Andrew Samwick, "The Transition Path in Privatizing Social Security," in *Privatizing Social Security*, ed. Martin Feldstein (Chicago: University of Chicago Press, 1998), p. 249.

109. Mitchell, Geanakoplos, and Zeldes. We set aside for the moment the question of whether transition costs are actually a cost. In an economic sense, as in a loss to the economy, they are not. Nor are they necessarily a new or additional cost, independent of currently accrued but unrecognized obligations. Moreover they are finite, whereas current unfunded obligations exist on an infinite horizon. See William G. Shipman, "Facts and Fantasies about Transition Costs," Cato Institute Social Security Paper no. 13, October 13, 1998. It would more accurately be referred to as an issue of transition financing. Still, if workers are able to divert all or part of their Social Security taxes to individual accounts, someone will have to finance the payment of benefits to current recipients. However, it is also important to note that whatever transition cost exists is a result of moving from an unfunded to a funded system rather than as a result of individual accounts. The same transition financing issues would exist for proposals to allow the government to invest Social Security funds.

110. AARP Research Center.

111. *Report of the 1995–1996 Advisory Council on Social Security: Volume I* (Washington: Government Printing Office, 1997), p. 32. Advisory Council members who supported this option didn't actually propose a tax increase but offered it as an example for scoring purposes.

112. David Hoffman, "Who Pays the Federal Income Tax?" Tax Foundation Special Report no. 118, November 2002.

113. We refer here to the incidence of the tax rather than its burden. Many observers would argue that taxes that fall primarily on the wealthy may also injure the nonwealthy by reducing jobs, economic growth, and so forth.

114. Douglas Holtz-Eakin, "Public Sector Capital and the Productivity Puzzle," *Review of Economics and Statistics* 76, no. 1 (February 1994): 12–21.

115. Paul Evans and Georgios Karras, "Are Government

Activities Productive? Evidence from a Panel of U.S. States," *Review of Economics and Statistics* 76, no. 1 (February 1994): 1–11.

116. This system would essentially amount to the creation of an add-on account. In some ways it resembles a proposal by Rep. Shaw (R-Fl.), though Shaw does not reduce government spending to provide the add-on funding, nor does he reduce Social Security benefits to PAYGO levels.

117. Laurence Kotlikoff, "Privatizing Social Security in the United States: Why and How?" in *Fiscal Policy: Lessons in Economic Research*, ed. Alan J. Auerbach (Cambridge, Mass.: MIT Press, 1997), p. 224.

118. For a more detailed discussion of the political impact of concentrated benefits and diffuse costs, see James Buchanan and Gordon Tullock, *The Calculus of Consent: Logical Foundations of Constitutional Democracy* (Ann Arbor: University of Michigan Press, 1962).

119. James L. Payne, *The Culture of Spending* (San Francisco: ICS Press, 1991), p. 13.

120. The way this works is discussed in depth in Ferrara and Tanner, pp. 180–81. Of course, not all the tax feedback is at the federal level. A portion is recaptured through state taxes. The revenue feedback discussion includes an implicit assumption that as states receive additional revenue, federal aid to the states would be reduced. In addition, to the degree that the transition was financed through debt, there would be no net increase in savings, meaning there would be no increase in the revenue generated through investment. However, in a transition funded through either an increase in revenues or reductions in government spending, the full after-tax return seems an accurate base from which to calculate.

121. The costs of administering the Social Security system are already implicitly reflected in the program's rate of return. Those costs are estimated to run approximately 0.7 percent for OASI and 2.7 percent for DI. The costs do omit some administrative costs imposed on the employer, the self-employed, and other government agencies. Although an ideal money's worth comparison would include a full accounting of all such costs, significant difficulties remain in determining the amount of these costs and who ultimately pays them. Leimer, pp. 8–9. Similarly, most estimates for administrative costs of individual accounts do not include costs imposed outside of the accounts themselves.

122. See, for example the Social Security Calculator used by the Institute for Women's Policy Research at www.iwpr.org/sscalc4/calculator.html#return. The Employee Benefits Research Institute actually suggests administrative costs could top 200 basis points. *Beyond Ideology: Are Individual Social Security Accounts Feasible?* ed. Dallas Salisbury (Washington: Employee Benefits Research Institute, 1999).

123. Robert Genetski, "Administrative Costs and the Relative Efficiency of Public and Private Social Security Systems," Cato Institute Social Security Paper no. 15, March 9, 1999.

124. President's Commission to Strengthen Social Security, pp. 18–19.

125. Olivia S. Mitchell, James Poterba, Mark J. Warshawsky, "New Evidence on the Money's Worth of Individual Annuities," *American Economic Review* 89, no. 5 (1999): 1299–1318.

126. President's Commission to Strengthen Social Security, pp. 18–19.

127. Ibid.