The Cato Project On
Social Security Privatization
October 5, 2000 SSP No. 21

Social Security
Is It "A Crisis That Doesn't Exist"?

by Andrew G. Biggs

Executive Summary

A consensus has developed across the political spectrum that the Social Security program faces significant problems and is in need of far-reaching modifications. Would-be reformers debate vigorously on the best changes for Social Security. Some argue for transforming the nation's pension program to a defined-contribution system of personal retirement accounts while others support retaining the current defined-benefit structure through a series of tax increases and benefits cuts or through investing a portion of the program's assets in equities.

But some people in politics, the press, and the policy community are questioning that consensus, calling Social Security's projected funding shortfalls merely the result of pessimistic economic and demographic projections by the program's Board of Trustees. If the economy grows faster than projected, as they believe it surely will, then wages and payroll tax revenues will rise and Social Security will become, in the words of Rep. Jerrold Nadler (D-N.Y.), "a crisis that doesn't exist."

However, independent assessments of the Trustees' projections for productivity, labor force growth, and longevity show the projections to be reasonable and perhaps even optimistic. For Social Security to remain solvent, even in a bookkeeping sense, would demand unprecedented levels of economic growth. More important, even if the economy does grow more quickly, Social Security's benefit liabilities and its funding shortfalls will eventually rise along with the economy. Even under assumptions vastly more optimistic than those the crisis deniers put forward, Social Security still faces trillions of dollars in tax increases or benefit cuts if the system is to stay in balance.

A possible corollary exists to the argument made by skeptics of the Social Security crisis. If the economy grows as slowly as the trustees project, can market investments like stocks and bonds continue to produce returns superior to those from Social Security? Although future returns from market investments cannot be guaranteed, the differences in returns between Social Security and market investments are so great that even under a worst-case scenario personal retirement accounts invested in stocks and bonds would produce far higher returns than Social Security.

In short, Social Security's crisis is real and may be even larger than commonly thought. While debate may continue over the proper course of action, doing nothing in hopes that the economy will come to the rescue is wishful thinking, at best.

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Introduction

Supporters of the current pay-as-you-go Social Security system have long been on the defensive. According to the latest report of Social Security's Board of Trustees, by 2015 payroll tax revenue will be less than benefit liabilities, and by 2037 the nation's public pension system will be able to pay less than three-quarters of promised benefits, pushing millions of low-income retirees into poverty. For the past several years, both sides of the political spectrum have explored the issue. President Clinton spent a year at town-hall style meetings stressing the need for reform. There has been disagreement on the proper mode of reform; some call for buttressing the current system with general tax revenues, while others advocate transforming Social Security into a system of personal retirement accounts invested in stocks and bonds. Nevertheless, until recently all sides have agreed with the president that this moment of economic prosperity is the proper time to address Social Security reform, to "fix the roof while the sun is shining."[1]

But some now deny that the roof even needs fixing and question whether the rain will ever come. To these "crisis deniers," Social Security's problems are simply the product of pessimistic economic and demographic assumptions by the program's trustees, with politicians and activists of both left and right eager to exploit these errors. If the economy's growth exceeds the trustees' assumptions, as they believe it surely will, Social Security becomes, in the words of Rep. Jerrold Nadler (D-N.Y.), "a crisis that doesn't exist."[2] Many members of the press have adopted this argument. For instance, financial columnist Jane Bryant Quinn said in 1998 that "We can't drag our feet any longer on Social Security reform,"[3] but now doubts whether the crisis will materialize at all. Today, she calls herself "the only kid in the village who's not crying wolf" on Social Security.[4] Likewise, the editors of *Business Week* call the trustees' economic projections "ridiculously low," making the reform debate between privatizers and those seeking marginal change a "phony conflict over a phony problem."[5]

One reason for the crisis deniers' line of argument may be that public opinion on reform has seemingly settled on plans based on personal retirement accounts, which would give workers the option to invest part of their payroll taxes in stocks or bonds. Public opinion polls show enthusiasm for personal accounts among Americans of all political, ethnic, and gender groups,[6] and bipartisan leaders in both houses of Congress are promoting personal account plans on Capitol Hill. But to a few old-guard supporters of big government, individual investment is ideological heresy. Yet, the more conventional alternatives to personal accounts as a means of shoring up the system—payroll tax hikes, benefit cuts, increasing the retirement age, and even investing the Social Security trust fund in the stock market—are flatly rejected by the public.[7] The crisis deniers' solution? Simply deny the crisis exists at all. If the Social Security crisis no longer exists, then radical reform such as personal retirement accounts are unnecessary.

But the crisis deniers' claim that Social Security reform is a solution in search of a problem is not aimed simply at reformers who favor personal accounts, but at all who see serious long-term problems with Social Security and seek equally serious changes to address them. To assess those claims, we must first determine whether the trustees' projections for the most important economic and demographic variables affecting Social Security's solvency are reasonable; and, second, we must determine whether more optimistic projections would "save Social Security." A related matter to be examined is whether stock market returns in a slowly growing economy would pay a higher rate of return to workers than the current program.

An examination of these issues shows that, while no one can predict the future with certainty, the trustees' assessments of key economic and demographic variables are generally reasonable and, in some cases, perhaps even optimistic. And even if economic growth greatly exceeds the trustees' projections, when workers pay more taxes into Social Security they are entitled to greater benefits when they retire. Hence, much of the benefit of economic growth is simply washed away. Even under assumptions vastly more optimistic than those the crisis deniers put forward—where economic growth increases, unemployment falls, life expectancies barely increase, and immigration brings millions of new workers into the system—Social Security still faces trillions of dollars in tax increases or benefit cuts if the system is to stay in balance.

Baker and Weisbrot declare that, "As anyone who has looked at the numbers knows, Social

Security is financially sound for as far into the future as we would ever want to worry about."[8] Closer analysis will show that anyone expecting to be in retirement any time past the year 2015 has ample reason for worry. Policymakers and the public should not be distracted by arguments over whether Social Security's crisis exists and by appeals to wait and see if problems arise before taking action. Instead, they should focus now on how big the crisis is and how it will be addressed.

The Argument

Social Security's Board of Trustees, made up of government officials and outside appointees, produces annual reports on the financial condition of the program. The latest *Trustees Report*, issued in March 2000, projects payroll tax insolvency for the program in a little more than 15 years and a 75-year payroll tax shortfall of over $20 trillion (in 2000 dollars).[9] Unless Social Security is reformed, either payroll tax rates will have to increase by up to 50 percent or the system's already meager promised benefits will have to be cut by almost a third. The central thesis of those who deny Social Security's crisis is that Social Security's trustees use unusually pessimistic assumptions in projecting these grim scenarios. For instance, Dean Baker and Mark Weisbrot, authors of *Social Security: The Phony Crisis*,[10] claim that "any shortfall that Social Security may have in the future can result only from a dismal economic performance."[11] Former Labor secretary Robert Reich agrees:

> This crisis mongering is simply wrong. As a former trustee of the Social Security trust fund, I can tell you that the actuary's projections are based on the pessimistic assumption that the economy will grow only 1.8 percent annually over the next three decades. Crank the economy up just a bit, to a more realistic 2.2 percent a year, and the fund is nearly flush for the next seventy-five years.[12]

It is unclear why, during his time as a trustee, Reich did not point out these seemingly obvious failings to his colleagues, but it is not just politicians who take this line. Many in the policy community and the press echo these views. Subsequent to Reich's statement, Social Security's trustees revised their economic projections slightly upward. But to the Economic Policy Institute's Christian Weller and Edie Rasell, they didn't go nearly far enough.

> Even with these positive changes, though, the report continues to be based on pessimistic assumptions about the future economy. Recent developments suggest higher real GDP and productivity growth than the trustees assume. Hence, real wage and payroll-tax revenue growth should be greater than predicted by the trustees' report, increasing the size of the trust fund. Given the report's improved forecast in spite of these pessimistic assumptions, there is even less need to cut benefits or to privatize the system.[13]

The 2030 Center concurred, terming "the projections for the long-term shortfall . . . very pessimistic."[14]

Press commentators have adopted this theme as well. Financial columnist Quinn declares, "We don't even know, for sure, that the trust fund will dry up in 2037. That's just a projection. To be on the safe side, Social Security's trustees have assumed slower economic growth than we've averaged over the past 75 years. If it turns out that future growth equals that of the past, the Social Security problem all but goes away. . . ."[15]

Even Vice President Gore has been tempted by these ideas. While President Clinton warns that "a demographic crisis is looming" that could bankrupt the system,[16] Vice President Gore has backed off the most far-reaching of the Clinton administration's reform proposals—investing the Social Security trust fund in the stock market—declaring "If it ain't broke, don't fix it."[17]

But when we get beyond hopeful generalities to examine how Social Security works and where the system currently stands, economic growth by itself is a false promise. Under reasonable economic assumptions, the current Social Security system is unsustainable over the long term. And unsustainable conditions, as economist Herbert Stein famously noted, cannot go on forever. Sooner or later, deficits must either be cleared through large tax hikes or ben-

efit cuts, or a funded alternative based on market investment and higher rates of return must be implemented.

Are the Trustees' Projections Pessimistic?

Social Security's Board of Trustees annually reports on the program's current financing situation and makes estimates of its financing health over the following 75-year period. The trustees, with the aid of the Social Security Administration's actuaries and in consultation with outside experts, constructs three scenarios: low cost, high cost, and intermediate cost. The intermediate-cost projections are those commonly used by commentators and analysts on Social Security, and it is these projections that have come under fire.

The core of the crisis deniers' argument is that the trustees severely underestimate future economic growth. Should these estimates indeed turn out to be pessimistic and the economy were to grow faster, the argument goes, wages would rise, payroll tax receipts would increase, and the added revenue would keep Social Security solvent indefinitely. In a word, the crisis would be phony.

Outside Analysis

Some critics of the trustees' analysis even go so far as to accuse them of actuarial malpractice, of violating basic actuarial standards. For instance, David Langer, a consulting actuary, accuses the trustees of breaching several rules of the Actuarial Standards Board, particularly those requiring actuaries to use both recent and long-term dates in their projections.[18] And in a twist, Langer and others question whether these methodological errors are in fact errors at all; the trustees' projections, they assert, are in fact part of a deliberate conspiracy designed to undermine the Social Security system. Langer, for instance, declares:

> The trustees tell the actuaries the deficit level they desire. The actuaries will then put together the appropriate assumptions and computations for the trustees' annual report. . . . The political trustees clearly had the motivation, opportunity, and means to advance the spurious concept of Social Security bankruptcy, and the evidence suggests they used their strategic position to further their goals.[19]

Mark Weisbrot also subscribes to this view.[20]

These accusations come despite the following pledge by Chief Actuary Harry Ballantyne contained in the *2000 Trustees Report:*

> The techniques and methodology used herein . . . are generally accepted within the actuarial profession; and the assumptions used and the resulting actuarial estimates are, individually and in the aggregate, reasonable for the purpose of evaluating the financial and actuarial status of the trust funds, taking into consideration the experience and expectations of the program.[21]

But even if one accepts the unlikely notion that the Social Security Administration's professional actuaries would be silently complicit with a campaign to discredit and destroy the program they work for, it is difficult to discern the trustees' motivation to dissemble once one considers who they are: the secretaries of Labor, the Treasury, and Health and Human Services; the Commissioner of Social Security; plus two outside trustees appointed by the president. For Langer's argument to hold, we must accept the implausible premise that such people as Health and Human Services secretary Donna Shalala and Labor secretary Alexis Herman are conspiring to privatize the New Deal's crown jewel program.

Given these types of charges, the public is fortunate in having access to two independent appraisals of the trustees' methods and assumptions, which should shed light on the reasonableness of their projections for the system. The first was commissioned by the government's General Accounting Office and conducted by the accounting firm of PricewaterhouseCoopers (PwC) at the request of Rep. Jerrold Nadler, a prominent promoter of the theory that Social Security's "crisis" is merely the product of faulty projections.[22]

PwC compared the trustees' actuarial methods and techniques with those used in the private sector and those employed in making projections for social insurance systems in Canada and the United Kingdom, finding that "the intermediate long-range projections of the Social Security trust funds were developed in a

manner consistent with generally accepted actuarial methods and techniques and that they comply with standards of actuarial practice."[23]

Going beyond methods, PwC "found that the assumptions underlying the calculations of the long-range actuarial projections included in the trustees' 1999 report contained no material defects because of errors or omissions and that they were individually reasonable."[24] In short, the PwC study concluded that, taken as a whole, the trustees' intermediate assumptions for Social Security represent "state-of-the-art" techniques applied to reasonable underlying premises.

The second study was conducted by the 1999 Technical Panel on Assumptions and Methods, appointed by the independent, government-chartered Social Security Advisory Board.[25] The Technical Panel, chaired by the Urban Institute's Eugene Steuerle, had a bipartisan membership consisting of economists, actuaries, demographers and other experts on social insurance programs. The panel examined the projections in the trustees' 1999 report, which in some ways differ from those in the most recent report. The panel recommended numerous methodological additions to the trustees' projections to make them both more accurate and more flexible, as well as recommending reporting changes to make projections more understandable to the public.

Some of the panel's assessments regarding specific variables will be discussed later, but one overriding point is worth making: the Technical Panel concluded that the trustees' assumptions for Social Security are, if anything, optimistic regarding the program's future. In particular, the panel felt that the trustees' projections for declines in mortality rates, which affect life expectancies and the size of the beneficiary population, were strongly biased in favor of the program's solvency. The trustees' intermediate-cost estimates in the *2000 Trustees Report* project a 75-year actuarial deficit of 1.89 percent of payroll. Actuarial balance is the difference between the program's benefit liabilities and its assets, including payroll tax revenues and the Social Security trust fund, expressed as a percentage of payroll. (E.g., because Social Security is funded with a 12.4 percent payroll tax, if the program's actuarial balance showed a 2 percent deficit, we can assume it to be underfunded by approximately one-sixth.) The Technical Panel's recommended changes to assumptions regarding mortality rates, real wage growth, and the return on government bonds would increase the program's actuarial deficit to approximately 2.5 percent of payroll.[26]

In accusations similar to those made against the trustees, Baker and Weisbrot accused the Technical Panel of "political manipulation," citing in particular panel head Eugene Steuerle's service in the Reagan administration. Baker and Weisbrot failed to mention Steuerle's prior service to Democratic administrations, nor the panel's broad and bipartisan membership.[27]

By walking through the trustees' assumptions regarding several important factors affecting Social Security's future, we should gain a better idea whether and to what degree the crisis deniers are correct. Following that, we will consider whether increased economic growth, however likely it may be, would truly save Social Security from crisis. Together, they show that substantially increased economic growth is less likely than the crisis deniers suppose, but even if the economy grows far more quickly than the trustees predict, Social Security will still face massive funding shortfalls in the future. In short, faster economic growth is unlikely, but even if it comes it will not save Social Security.

Productivity and Real Wage Growth

Productivity and real wage growth are cousins as far as Social Security is concerned. Productivity growth measures changes in output per worker, while real wage growth measures changes in earnings per worker. Not surprisingly, the two often move in tandem: as workers produce more, they tend to be paid more. And because Social Security is funded out of a 12.4 percent payroll tax, workers who earn more tend to pay more into Social Security.[28] Pessimistic productivity and real wage projections would underestimate Social Security's revenues, worsening its financing position in the short term.

The trustees' intermediate assumptions project that over the next 75 years labor productivity will improve at an annual rate of 1.5 percent, which means that in any period of time the average worker could produce 1.5 percent more goods and services than in the prior year. Are the trustees' productivity estimates for the future compatible with past experience? Productivity growth in the last several years has truly been impressive, with nonfarm output per

hour growing at 2.9 percent annually in 1998 and 1999, and a spectacular 5.3 percent in the second quarter of 2000.[29] This growth leads some to conclude that the trustees are being unrealistically conservative in their projections.

But, as Table 1 shows, placed in the context of the past four decades the trustees' projected 1.5 percent productivity growth rate appears more reasonable. Productivity from 1959 to 1998 increased at an annualized rate of 1.9 percent, while from 1979 to 1998 productivity increases averaged less than 1.4 percent.[30] High productivity growth has indeed been a very recent trend, and some even attribute the reported rise to mismeasurement of computer-related services during preparations for the "Year 2000" problem.[31]

It is true that productivity in the 1940s and 1950s was substantially higher than that projected for the next 75 years. But just as a sports gambler counts a team's recent wins and losses much more highly than those of seasons past, the further back in history you look the less resemblance the economy of that day has to today's economy and, presumably, to that of the future.[32] Using recent history as the judge, the trustees do not appear unreasonably pessimistic in their base productivity assumption.

Nevertheless, the impressive productivity increases of the past several years deriving from computerization have caused some commentators to predict that the low productivity period that began in 1973 has ended, leading to a "New Economy" of permanently higher productivity and economic growth.[33] But often ignored is that recent productivity increases have derived largely from increased productivity in the *production* of computers—i.e., faster computers at a lower price—not increased productivity in the economy as a whole based on the use of computers. As Northwestern University economist Robert J. Gordon explains:

> There has been *no* productivity growth acceleration in the 99 percent of the economy located outside the sector which manufactures computer hardware, beyond that which can be explained by price remeasurement and by a normal (and modest) procyclical response. Indeed, far from exhibiting a productivity acceleration, the productivity slowdown in manufacturing has gotten worse; when computers are stripped out of the durable manufacturing sector, there has been a further productivity slowdown in durable manufacturing in 1995–99 as compared to 1972–95, and no acceleration at all in nondurable manufacturing.[34]

The Congressional Budget Office largely concurred with this view, concluding that "estimating and projecting labor productivity in the medium term is best accomplished by modeling technological change in the computer sector separately from that in other sectors."[35] This argument is not to say that the benefits of the "New Economy" cannot or will not take hold, merely that they have not. Assuming a rosy future for the economy and for Social Security on this basis would seem overoptimistic.

The 1999 Technical Panel on Assumptions and Methods took a similar view to the Congressional Budget Office, stating that recent productivity bursts do not yet justify major revisions in projected productivity over the long term.[36] On the basis of recent experience, the CBO projects productivity at 2.2 percent annually over the next 10 years, but warns that current productivity increases may be part of a larger cycle encompassing years of below-average productivity growth from 1992 to 1995.[37] If so, then lower productivity could be expected to return in the future as the cycle is completed. The Brookings Institution's Henry Aaron, an opponent of Social Security privatization, agrees, saying that "given the history of trend reversals, the Trustees' practice of cautious and highly damped adjustments to new events is the only prudent course."[38]

Table 1
Productivity Growth

Period	Annual Increase
1959–98	1.9%
1959–68	3%
1969–78	1.8%
1979–88	1.3%
1989–98	1.4%
Projected	1.5%

Source: *2000 Trustees Report*, pp. 150–51.

However, a major shift could be close to taking place. In a forthcoming study, Dale Jorgenson of Harvard University and Kevin Stiroh of the Federal Reserve Bank of New York have reversed some of their earlier skepticism regarding the productivity benefits of computerization to the economy as a whole. While they declare that "the 'new economy' view that the impact of information technology is like phlogiston, an invisible substance that spills over into every kind of economic activity . . . is simply inconsistent with empirical evidence," Jorgenson and Stiroh nevertheless conclude that a substantial portion of productivity increases from 1995 to 1998 originated outside of the information technology sector.[39] Such a finding, if sustained, could lead to substantial revisions in projected productivity growth for the future. Whether and to what degree such a revision would affect Social Security will be discussed in following sections.

The PwC analysis criticized the trustees' methods for projecting productivity growth on two fronts. First, PwC faulted the trustees' use of the past 30-year period to project future productivity trends as arbitrary, pointing out that the period from 1970 to 1999 includes the structural break of 1973–74, which ended the postwar period of high productivity and commenced two decades of much lower productivity growth. The years before 1974 could be considered exceptional and excluding them would lower projections of productivity for the future. Second, PwC also criticized the trustees for estimating productivity on an economywide basis rather than examining individual sectors of the economy and estimating total productivity based on how these sectors are likely to grow or shrink over time. Following this procedure led the CBO to higher productivity estimates, at least for the period 2000–2009, though PwC speculates that this result might not hold over the long term.[40]

Any estimate of productivity growth over the long term is problematic, particularly considering that other factors such as labor force growth will also change substantially over time.[41] But it is incumbent upon those who argue that a period of higher productivity growth is upon us to show that the low-growth phase beginning in 1973 has definitively ended. While recent experience is encouraging, most believe it is too early to conclude that a new era of sharply higher productivity growth has begun.

Assuming that workers' wages rise along with their output, increased productivity of labor leads to an increase in what the trustees call the "real wage differential," the difference between nominal wage increases and the consumer price index. This direct relationship between productivity and wages may not always be the case, as following sections will explain. Nevertheless, just as the trustees estimate productivity growth to be slightly higher than in the recent past their estimates of real wage growth are also higher. In fact, while from 1975 to 1995 wages grew by just 0.48 percent annually after inflation, the trustees project real annual wage growth over the next 75 years at 1.0 percent. As low as wage growth was from the mid-1970s onward, most objective observers would not term a doubling of the real wage differential as "pessimistic." Again, wage growth prior to the mid-1970s was generally far higher than in the past quarter-century. But if recent experience is to count more heavily, then the trustees' estimates appear reasonable.

The Technical Panel concluded that the trustees' 1999 projection of a 0.9 percent real wage differential was too low, recommending that a 1.1 percent differential was more appropriate.[42] Following the Technical Panel's report, the trustees increased their estimate to 1.0 percent in the 2000 report. The PwC analysis concurred that the trustees' 1999 estimate of 0.9 percent was low, but did not specify a preferred figure.[43]

In a succinct declaration of the crisis deniers' claims, Baker and Weisbrot assert that, "using any remotely realistic projection for the growth of wages and the economy, the Social Security system will be solvent into the stratosphere of America's science-fiction future."[44] The trustees' sensitivity analysis of wage growth makes this claim easy to verify.[45] For Social Security to remain technically solvent over the next 75 years demands real wage growth of 2.89 percent annually,[46] a rate 41 percent faster than during the 1960s, when a surging economy pushed gross domestic product growth to 4.5 percent annually.[47] To keep Social Security actuarially solvent indefinitely requires permanent real wage growth of 5.7 percent annually and GDP growth topping 6 percent.[48] Moreover, this assumes the trust fund to be a real economic asset, which following sections will show not to be the case. In short, solvency into the science-fiction future

demands science-fiction rates of economic growth. In the world of fact, such growth rates appear so implausibly high that even the most ardent advocates of the "New Economy" dare not even hope for them.

Hence, Steuerle and John Bakija are correct in warning that, "although economic growth is almost always advantageous, one should not be misled regarding what it would achieve. Even very high rates of economic growth would not automatically solve the problems of imbalance in the Social Security system."[49] Of course, any projection extending 75 years into the future is just that: a projection. And the trustees' 1.0 percent real wage estimate may well be seen as splitting the difference between the 1.4 percent annual wage growth from 1969 to 1974 and the 0.5 percent growth in the following two decades. But whatever the differences of opinion regarding the proper rate of assumed real wage growth, no objective observers predict wage growth high enough to keep the system solvent indefintely. To remain complacent regarding Social Security's problems in the hope that unparalleled economic and wage growth will come to the rescue seems rash, at best.

Fertility, Immigration, and Labor Force Growth

The principal source of the trustees' projected decline in economic growth over the next 75 years is not falling output per worker but simply a reduced number of workers. In other words, the trustees project extremely slow growth of the labor force. If a larger number of workers equals a larger economy then, all other things being equal, a smaller number must mean the converse. In fact, practically all of the projected slowdown in economic growth can be traced to slow labor force growth.

The baby boom following World War II pushed labor force growth rates to over 2.5 percent annually in the 1970s. But the first baby boomers can begin taking early retirement in 2008 and fewer new workers will be available to take their place. The trustees project that labor force growth in 2020 will be just one-seventh those from 1960–2000, and by 2045 labor force growth will fall to a mere 0.24 percent annually (Figure 1).

As the large baby boomer generation retires and succeeding generations of retirees grow larger because of increased life spans, the nation will have practically no increase in the number of workers to support them. Federal Reserve Board Chairman Alan Greenspan testified recently to the Senate Select Committee on Aging:

> The expected slowdown in the growth of the labor force, the direct result of the decrease in the birth rate following the baby boom, means that financing our debt—whether explicit debt or the implicit debt represented by Social Security and Medicare's contingent liabilities—will become increasingly difficult.[50]

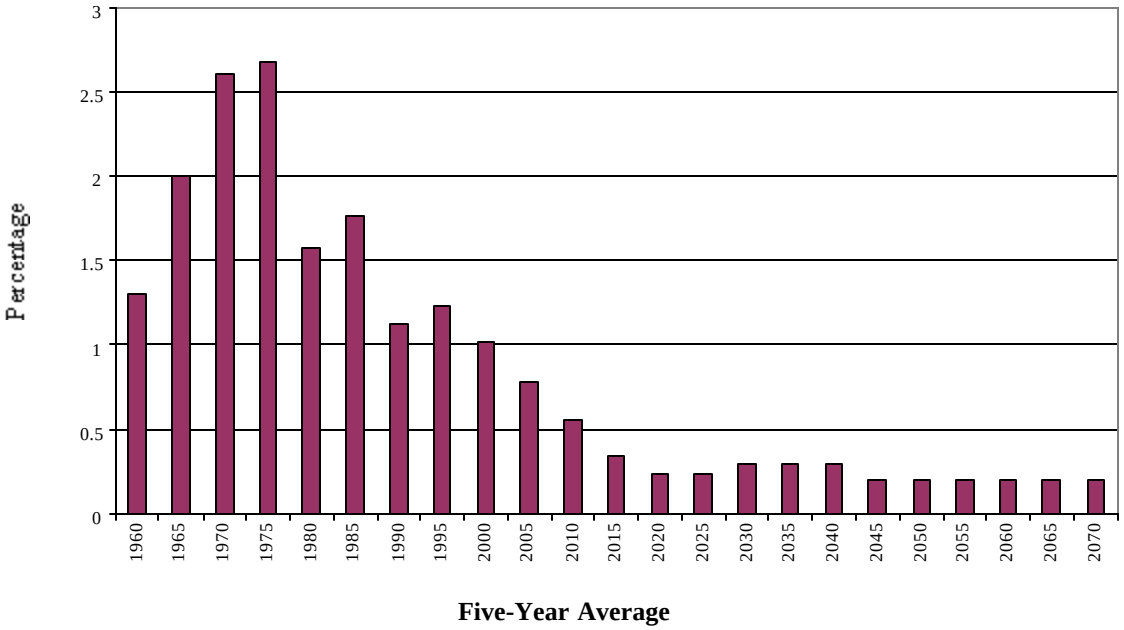
For instance, the labor force today consists of 153.5 million workers, compared to a beneficiary population of 38.2 million. By the year 2050 there will be 105 percent more beneficiaries, but just 21 percent more workers.[51] Unless steps are taken now for the future, that relatively small labor force of the future will face a burden far more onerous than that borne by workers today.

Variations in labor force growth have two primary sources: changes in the fertility rate and changes in net immigration levels. Let us examine them in turn.

The Fertility Rate. The principal determinant of the size of the labor force is the fertility rate, the average number of children each woman bears during her lifetime. A higher fertility rate should lead in time to a higher number of workers paying into Social Security. For the intermediate projections, the current fertility rate of 2.06 children per woman is expected to decline by 2024 to the long-term rate of 1.95 children per woman (Figure 2). A fertility rate of 2.1 is considered necessary for an advanced country to maintain its population; hence, immigration will be needed simply to keep the U.S. population stable.

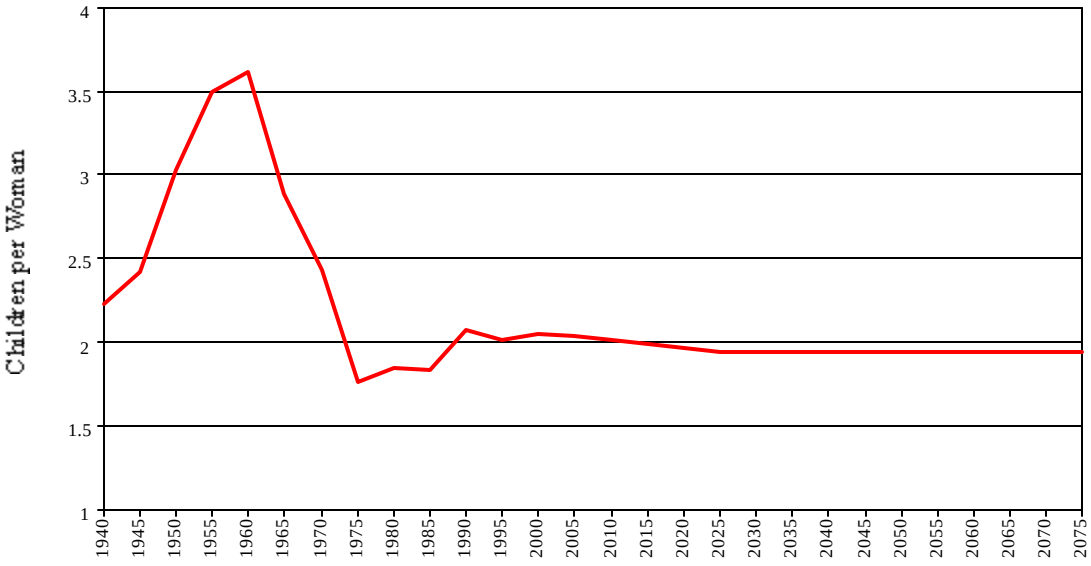
The Technical Panel examined the trustees' fertility rate projections for the *1999 Trustees Report*. The panel acknowledged recent increases in the fertility rate, but speculated that they could be the result of women choosing increasingly to have children at a later age. This trend would produce a short-term increase in births but not necessarily a long-term increase in the fertility rate. The panel noted that, "The persistence of rates above 2.0 during the past decade suggests that the assumed intermediate rate of 1.9 [in the *1999 Trustees*

Figure 1
Labor Force Growth



Source: *2000 Trustees Report,* Table II.D.1.

Figure 2
Fertility Rate, 1940–2075



Source: *2000 Trustees Report,* Table II.D.2, projected from 2000 to 2075.

Report] may be too low, but that rate appears to be reasonable over long periods of time."[52] Hence, the panel "recommends no change now in the intermediate assumption."[53] However, in the *2000 Trustees Report* the ultimate total fertility rate projection increased to 1.95, from 1.90 in the 1999 report.

The PwC analysis exposed a possible contradiction in the trustees' fertility estimates. The trustees expect that the differing fertility rates of ethnic groups in the United States will converge over time, on the basis that fertility rates derive more from income levels than from cultural attitudes.[54] But the trustees simultaneously believe that cultural factors distinct to the United States will keep overall American fertility rates well above those of other developed nations. In other words, the trustees appear to believe that income determines differences in fertility rates *within* the United States, but differences in fertility rates between the United States and other countries are based upon culture. On one hand, if fertility rates indeed derive from culture, then the trustees' estimates of fertility levels should incorporate projections of the future ethnic makeup of the United States, which they currently do not.

On the other hand, if fertility rates derive from incomes, then U.S. rates may fall closer to those of other developed countries. At present, U.S. fertility rates are 40 percent higher than those in European Union countries, according to United Nations data.[55] If U.S. fertility rates fell only to the levels of the United Kingdom, Social Security's long-term deficits would increase by 16 percent.[56] Were U.S. fertility to come to more closely resemble that of Spain, Italy, or Germany, Social Security's deficits would be 38 percent higher than currently predicted. The trustees' optimistic low-cost fertility estimate, which would reduce the program's long-term deficit by 14 percent, still would make U.S. fertility higher than in any European Union country, and substantially higher than the average. International trends hint that the trustees' intermediate projections for fertility rates have far more room to fall than to rise.

Immigration. A second factor determining labor force increases is the level of immigration into the United States from other countries. Higher immigration rates increase the workforce, providing a boost to Social Security's finances. As shown in Table 2, immigration rates today are relatively high by the standards of recent history. For 1998 and 1999, net legal immigration (minus emigration) is estimated to total 495,000. Total immigration including illegal immigrants is estimated at 795,000. The trustees project future total immigration to be approximately one-eighth higher annually on a nominal basis than at present, at 900,000 yearly.[57]

Changes in immigration rates are difficult to predict. Legal immigration levels are set by law, and the trustees' intermediate-cost projections assume that levels of immigration compatible with present law will continue into the future. One can imagine that public sentiment against increased immigration might keep immigrant quotas at current levels, or alternately that low fertility rates among native-born Americans might create economic pressure for higher immigration quotas or increased illegal immigration to prevent labor shortages. For these reasons, the Technical Panel recommended no changes to the trustees' intermediate assumptions for immigration but did recommend that the range of estimates contained

Table 2
Immigration by Decade

Period	Immigrants per 1,000 Population
1930s	0.4
1940s	0.7
1950s	1.5
1960s	1.7
1970s	2.1
1980s	3.1
1991–97	3.8

Source: *Statistical Abstract of the United States,* 1999, p. 10.

in the high- and low-cost projections be made broader to reflect the issue's uncertainty.[58] In either case, the effects of immigration policy extend far beyond Social Security, touching emotional chords among some regarding the character of the nation and presenting possible ancillary social and governmental costs and benefits that must be factored into the equation.

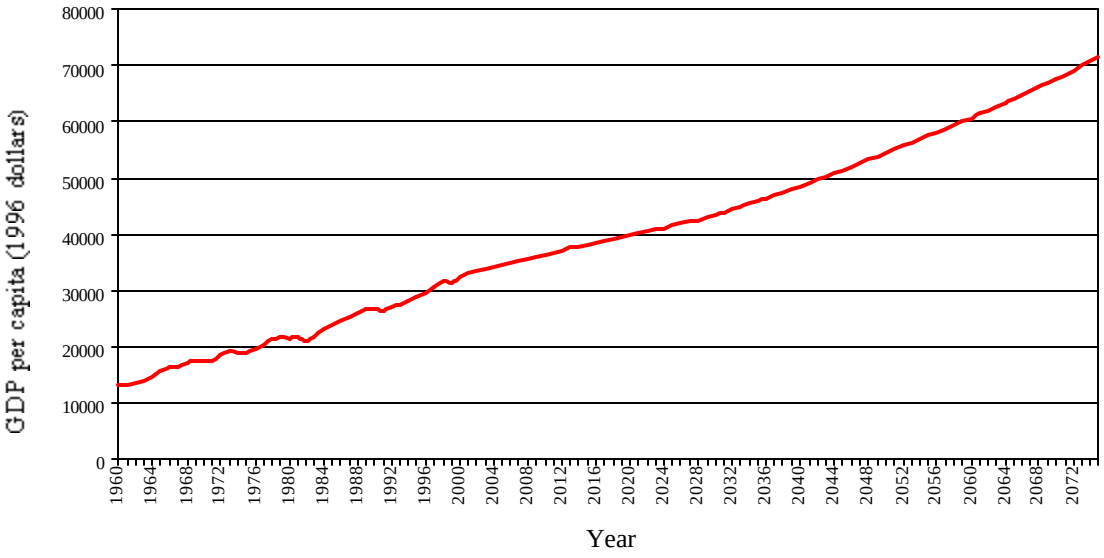
At any rate, increased legal immigration presents paltry net benefits to Social Security financing because each legal immigrant worker eventually would become eligible to collect benefits. Each 100,000 immigrants above the 900,000 assumed in the intermediate-cost projections improves Social Security's long-range actuarial balance by just 0.05 percent of taxable payroll.[59] Given Social Security's 75-year actuarial deficit of 1.89 percent of payroll, immigration would need to top 4.68 million annually over the next 75 years simply to keep the system in balance. For this reason, hopes expressed by some that increased immigration could keep Social Security healthy over the long term are largely misplaced.[60]

Another Way of Looking at the Economy: Per Capita Growth. When one hears that the trustees project future economic growth to be just half that of the recent past, it is easy to envision them predicting a permanent recession. Because such a long-term decline in economic well-being is implausible to many, it becomes easier to reject the trustees' projections for Social Security as well.

But the trustees' economic assumptions appear more reasonable when we move away from economic growth measured for the economy as a whole and focus on GDP growth per capita, which is a more accurate measure of the material improvement of people's lives. Indeed, some economists consider per capita growth the only relevant measure of economic improvement. Economist Thorvaldur Gylfason declares that "an increase in the labour force as such does not really count as a source of economic growth, because what matters for a nation's standard of living is not the growth of national economic output *per se,* but rather of output *per capita.*"[61]

By that measure, the trustees' view of the economic future is not quite as grim as some critics claim. While total GDP will grow more slowly because of reduced labor force growth, historical data for 1960–99 and the trustees' projections for 2000–2075 show that GDP per capita will continue to grow at a reasonable if not spectacular rate (Figure 3). And GDP per capita will understate the improvement in the earning power of the average *worker,* as it will be diluted by the increased number of nonworking retirees. As noted earlier, projections for real wage growth at twice the rate measured from 1975 to 1995 means that individual work-

Figure 3
Real Gross Domestic Product per Capita



Source: *2000 Trustees Report,* Tables II.H1, III.C1; *2000 Economic Report of the President,* 2000–2075, projected.

ers can see the trustees' view of their future as relatively bright.

Examining the factors determining economic growth leads one to conclude that the trustees' long-term projections are at least reasonable. The Technical Panel and PwC's analysis largely concur. While a 1.74 percent economic growth rate over the next 75 years is well below the historical average, a relative slowdown in total economic growth is unavoidable when workforce growth is practically nil.

Life Expectancy. The third major factor influencing Social Security's future solvency is life expectancies. However, falling mortality rates (which determine longevity) receive little attention from those who wish to deny that Social Security faces problems. One reason for the crisis deniers' inattention to life expectancies may be that, in this case, their own argument works against them.

Many experts believe the trustees' projections for life expectancies greatly underestimate the program's problems. Worse yet, of the three major variables influencing Social Security's financing—labor force growth, real wage increases, and mortality rates—mortality rates have by far the most effect.

Rising life expectancies are an unqualified blessing for the U.S. population. But unlike changes in labor force and productivity growth, which generate both benefits and costs for Social Security, increased longevity is almost completely detrimental to Social Security's financing. After all, most reductions in death rates today take place not during childhood or working years but after an individual has retired, resulting in a larger beneficiary population without first increasing the number of workers paying into the system.[62] The trustees note:

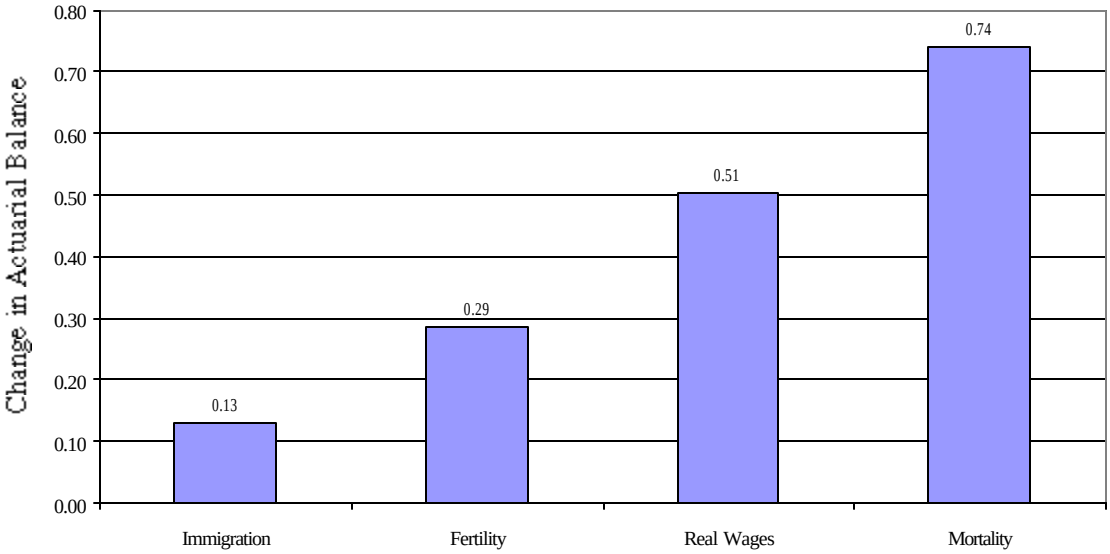
> [Although] lower death rates cause both the income (as well as taxable payroll) and the outgo of the OASDI program to be higher than they would otherwise be, the relative increase in outgo . . . exceeds the relative increase in taxable payroll. For any given year, reductions in the death rates for people who have attained the retirement eligibility age of 62 increase the number of retired-worker beneficiaries without adding significantly to the number of covered workers. . . . Consequently, if death rates for all ages are lowered by about the same relative amount, outgo increases at a rate greater than the rate of growth in payroll, thereby resulting in higher cost rates.[63]

The trustees assume a 41 percent reduction in death rates as part of their intermediate cost estimates. Each additional 10-percentage-point reduction in death rates decreases the long-range actuarial balance by about 0.34 percent of taxable payroll.[64]

This makes mortality rates the most powerful of the three major variables. Figure 4 shows that shifting mortality rates from the intermediate to either the high- or low-cost assumption alters overall actuarial balance by an average of 0.74 percent of payroll in either direction. By contrast, real wages alter actuarial balance by only 0.51 percent of payroll, and immigration and fertility combined alter it by just 0.42 percent of payroll. Consequently, changes in mortality rates have great potential to affect the system's financing, for good or ill.

And many experts believe that the intermediate assumptions for mortality rates substantially underestimate future increases in life expectancies and therefore give an unnecessarily rosy view of Social Security's future. Historical experience lends prima facie credence to this idea. A simple regression trend line of historical changes in life expectancies at birth and at age 65, as in Figures 5 and 6, shows that the trustees anticipate a substantial slowdown in the growth rate of life expectancies. For instance, should the trend from 1940 to the present continue, by 2075 the average life expectancy at birth would be almost 93 years, compared to 83 years as projected by the trustees. Likewise, total life expectancies for individuals reaching age 65 would exceed 88 years if current trends continue, rather than slightly over 86 years as projected by the trustees. (One should not be confused by the fact that projected life expectancies at birth exceed life expectancies for those reaching age 65. Remember that the estimates apply to individuals born or aged 65 in that year. An individual born in any given year will presumably be the beneficiary of medical progress that an individual aged 65 in that year will not be.) In brief, while overall historical trends were pushed upward by spectacular longevity increases in the 1940s, the trustees project that total life expectancies will increase at a rate less than half

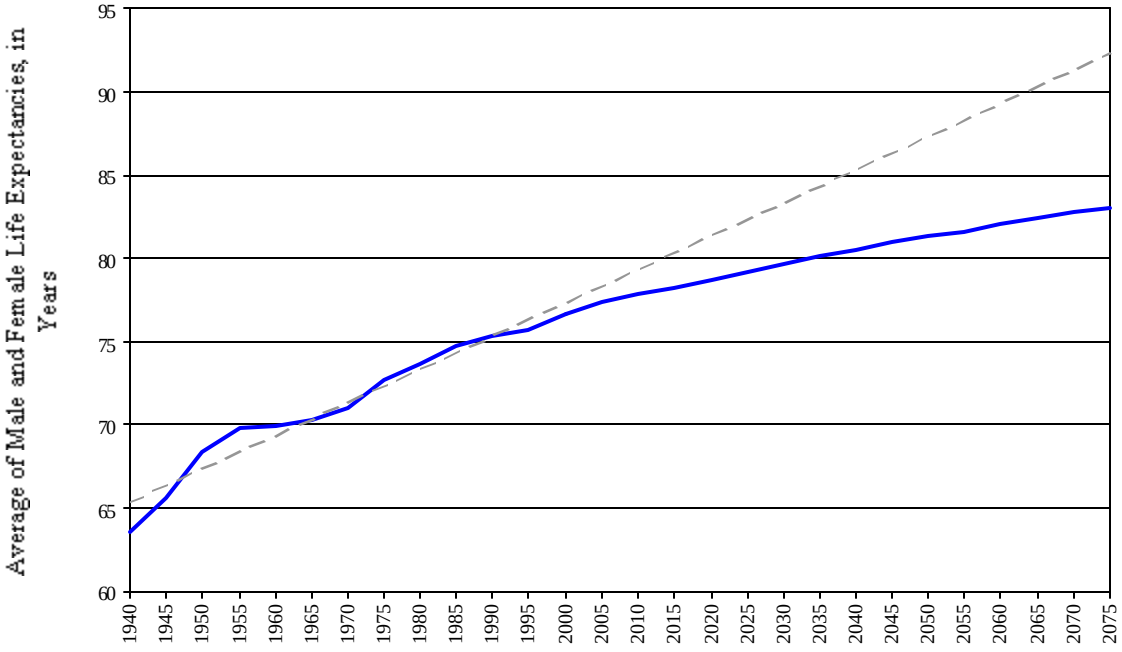
Figure 4
Effect of Variables on Actuarial Balance



Source: *2000 Trustees Report,* Section II.G.

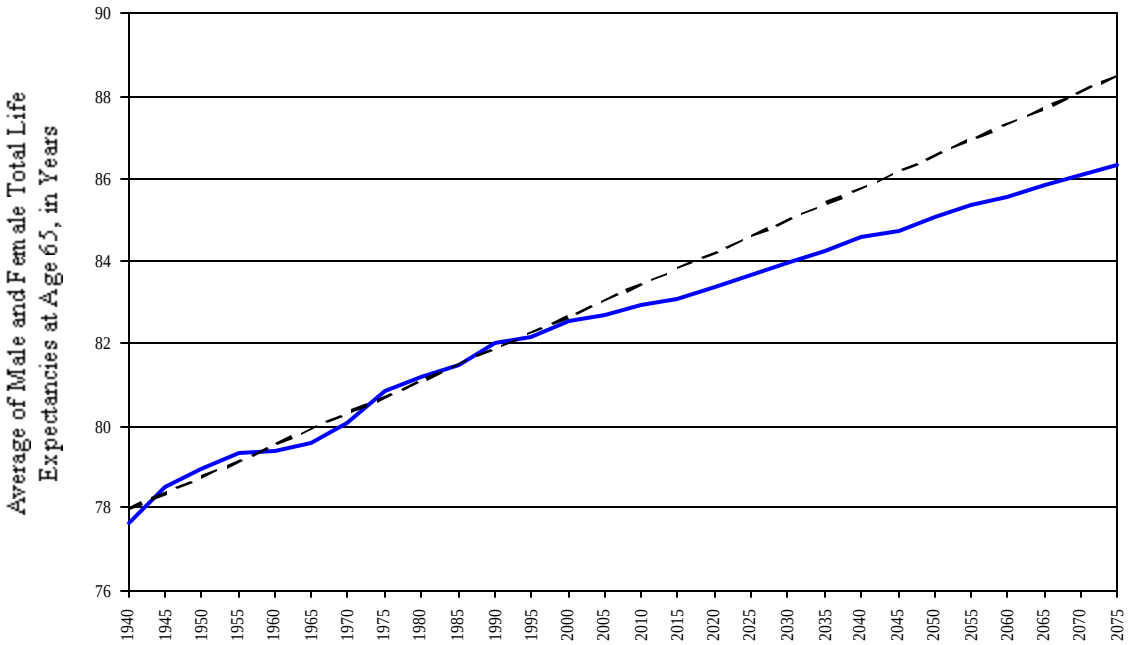
Note: Figures represent the average change in actuarial balance (as a percentage of taxable payroll) resulting from altering each variable from the intermediate-cost to the high- and low-cost estimates. A larger change indicates a greater degree of influence on overall solvency.

Figure 5
Life Expectancy at Birth (dashed line is 1940–2000 trend)



Source: *2000 Trustees Report,* Table II.D2.

Figure 6
Life Expectancy at Age 65 (dashed line is 1940–2000 trend)



Source: *2000 Trustees Report,* Table II.D2.

that during the past six decades.

International data also indicate that the trustees' mortality assumptions may be optimistic with regard to Social Security's financing. Ronald Lee of the University of California-Berkeley and Shripad Tuljapurkar of Stanford University note that "the rates of [mortality] decline projected by SSA are very substantially lower than any other country has experienced in the period 1975–79 to 1985–89, except for 70–75 year olds in the Netherlands."[65] Lee and Tuljapurkar show that in many cases the trustees' projections for mortality declines are one-half, to one-third, to even one-fifth as high as those experienced in other developed countries. The Technical Panel cited some of these international comparisons in its own examination, noting that according to the trustees:

> Life expectancy at birth for U.S. females will not reach the level currently enjoyed by French women in 1995 until 2033; by Swedish women until 2026; and by Japanese women, until 2049. For U.S. males, the corresponding dates are 2002, 2026 and 2029. It is difficult to understand why the United States should lag so far behind other countries.[66]

International comparisons, Lee and Tuljapurkar assert, "provide strong evidence that U.S. mortality decline is not yet pushing up against biological limits or against limits imposed by already existing medical technology. In our view, the SSA forecasts of mortality decline are far too low, and even the SSA upper bracket [high-cost] for rates of decline of mortality is too low."[67]

In response to these types of issues, the 1999 Technical Panel, like earlier panels, "strongly recommend[ed] efforts toward stochastic modeling or similar techniques that are better able to capture the interrelationship among assumptions."[68] Stochastic methods, unlike the trustees' simple menu of three outcomes—high cost, intermediate cost, and low cost, can model an infinite range of possible outcomes and estimate the probability of each outcome. In addition, these more sophisticated methods could better model the interaction between variables, which under the trustees' current techniques sometimes do not make full sense.[69]

Specifically, the Technical Panel pointed to research by Lee and others who have constructed stochastic fertility models applicable to Social Security.[70] Lee and Lawrence Carter estimate total life expectancies in 2050 at 86.1 years, almost five years greater than estimated by the trustees.[71] Lee and Tuljapurkar's analysis leads them to conclude that, "SSA forecasts . . . foresee implausibly small gains to life expectancy over the next 75 years." Because the authors calculate that each year's increase in life expectancies requires a 3.6 percent increase in payroll taxes to maintain solvency, underestimates of future life expectancies have large potential effects on Social Security's financing position.[72]

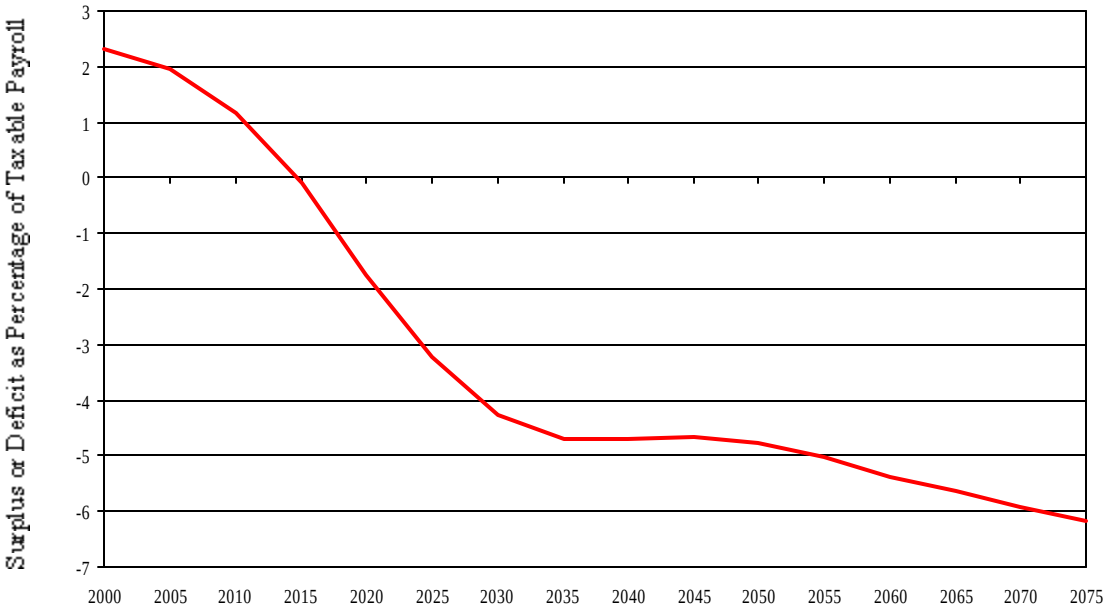
Drawing on historical U.S. and international trends as well as more sophisticated analytical techniques such as Lee's, the Technical Panel concluded that "historical rates [of mortality declines] provide a prudent *intermediate* forecast, although they currently correspond more closely—at least in life expectancy at birth after a few decades—to the SSA *high*-cost assumption for mortality."[73] If the trustees' high-cost assumptions should prove closer to the mark, as the panel believes they will, that alone would increase Social Security's total actuarial deficit by almost one quarter.[74]

If myriad advancements in health and medicine bear fruit, Social Security's total funding deficits could far exceed those predicted in the trustees' intermediate assumptions. Healthier lifestyles, improved diets, and research like the human genome project are unequivocally positive. But rather than "a crisis that doesn't exist," Social Security's problems could prove even worse than many people think.

If Economic Growth Exceeds Projections, Will It Save Social Security?

The trustees' economic and demographic estimates for the future appear at least reasonable, so it is safe to anticipate that Social Security's deficits will appear and in roughly the proportion projected by the trustees. Figure 7 shows Social Security's projected surpluses or deficits as a percentage of taxable payroll. While in surplus today, the program will slip into deficit

Figure 7
Social Security's Payroll Tax Surplus or Deficit



Source: *2000 Trustees Report,* Table II.D2.

Note: Does not include income from the Social Security trust fund, which would keep the system technically solvent until the year 2037.

by the year 2015. Even if payroll tax surpluses before 2015 are truly saved in the trust fund, which there is little reason to believe they will be, Social Security is projected to run a deficit averaging 1.89 percent of taxable payroll over the next 75 years.[75]

But what if today's good economic times truly portend the dawn of a "New Economy"? Could higher economic growth in the future save Social Security? Many on both ends of the political spectrum seem to think so. While the crisis deniers tend to fall on the political left, some in the supply-side wing of the Republican Party share the view that higher economic growth is the key to solving Social Security's problems. For instance, commentator Lawrence Kudlow stresses this advice to the 2000 Republican presidential nominee:

> Bush should . . . carefully explain why tax cuts, not federal-debt elimination, will strengthen Social Security. Voters must understand that in coming years only two workers will be available to support each retiring beneficiary. Therefore, worker productivity and economic expansion must be maximized.[76]

It should be obvious why supply-side economists, who emphasize cuts in marginal tax rates as the key to increased economic growth, would be drawn to this view on Social Security. After all, funds that could be applied to Social Security reform—either to establish personal retirement accounts or retire public debt—could instead be dedicated to income tax rate cuts. Former Treasury Department economist Aldona Robbins echoes Kudlow's view:

> Despite dire predictions, a healthy economy can save Social Security. The most obvious reason is that a faster-growing, lower-inflation economy brings more payroll-tax revenue into Social Security coffers while keeping cost-of-living adjustments, or COLAs, under control.[77]

This argument has both intuitive and theoretical appeal. Intuitive, because increased economic growth makes almost any problem easier to solve. Theoretical, because economic growth is central to the rate of return paid by a pay-as-you-go pension system like Social Security. As the economy grows, workers' wages increase. Since payroll taxes are levied as a percentage of wages, increased wages translates into increased payroll tax revenues.

But is it that simple? If the economy grows faster, will that necessarily translate into larger payroll tax revenues? All other things being equal it will; but in many cases, all other things are not equal, for there are several steps between higher economic growth and increased payroll tax revenue to Social Security. As the trustees note, "Projections of taxable payroll reflect the projected growth in GDP, along with assumed changes in the ratio of worker compensation to GDP, the ratio of earnings to worker compensation, the ratio of OASDI covered earnings to total earnings, and the ratio of taxable to total covered earnings."[78] Changes in any of these ratios could alter Social Security's income in the future. Let us examine three of them in turn.

The Employee Share of National Income

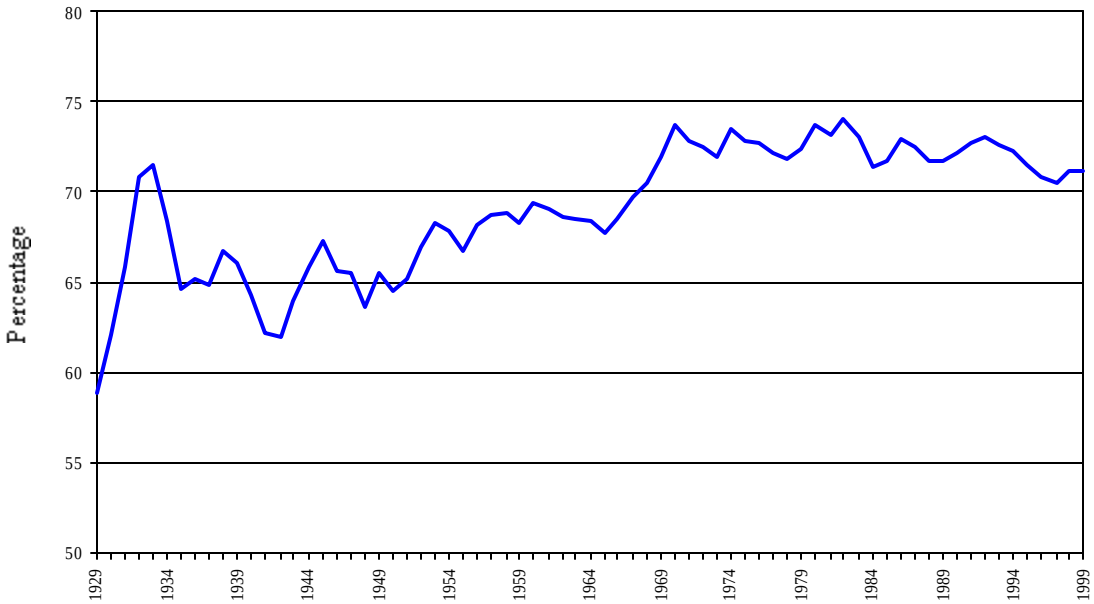
The first question is how total economic growth translates into employee compensation. National income is split between capital owners, who earn profits on their investments, and employees, who are paid wages and other benefits for their labor. Declines in labor's share could mean that, even if economic growth increases national income, real compensation to workers would not increase proportionately.

While, as Figure 8 shows, the employee share of national income has declined slightly over the past 25 years,the longer-term trend has been for workers to take a slightly larger share of national income. The trustees assume that the current allocation of national income to employee compensation will remain stable. The Technical Panel's methodology indicated that total compensation would continue a slight decline as a share of GDP, but the panel made no formal recommendation to that end.[79] Changes in either direction could alter Social Security's payroll tax revenues in the future.

Wages vs. Compensation

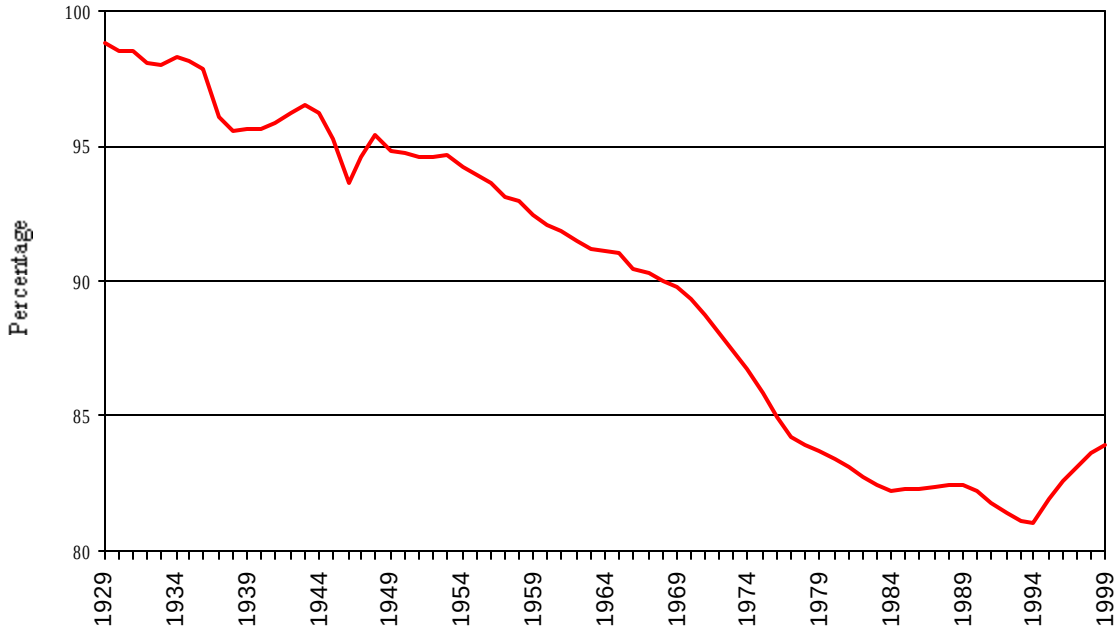
While total compensation to workers as a share of national income is important, it should not be confused with workers' take-home wages. Total compensation includes health benefits, payroll taxes paid by employers, and other costs that are not included in the worker's paycheck and thus

Figure 8
Employee Compensation as Share of National Income



Source: Bureau of Economic Analysis, *National Income and Product Accounts.*

Figure 9
Wages and Salaries as Share of Total Worker Compensation



Source: Bureau of Economic Analysis, *National Income and Product Accounts.*

are not subject to payroll taxes. While total employee compensation has risen as a share of national income, workers' wages as a share of national income have fallen substantially.

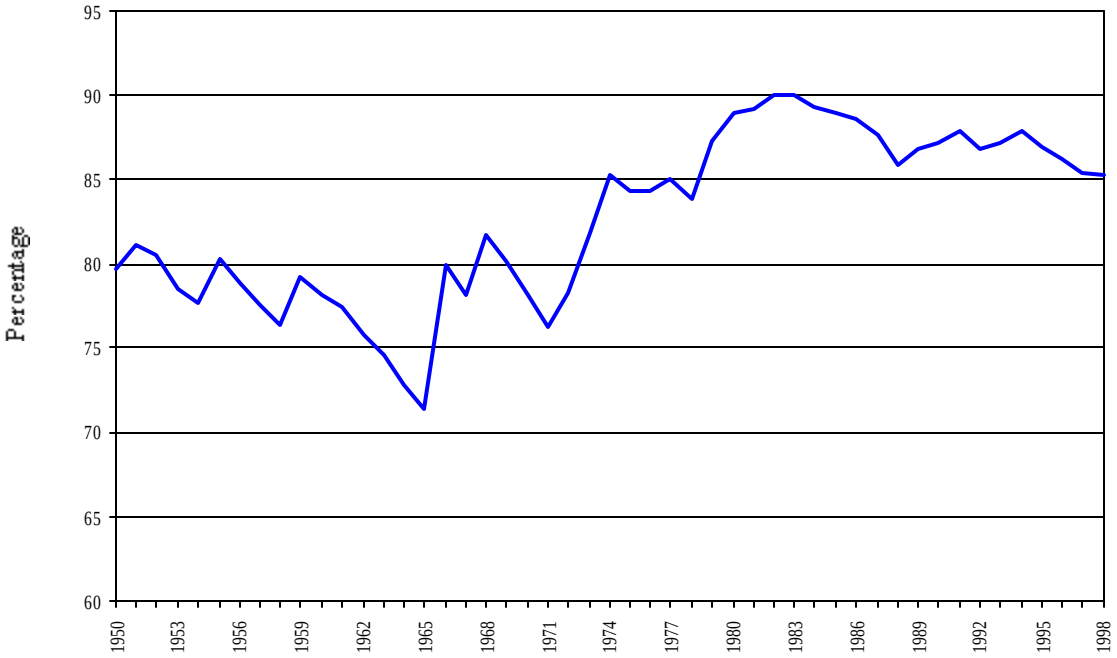
The reason is that, as health care costs and payroll taxes have risen, a smaller and smaller share of workers' total compensation has taken the form of the wages and salary they receive in their paychecks. Despite an increase in recent years, wages have fallen from 95 percent of total compensation in 1950 to less than 84 percent today (Figure 9). This change produces the seemingly puzzling result that, while total employee compensation rose from 67 to 71 percent of national income from 1955 to 1999, take-home wages declined from 64 percent to 59 percent of national income in the same period.[80] The trustees expect that the wage share of total compensation will continue to decline at a rate of 0.2 percent annually over the 75-year period.[81] If health care costs increase more than projected, as some commentators insist they will,[82] then the wage share of total compensation could fall further. A greater share of the economy would shift from the taxable to the nontaxable sector, where it would not benefit Social Security, regardless of the level of economic growth.

Taxable vs. Nontaxable Earnings

Finally, total wages do not themselves form the tax base for Social Security. Social Security's 12.4 percent payroll tax rate applies only to wages and salaries up to a limit, currently at $76,200.[83] Any wages over that level are not subject to Social Security payroll taxes (nor are they credited toward benefits). Hence, even if economic growth raises total compensation, and total compensation raises wages, that doesn't necessarily mean an increase in wages subject to payroll taxes.

Taxable earnings reached their peak at 90 percent of total covered earnings in 1982 and 1983 and have declined somewhat since that point, such that they now comprise 85 percent of total covered earnings (Figure 10).[84] The trustees project that this declining trend will continue at a slower rate until 2009, then hold steady throughout the remainder of the 75-year period.[85] Should the trend continue past 2009,

Figure 10
Taxable Earnings as Share of Total Covered



Source: *1999 Annual Statistical Supplement,* Table 4.B1.

Social Security's payroll tax revenues will fall short of projections, even if projected wage growth rates are unchanged.

Many on the left complain about this trend in the distribution of income, without noting the effect it might have on Social Security. For instance, the Economic Policy Institute and the Center for Budget and Policy Priorities released "Pulling Apart: A State-by-State Analysis of Income Trends," which noted the following:

> Despite the strong economic growth and tight labor markets of recent years, income disparities in most states are significantly greater in the late 1990s than they were during the 1980s. The average income of the lowest-income families grew by less than one percent from the late 1980s to the late 1990s—a statistically insignificant amount. The average real income of middle income families grew by less than two percent, while the average real income of high-income families grew by 15 percent.[86]

Likewise, Isaac Shapiro and Robert Greenstein of the Center on Budget and Policy Priorities analyzed Congressional Budget Office tax return data, concluding that from 1977 to 1999 the average after-tax income of the top fifth of households increased 43 percent, the middle fifth increased only 8 percent, and the bottom fifth declined by 9 percent.[87] Whether the real incomes of the bottom fifth in fact declined is open to question; many argue that official measures overstate the rate of inflation, which would tend to underestimate levels of wage, income, and economic growth. Nevertheless, these numbers show that whatever wage growth has been occurring has been more heavily concentrated on the top end of the distribution.

These writers intend their analysis to support policies that would redistribute income from the well-off to the poor. Unintentionally, however, they show the difficulty in asserting that economic growth will save Social Security. If higher economic growth manifests itself as increases in wages not subject to payroll taxes, then Social Security will be none the better off for them.[88] The lesson: you cannot pay taxes on an income you do not have. Baker and Weisbrot have recently confronted this issue.

> The gains from economic growth may not be as obvious as they should be, mainly because the majority of employees haven't been sharing in them. Over the last 26 years, the typical wage or salary has stagnated in real terms. . . . What this means is that reclaiming the majority's share of the economic pie is the real "challenge and opportunity of the 21st century". . . . Yet the question of income distribution has been removed from the political agenda.[89]

There is nothing technically inaccurate in this statement, as wage growth has indeed slowed over the past quarter century. But if Social Security's financing health depends not only on spectacular economic growth but also on a new national commitment to income redistribution, then the "Don't Worry, Be Happy" tenor of the rest of Baker and Weisbrot's argument hardly seems justified.

Social Security's trustees themselves estimate that taxable payroll will decline as a percentage of gross domestic product from 40.6 percent today to 37.8 percent in 2035 and to only 35 percent in 2075. Hence, economic growth, whatever it may be, will not fully translate into wage growth and increased payroll tax revenues.[90]

What If Payroll Tax Revenues Do Increase?

Economic growth may not exceed the trustees' projections and, even if it does, growth may not translate into increased revenues for Social Security. But let's assume that in the year 2000 the economy's growth exceeds expectations, most of that extra income takes the form of taxable wages rather than nontaxable benefits like health care, and most of the taxable wages go to workers below the payroll tax ceiling. What then?

If taxable wage growth were to increase, then payroll tax revenues would increase as well. All other things being equal, Social Security would run a larger payroll tax surplus,[91] creating a corresponding increase in the balance of the Social Security trust fund.

This scenario would be unqualified good news for the system, except that workers who pay more taxes into the system are entitled to more benefits from it. Any increase in payroll tax revenues must be counted against corresponding increases in benefit liabilities. Federal Reserve Board chairman Alan Greenspan has comment-

Figure 11
Social Security's "Bend Points"

Source: *2000 Trustees Report*, p. 69.

ed on several occasions that if Social Security were run an on accrual basis, in which payroll tax revenues and benefit liabilities are counted at the same time, it would be in deficit already.[92]

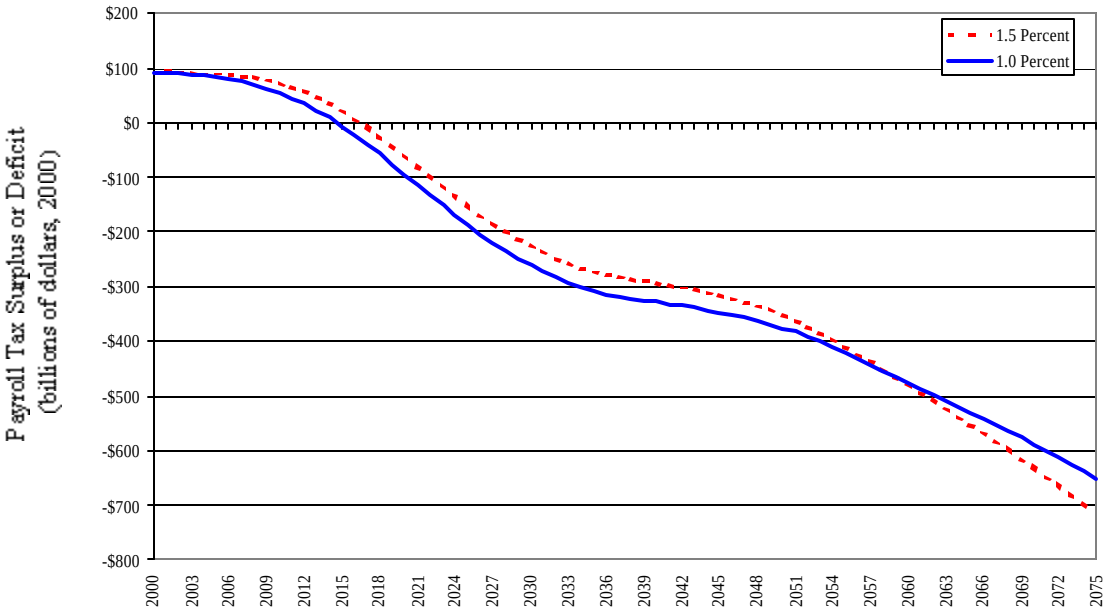
The first step to understanding the effect of a wage increase on benefit obligations is to see how benefits are determined in the first place. When calculating a worker's benefits, the Social Security Administration first determines the worker's Average Indexed Monthly Earnings (AIME). The AIME takes the worker's 35 highest earning years of employment and adjusts each year's earnings for increases in average wages. These wage-adjusted annual earnings are then averaged and divided by 12 to produce adjusted monthly earnings.

Using the worker's AIME, Social Security's benefit formula calculates what is called the Primary Insurance Amount (PIA). The PIA is the basic benefit that worker would receive, and other benefits—such as spousal benefits—are calculated based upon it. The PIA is determined by subjecting the AIME to what are called "bend points" (Figure 11). The bend points determine the portion of the worker's AIME that will be replaced by his retirement benefits. Under current law, the worker's basic benefit or PIA would equal 90 percent of the first $531 of his AIME, 32 percent of his AIME between $531 and $3,202, and 15 percent of his AIME in excess of $3,202. The bend points are the source of Social Security's progressivity, since they replace a greater portion of lower adjusted incomes than of higher.

Given this mechanism for determining benefits, how would an increase in wages affect the calculations? In three ways: First, increased wages in any particular year would raise the worker's AIME simply due to averaging: a higher wage in one particular year raises the average wage.

Second, because past wages are indexed according to subsequent wage increases, higher wage growth today means higher indexed earnings for all past years. The easiest way to understand wage indexing is through questions. For instance, indexing past wages for inflation would answer the question, "What would my past wages be if I were paid in today's dollars?" On the other hand, indexing for total wage increas-

Figure 12
Cash Flow under Intermediate and High Wage Growth Assumptions



Source: Social Security Administration (unpublished), based on wage sensitivity analysis in 2000.

es, which incorporate both inflation and productivity gains, answers the question, "What would my past wages be if I were paid in today's dollars and I were as productive then as I am today?" Indexing past wages for total wage growth takes into account nominal increases attributable both to inflation and to productivity growth. As a result, indexing the AIME for wage increases effectively credits workers with wages that they never paid taxes on.

Third, the bend points used for calculating the Primary Insurance Amount are indexed to wages as well. This prevents the progressivity of the bend points from benefiting the program's finances. If the bend points were fixed or indexed only to inflation, then increased wages would mean that a greater portion of workers' AIMEs would fall under the bend points paying out lower replacement rates. For instance, assume that wage growth pushed a low-income worker's AIME from $531 to $551. If the bend points were fixed, then the worker's PIA would be based on 90 percent of the first $531 but just 32 percent of the extra $20 per month. But since the bend points are indexed to wages, the bend points would move up as well and the overall replacement rate for that worker would not fall. When these factors are all counted, an increase in a worker's taxable wages would create a roughly proportionate increase in that worker's benefit entitlement, thereby negating much of the gains from economic growth.

It is important to realize, however, that these benefit increases would take place only gradually. When a worker's AIME is calculated, wage increases only up to age 60 are indexed. Moreover, benefits for existing retirees increase each year only according to inflation; it is only *future* retirees whose benefits would be increased by higher wage growth today. Since the earliest a worker can retire is age 62, there is at least a two-year gap before any worker's AIME substantially increases. Moreover, since a worker's benefits are based on his 35 highest earning years of employment, it could be well over a decade before the full effects are felt.

But when wage growth's effects are felt, Social Security will have to pay increased benefits. And when it does, the program's deficits might actually increase, as Social Security Administration analysis shows. Figure 12 describes year-by-year payroll tax deficits and surpluses based on the trustees' sensitivity analysis of real wage growth. As predicted, wage growth of 1.5 percent annually, 50 percent higher than the intermediate-

cost projection, produces larger and longer lasting payroll tax surpluses in the near term. For instance, whereas Social Security would begin running a payroll tax deficit in 2015 under a 1 percent annual real wage growth assumption, deficits are delayed until 2017 when wage growth is assumed to be 1.5 percent. While two years of additional solvency may not seem to be much, even as late as 2047 Social Security's net annual cash flow would be $30 billion higher under 1.5 percent growth than under 1 percent. But after 2047 that advantage shrinks, as increased wage growth translates into increased benefit obligations. And from 2059 onward, Social Security's deficits would be *larger* under the high wage growth assumption than under the intermediate-cost assumption.

To make up those larger deficits would demand even higher wage growth, which would eventually lead to higher benefit obligations. Hence, Social Security could be aptly described by the Red Queen of Lewis Carroll's *Through the Looking Glass,* who tells Alice that, "in this place it takes all the running you can do, to keep in the same place."[93]

Consequently, the results of a longstanding productivity increase such as that envisioned by Jorgenson and Stiroh, even if translated fully into wages, would be to defer Social Security's problems but not to eliminate them.[94] This analysis is supported by Steuerle, who declared:

> different economic assumptions usually don't have a substantial impact on [Social Security's] deficits. Crudely speaking, these programs are scheduled to grow faster when the economy grows faster, and slower when the economy grows slower. Although there are some lags, this close relationship between economic and program growth makes taxes and expenditures grow more or less in line and, hence, the difference between the two is not affected so much by changes in economic growth.[95]

This position does not mean that permanently higher wage growth would bring no benefits. But it is illusory to believe that increased wage growth of any realistic degree can keep the system solvent on an ongoing basis.

Actuarial Balance

Given those observations, how can people say that by raising wage growth, increased economic growth will save Social Security? More specifically, how can the trustees' report say that "each 0.5-percentage-point increase in the assumed real-wage differential increases the long-range actuarial balance by about 0.50 percent of taxable payroll,"[96] which implies that real wage growth of 2.89 percent annually would erase Social Security's deficit over the next 75 years?

These conclusions are drawn from the trustees' use of the idea of 75-year "actuarial balance," which is defined as "the difference between the summarized income rate and the summarized cost rate over a given valuation period."[97] In other words, the trustees calculate Social Security's income rate, the taxes it will collect as a percentage of payroll plus trust fund revenues, and subtracts its cost rate of benefits payable as a percentage of payroll. The difference is its actuarial surplus or deficit.

One reason the idea of 75-year actuarial balance leads to misleading conclusions is the time lag between the wage increase and the increased benefit liability it creates. For the sake of illustration, imagine three 75-year time periods with differing rates of real wage growth:

- Period 1: 1925–2000; annual wage growth, 1 percent
- Period 2: 2000–2075; annual wage growth, 2 percent
- Period 3: 2075–2150; annual wage growth, 1 percent

As period 2 opens, wage growth increases from 1 percent to 2 percent. Because Social Security would be collecting taxes on the basis of 2 percent wage growth while for a substantial period paying benefits earned during period 1, when wage growth was just 1 percent, actuarial balance during period 2 would improve.

But now go to period 3, when wage growth returns to 1 percent. Growth of payroll tax revenue would decrease, but during the time lag before reduced benefit liabilities took effect Social Security would collect taxes at the 1 percent wage growth level while paying benefits on the basis of 2 percent wage growth. Under these conditions, Social Security would have difficulty meeting benefit obligations incurred during period 2.

Benefits owed during any 75-year period depend upon wages earned prior to that period, and the ability to pay benefits accrued during any 75-year period depends upon wage growth after that period has ended. This time lag matters in the current context because for the next several decades Social Security will be paying benefits based in whole or part upon liabilities created during the slow wage growth years from 1973 onward. If wage growth increased, benefits would increasingly be based upon higher wage growth than in the past, and benefit liabilities would rise as a result. Likewise, while 3 percent wage growth would technically eliminate Social Security's actuarial deficit over the next 75 years, that level of wage growth must continue well beyond the year 2075 if those workers who established benefit claims prior to 2075 are to be paid.

Moreover, actuarial balance's dependence upon the Social Security trust fund can give a deceptive view of the time distribution of Social Security's funding shortfalls. From 2000 to 2024 Social Security is projected to run a payroll tax surplus of 0.1 percent of GDP, not including trust fund balances, while from 2025 to 2050 its deficit is projected to average 1.7 percent of GDP and from 2051 to 2075 is expected to average 2 percent of GDP. The current 75-year actuarial deficit of 1.89 percent is meaningful only if the trust fund can accumulate resources and redistribute them over time. However, it cannot.

The Trust Fund

Seventy-five-year actuarial balance is a misleading measure of the benefits and burdens of the Social Security program, for it assumes that surpluses today can be saved to make up for deficits decades into the future. But most experts do not consider the trust fund in such a way. If they are correct, then achieving actuarial balance—either through increased economic growth or through policies designed to buttress trust fund balances—could not be said to have effectively benefited the system or the workers and retirees who depend upon it.

The Clinton administration provides in its fiscal year 2000 budget perhaps the clearest statement of what the trust fund can and cannot do:

> [Trust fund] balances are available to finance future benefit payments . . . but only in a bookkeeping sense. . . . They do not consist of real economic assets that can be drawn down in the future to fund benefits. Instead, they are claims on the Treasury that . . . will have to be financed by raising taxes, borrowing from the public, or reducing benefits or other expenditures. The existence of large trust fund balances, therefore, does not, by itself, have any impact on the Government's ability to pay benefits.[98]

In other words, the bonds in the trust fund make up a claim on the existing pool of assets, but they do not constitute meaningful assets in and of themselves. The reason? The payroll tax surpluses that generated the bonds in the fund were not saved. As the president put it in 1998, "Today, we're actually taking in a lot more money from Social Security . . . than we're spending out. Because we've run deficits, none of that money has been saved for Social Security. . . ."[99] Since payroll tax surpluses did not add to the economy's capital stock, the bonds in the fund represent a pledge by the government to redistribute income from workers to Social Security beneficiaries, not an asset to make the system more affordable for those workers.

Alan Greenspan, who chaired the commission whose recommendations led to the 1983 amendments to build up trust fund balances,[100] clearly lays out the case for running payroll tax surpluses to increase the balance of the fund:

> One reason to build surpluses in the trust funds is to set aside savings and thus to divert part of the nation's current production away from consumption, both private and public. . . . They should boost investment and thus foster the growth of the nation's capital stock. And with more capital per worker than would otherwise be in place, productive capacity will be greater and we will be better able to fulfill our promises to the retirees, while maintaining the standard of living of future workers.[101]

This statement is true, given the proviso Greenspan adds: "assuming of course that the surpluses are not offset by reductions in the saving of households and businesses or by larger dissavings, that is, deficits, elsewhere in the federal budget." In other words, trust fund financing must increase net national savings if

it is to be a meaningful asset to the system.

Carolyn Weaver, a member of the 1994–1996 Advisory Council on Social Security, makes precisely this point: the trust fund's fundamental shortcoming is that "no mechanism in the law ensures that the surpluses translate into meaningful savings."[102] Whether and how much national savings increase depends not simply upon the size of payroll tax surpluses. It also depends on whether those surpluses are dedicated to reducing government debt, rather than spending increases or tax reductions, and whether individuals reduce their own savings in reaction to increased savings by the government.[103] In 1990, Greenspan expressed doubt as to the net positive effects of trust fund surpluses to that point.[104]

Determining whether past payroll tax surpluses increased national savings is inherently problematic, demanding counterfactual suppositions of what the government and private sector would have done in the absence of those surpluses. But regarding government spending, at least, Nobel laureate James Buchanan is confident that "a small dose of public choice theory might have dampened the enthusiasm of those who sought to ensure the integrity of the system" by using payroll tax surpluses to bolster national savings.[105] Trust fund surpluses can be spent on all the projects and benefits that buttress a politician's electoral prospects, but because these monies derive from the sale of bonds to the fund rather than to the public they do not count toward the budget deficit or toward general perceptions of the public debt.[106] Payroll tax surpluses' ability to mask on-budget deficits causes most experts to conclude that these surpluses relaxed fiscal discipline, reducing or eliminating the national savings benefits that are their entire reason for being.

This plays into what fellow Nobel laureate Milton Friedman calls the "budget constraint hypothesis," which states that "governments spend what governments receive plus whatever they can get away with."[107] W. Mark Crain of George Mason University and Michael L. Marlow of California Polytechnic University performed a statistical analysis of the correlation between changes in Social Security trust fund balances and overall federal spending from 1940 to 1987; their results support Buchanan and Friedman's beliefs: "The evidence in support of the argument that excess Social Security trust fund balances are saved and not spent," Crain and Marlow found, "is weak or nonexistent."[108] More recently, Hoover Institution economist John Cogan found that past buildups of trust fund reserves have correlated with expansions of Social Security benefits, leading him to conclude that "unless a method can be found for altering congressional behavior from its 60-year norm, any attempt to ensure Social Security's solvency by building a large trust fund reserve will likely prove futile."[109] Vice President Gore's election-year proposal to increase Social Security benefits for widows and working mothers provides anecdotal evidence that this trend continues.[110]

If the above is correct, then the trust fund mechanism has increased paper obligations to the Social Security system without a concomitant increase in the economic ability to fulfill those obligations. As early as 1991 Social Security actuaries gave this warning:

> Due to continuing deficits in the rest of the Federal Government, we are not accumulating a true fund and are instead merely accumulating a right to future government revenues. The expected trust fund buildup will not (1) lower future costs, (2) lower total future taxes, or (3) generate faster economic growth (to make higher future taxes easier to absorb). Under these circumstances, the public is, at the minimum, gaining a false impression about the ability to prepare in advance for the financial effects of the baby boom's retirement. In addition, they may be gaining a false impression about the financial resources that will be required, after the baby boom retires, to finance the program.[111]

In a similar vein, the Congressional Budget Office noted that "the size of the balances in the Social Security trust funds—be it $2 trillion, $10 trillion, or zero—does not affect the obligations that the federal government has to the program's beneficiaries. Nor does it affect the government's ability to pay those benefits."[112]

The Brookings Institution's Henry Aaron admits that Social Security's payroll tax surpluses have not been saved for the future, but maintains that the responsibility lies not with Social Security but with the rest of the government:

> While the Trust Funds have succeeded in adding to Social Security reserves, they may have failed in adding to national saving, if they caused government to run larger deficits or smaller surpluses on the rest of its activities. In short, unwise fiscal policy outside Social Security may have prevented the accumulation of Social Security reserves from increasing national saving. If this unfortunate event occurred, however, the reason is not that Social Security reserves were invested in government bonds, but because of imprudent fiscal policy on activities of government other than Social Security.[113]

The point Aaron misses is that the government "other than Social Security" is the same government that amended the program in 1983 with the ostensible purpose of increasing national savings. If trust fund surpluses do not in fact raise national savings to make payment of future benefits more affordable, it makes little difference that the "fault" lies not with Social Security but with the policymakers who designed and manage it. If the trust fund mechanism has not effectively increased savings then those paper "assets" should be written off and a more effective means of saving to meet benefit obligations implemented.[114]

But what about the future? Now that the government is running surpluses in the non–Social Security budget, can the trust fund mechanism at last fulfill its intended function? The Clinton administration's Social Security proposal assumes that it can. The administration plan would dedicate payroll tax surpluses to debt reduction in hopes of raising national savings and increasing the economy's capacity to pay benefits in the future. The administration plan would issue bonds to the trust fund in exchange for payroll tax surpluses, as in current practice, then use the cash derived from the bond sale to retire publicly held government debt. The trust fund would then be credited with additional bonds equivalent to the annual interest savings derived from that debt repurchase. One problem with this is "double-counting." The original purchase of bonds by the trust fund is economically meaningful only if the cash from that sale is used to retire debt, and the interest paid on those bonds already represents savings in debt service costs. By issuing additional bonds to the fund equal to the debt service savings, the Clinton administration plan counts these savings a second time.[115] Politically speaking, this plan is understandable: unlike past practice, the government would save payroll tax surpluses rather than spending them and would presumably want recognition for doing so. But simply because the past practice of spending payroll tax surpluses rendered trust fund bonds economically meaningless does not justify giving ourselves extra credit for doing what we should have been doing all along. Under the Clinton administration plan, insofar as payroll tax surpluses are used to retire debt, trust fund bonds in the amount of those surpluses would be economically meaningful. Bonds deposited in the past, as well as additional bonds credited to the fund under the administration plan, would remain obligations but not true assets.

A more important problem with the Clinton administration plan is that, as in the past, there is no assurance that payroll tax surpluses result in increased government savings, much less national savings. It appears that in the administration plan additional bonds would be credited to the trust fund regardless of whether any debt was actually retired. General Accounting Office head David M. Walker noted:

> One disconcerting aspect of the President's proposal is that it appears that the transfers to the trust fund would be made regardless of whether the expected budget surpluses are actually realized. The amounts to be transferred to Social Security apparently would be written into law as either a fixed dollar amount or as a percent of taxable payroll rather than as a percent of the actual unified budget surplus in any given year. These transfers would have a claim on the general fund even if the actual surplus fell below the amount specified for transfer to Social Security—and that does present a risk.[116]

Just as in the past, Congress could relax its fiscal discipline and renege on its pledge to increase savings without affecting the issuing of new bonds to the trust fund. This move would again create the pretense of "saving Social Security" without the reality.

Social Security reform that is based upon personal accounts, in which workers would

invest a portion of their payroll taxes in stocks and bonds, would have greater insulation from savings-offset issues currently affecting the trust fund. Payroll taxes diverted to personal accounts could not be used to mask the size of on-budget deficits, thereby imposing greater fiscal discipline on the government. And while the "wealth effect" and "Ricardian equivalence" would cause many high-income workers to dissave in reaction to the new deposits to their personal accounts, for many low-income individuals savings are already so low that further reductions in savings are less likely.[117] Hence, while personal accounts would clearly not guarantee a dollar-for-dollar increase in national savings, they have better firewalls to ensure that the savings created by funds deposited in these accounts are not offset by dissavings elsewhere in the government.[118]

Even if for the sake of argument the trust fund is treated as a real economic asset capable of paying full benefits until 2075, in 2076 Social Security falls off a financial cliff. According to the intermediate assumptions, in 2076 alone Social Security would face a funding shortfall of more than $7.5 trillion, equal to almost 2.2 percent of GDP or 6.2 percent of payroll. In this case, 12 percent of all federal expenditures would be taken up, not with paying for Social Security, but simply for paying for Social Security's *shortfall*. Even under the most optimistic set of assumptions, an individual born in 2009 could expect substantial shortfalls in his promised retirement income. Perhaps the greatest failing of actuarial balance as a measure of Social Security's financing health is that it does not differentiate between a system that just crawls past the 75-year "finish line" and one that can sustain solvency permanently. Workers born today will live well past the year 2075; for them, mere 75-year solvency means very little.[119]

In sum, even if the trustees underestimate future economic growth, there are a number of reasons why higher growth may not fully filter through to Social Security. More important, increases in benefit liabilities that accompany economic growth would offset much of whatever gains did appear. Finally, even if growth somehow eliminated Social Security's long-term actuarial deficit, cash flow pressures in any particular year could be severe and the trust fund would do little or nothing to offset them. The crisis deniers' arguments fail to rebut the conclusion that unless reform is enacted, Social Security's crisis is coming and may well be even larger than predicted.

"It's Not Exactly the End of the World"

The crisis deniers insist that the economy will grow significantly faster than predicted and that Social Security will be saved. As we have seen, these assertions are dubious. But their argument does not depend on higher growth, they say. "Even if the dismal growth forecasts turn out to be true, and the program eventually runs a deficit," say Baker and Weisbrot, "it's not exactly the end of the world."[120] Former Clinton administration National Economic Advisor Laura D'Andrea Tyson makes the same case: while over the long term "a financing shortfall develops . . . it amounts to only 2 percent of total payrolls, or less than 1 percent of gross domestic product over the next 75 years."[121] Literally speaking, of course, Social Security's problems would not be "the end of the world." But that does not mean the fiscal strain maintaining promised benefits would be insubstantial.

Commentators such as Baker and Weisbrot argue that Social Security is easily affordable because its 75-year actuarial deficit of 1 percent of GDP is similar in size to the military buildup from 1976 to 1985, which raised the Pentagon's budget from 5.2 to 6.2 percent of GDP.[122] But even a moment's consideration shows this analogy to be false. First, the time periods being compared are entirely different. The 1976–85 military buildup may have cost 1 percent of GDP over 10 years, but over any 75-year period it would be just a small fraction of a percent, far smaller than Social Security's projected deficits. Alternately, Social Security's shortfall as a percentage of GDP over the 10-year period 2066–75 averages 2.1 percent of GDP, twice as large at the military buildup. Even in the 10-year period *before* the trust fund's official insolvency in 2037, Social Security faces payroll tax deficits 70 percent larger as a percentage of GDP than the 1970s–80s military increases.[123]

Moreover, some commentators interpret the military buildup of the 1970s and 1980s as an investment designed to end the Cold War. With the Soviet Union now defunct, defense spending

is at a postwar low of just 3 percent of GDP, generating billions of dollars in savings that have been devoted to balancing the budget, increasing spending on nondefense programs, and reducing taxes. Social Security's deficits, by contrast, never end. There is no future point at which the current system is expected to return to balance, no time at which extra spending devoted to the current system will pay off with lower costs to the taxpayer. Hence, the valid comparison is between a 10-year military spending increase followed by lower military spending in the future and a spending increase twice as large for Social Security that goes on forever.

Barring increased savings and market investment to raise Social Security's rate of return, there are three ways to put right the program's pending shortfalls. The first is to increase payroll taxes; the second, to raise income taxes; and the third, to reduce other government spending. While projected payroll tax deficits could be made up through a combination of the three, examining each in isolation gives a measure of the size of the problem.

Payroll Tax Increases

For Social Security to be self-financing, payroll taxes must rise to match expenditures. Beginning in 2015, payroll taxes will no longer be sufficient to pay full benefits. From 2015 to 2037, Social Security's payroll tax deficits would be made up using the trust fund. Realize, however, that redeeming trust fund bonds entails income tax increases or spending reductions equivalent to the required payroll tax rate. In 2038, when the trust fund became exhausted, payroll taxes would immediately increase from the current 12.4 percent to 17.9 percent of wages, and reach 19.5 percent in 2075. It is unclear whether and at what point after 2075 tax rates would stabilize. And these projections assume that employment levels are unaffected by the rising payroll tax burden. Were unemployment to rise, payroll tax revenues would fall and deficits would reappear.

Income Tax Increases

The Clinton administration's plan to issue new debt to the Social Security trust fund would effectively shift a substantial portion of the program's funding from payroll to incomes taxes. Assume that income tax revenue will grow at the same rate as the economy and that Social Security's payroll tax deficit will be made up through income tax increases.[124] Until 2015, no additional income tax revenue is needed to finance Social Security, since the program will be running a payroll tax surplus until then.[125] Following 2015, the additional income tax revenue needed would initially be small; only $11 billion in 2016, less than 1 percent of income tax revenue.

But the extra revenue required to maintain solvency grows quickly. By 2025 we would need an additional 12.5 percent of income tax revenue; by 2035 income tax revenue would need to increase by 17.5 percent just to pay promised benefits. This debunks the claim that Social Security is easily affordable through 2037. By 2075, income taxes would need to increase by one-fifth.

Spending Cuts

Over the past half-century federal government tax receipts have generally varied between 17 and 19 percent of GDP. Given this relatively narrow band of government spending, 1994–1996 Social Security Advisory Council member Sylvester Schieber says, "If we begin with an assumption that total government claims on the economy are narrowly limited and that Social Security is scheduled to make a bigger claim than currently, then some other government expenditures must shrink."[126] But could we divert additional government resources to Social Security without harming other programs? Some people apparently think so. For instance, Baker says that, "repayment [of trust fund bonds] will never be very large relative to the size of the economy. It almost certainly will be less than government spending on prisons, for example."[127] Baker is correct: repaying the bonds in the trust fund *would* cost less than federal spending on prisons—for about the first nine months of 2015, the first year Social Security runs a payroll tax deficit.[128] By 2020, the cost of repaying the bonds in the trust fund would be 16 times greater than spending on prisons, and rising.

Assume that federal spending rises at the same rate as economic growth, thereby keeping it constant as a percentage of the total economy. If the increased funds needed for Social Security will be taken out of that pool, other spending must be cut. How much would need to be cut from other government programs to keep Social Security solvent? In the early years, not very much. For instance, in 2016, the pay-

roll tax shortfall is just 1 percent of total government spending. But by 2035, it would take an almost 10 percent reduction in federal spending to pay full Social Security benefits without increasing taxes. By 2075, federal spending would have to be cut by over 12 percent, just to make up Social Security's deficits.[129] Of course, much of this government spending is itself unnecessary or inefficient and could be eliminated without great harm. But that view of government spending is not generally shared by those who deny Social Security's problems. In fact, in many cases it seems they deny the Social Security crisis precisely because reform would *curtail* discretionary spending by the federal government.

Default?

Turning to payroll tax increases, income tax increases, or spending cuts to pay full Social Security benefits would entail substantial sacrifice by taxpayers. Is it possible that instead of finding new funds to pay promised benefits, the government would reduce benefits to the level affordable within available funds? Vincent J. Truglia, managing director of Moody's Sovereign Risk Unit, thinks so. Truglia conducted a cross-country analysis of the burden that aging populations will place on industrialized countries. All developed countries maintain high debt ratings on their government bonds, but part of the reason is that Moody's anticipates default on *implicit* debt promises to beneficiaries of government entitlement programs such as Social Security. If health and pension programs are not reformed, Truglia warns, ratings on explicit government debt might have to be lowered, and "the time horizon for any potential rating action would have to be sooner rather than later." The United States' relatively low benefit levels and relatively high birth rates place it in a far better position than some other developed countries, though should birth rates fall closer to European levels that circumstance could change substantially. Nevertheless, "Moody's expects almost *every* industrialized nation to 'default' on its pension promises," the United States included. The United States, Truglia points out, has already defaulted on Social Security benefits in changes legislated in the 1980s and 1990s.

> Payments that were previously exempt from income tax suddenly became, for a large number of wealthier pensioners, taxable income. The government could have accomplished the same result by decreasing benefits to those same pensioners, but probably chose the tax route because it better obscured the final outcome—lower net payments to certain pensioners. This is just one example. The list of pension reforms involving reduction in present-day benefits, never mind future benefits, is long indeed.[130]

Benefit cuts have already been implemented, if by the back door, and clearly could do so again.

This fear of default appears credible when we consider the trustees' low-cost assumptions, whose optimism goes far beyond the increased wage growth predicted by the crisis deniers. The trustees' best-case scenario forecasts future wage growth more than twice that over the past 30 years; unemployment 30 percent lower; fertility rates 10 percent higher; immigration 50 percent higher than at present; average life expectancies in 2075 lower than in Japan today; and a GDP in 2075 66 percent higher than under the intermediate cost assumptions. Even in this rosiest of futures, where absolutely everything goes Social Security's way, the program still faces a deficit of $7.6 trillion (in 2000 dollars) between 2020 and 2075.[131] Assuming only higher wage growth, as the crisis deniers do, Social Security's shortfall is 3.6 times larger.[132] To advocate waiting until the 2030s to take action, in hopes that these rosy events come to pass, is nothing short of wishful thinking.

Dependency Ratios

Advocates of Social Security reform often point to declines in the ratio of workers to retirees as certain evidence for the need for reform. For instance, the Concord Coalition points out that, "in 1960, there were more than 5.1 workers per beneficiary. Today the ratio is three to one. By 2030,when the boomers have all retired, there will be scarcely two workers for each beneficiary."[133] When fewer workers must support a greater number of retirees, the relative financial burden on each worker increases.

But many deny that a falling worker-to-retiree ratio poses any problems. For instance, Baker and Weisbrot point out that, "In 1955 there were 8.6 workers per retiree, and the

decline from 8.6 to 3.3 did not precipitate any economic disaster."[134] What they fail to point out is that a worker retiring in 1955 received a return of more than 20 percent on his payroll tax contributions, while returns for a worker retiring today fell to just around 2 percent.[135] Or that in 1955 Social Security payroll taxes were just 4 percent of the first $4,200 in wages, as opposed to 12.4 percent of the first $76,200 in wages today.[136] An economic disaster? No. But a decline in the attractiveness and effectiveness of the program? Most certainly.

Others make a more general case, dismissing the worker-to-retiree ratio entirely and focusing on a larger "dependency ratio," which is the ratio of workers to all dependents—children included—not simply workers to retirees. Rising life expectancies mean more retirees to support, but falling birth rates mean fewer children. Century Foundation president Richard Leone says:

> When people sound the alarm about the aging of the Boomers, they always refer to the growing "burden" on those still in the work force. In fact, the best way to measure this "burden" on workers is to compare the size of the entire dependent population and the resources available per person. One key ratio is that of young and old dependents to workers. In 1993, it was about 70 to 100. It will rise to 83 per 100 in 2030, the peak. But in 1964 it was 96 per 100. Odd, isn't it, that no one—including the Boomers' parents—recalls the 1960s as an era of economic deprivation?[137]

But there is a very simple reason why government finances that handled baby boomer children with relative ease will be strained by the baby boomers as retirees: the federal government spends far, far more on older people than on the young. Not to mention the fact that, at the time the baby boomers were children, the federal government spent far less on children than it does today.

Federal spending averages $17,700 for each person aged 65 and over, versus just $2,100 per child.[138] The Congressional Budget Office studied the relevance of overall dependency ratios to future entitlement spending, concluding:

> The possible relative decline in the population of children would not make up for the costs associated with the projected surge in the elderly population. In contrast, state and local governments might well benefit from a relative decline in the number of children. But any reduction in the budgetary pressure on state and local governments is likely to be small compared with the increased pressure the federal government will face.[139]

Even if advocates of the dependency ratio argument advocated cutting all federal spending on children—which they most certainly do not[140]—it would not be enough to make up for coming deficits in Social Security. These simple facts led 1994–1996 Advisory Council on Social Security member Sylvester Schieber and Stanford economist John Shoven to conclude that "anyone who suggests that substituting a child dependent for an elderly dependent would help offset fiscal demands is either badly mistaken or simply disingenuous."[141]

Stranger still, many of those making the dependency ratio argument simultaneously argue that we should consider Social Security's rising costs in isolation from those of other programs. Baker and Weisbrot, for instance, dismiss efforts by entitlement reform groups such as the Concord Coalition to "lump Social Security and Medicare together,"[142] which jointly could raise payroll tax rates to over 25 percent and erase all future income gains to workers.[143] Such a position is hardly defensible when one is simultaneously "lumping" hypothetical reductions in federal children's spending with Social Security to make the whole package appear affordable.[144]

In sum, the claim that the tax increases or spending cuts needed to maintain Social Security benefits would not be onerous is unrealistic, particularly in a political environment in which tax rates are already considered burdensome and merely reducing the rate of growth of an existing spending program is deemed an unacceptable "cut." These claims greatly underestimate the extent to which the need for additional revenue would affect the tax burden on workers or the ability of the government to maintain other desired programs, particularly when Social Security will already have to com-

pete with the increasing costs of other government programs catering to the elderly.

The Stock Market vs. Pay-As-You-Go Social Security

There is a flip side to the crisis deniers' argument that the trustees projections are pessimistic. They argue that if the trustees are right and the future economy does grow at a mere 1.7 percent annually, then market investments like stocks and bonds cannot produce historical rates of return. Therefore, Social Security reform based on the market investment of payroll taxes becomes a less attractive option. For instance, Jeff Faux of the Economic Policy Institute declares:

> If the projected growth rate of the economy declines by half, as the Social Security trustees assume, the projected returns from the stock market must also decline. A stock market consistent with the Social Security projections would generate a return of about 3.5 percent. But stocks are highly risky.[145]

Should the trustees' projections turn out to be true and the economy go into a long-term slowdown, the crisis deniers say, returns from stocks and bonds would surely fall as well. If so, then workers and retirees would receive an even lower return from market investments than from Social Security.

As baby boomer retirements and low birth rates reduce labor force growth to just 0.2 percent annually, total economic growth will decline as well. The critics' argument is simple: Slower economic growth means lower corporate profits, and profits drive stock prices. Under such conditions, critics like Baker argue, stocks can't return anything like the 1929–97 average of 7.2 percent. Returns any higher than 3.5 percent for the S&P 500 index, Baker says, are "simply inconsistent with the Social Security trustees' growth projections."[146]

Two rebuttal points are worth making at the outset. First, the true return from a funded pension system, as Martin Feldstein points out, is not simply the return on the assets it holds but the real, pre-tax return on nonfinancial corporate capital.[147] James Poterba has estimated the return to capital in 1959–96 at 8.5 percent annually.[148] Part of this return would flow to the pension system's investments in the form of the return on the stocks and bonds that it holds, while the remainder flows to the government in the form of increased corporate income taxes. Feldstein argues that this increased revenue should be credited to the pension system, much as income taxes levied on Social Security benefits are currently credited to the Social Security and Medicare programs.[149] Hence, the full return to a funded system of personal accounts would exceed the simple return on its investments, even if the simple return were below historical averages.

Second, unless these critics assume that the entire world's stock markets will grow at similar low rates there is no reason workers could not simply invest their personal account contributions in overseas mutual funds, dozens of which are available to U.S. investors at low cost. The full returns cited by Feldstein would not be obtained, since the taxes on foreign corporations' income flows largely to foreign governments, but foreign investment nevertheless offers workers the opportunity to gain higher returns on their investments, if needed.

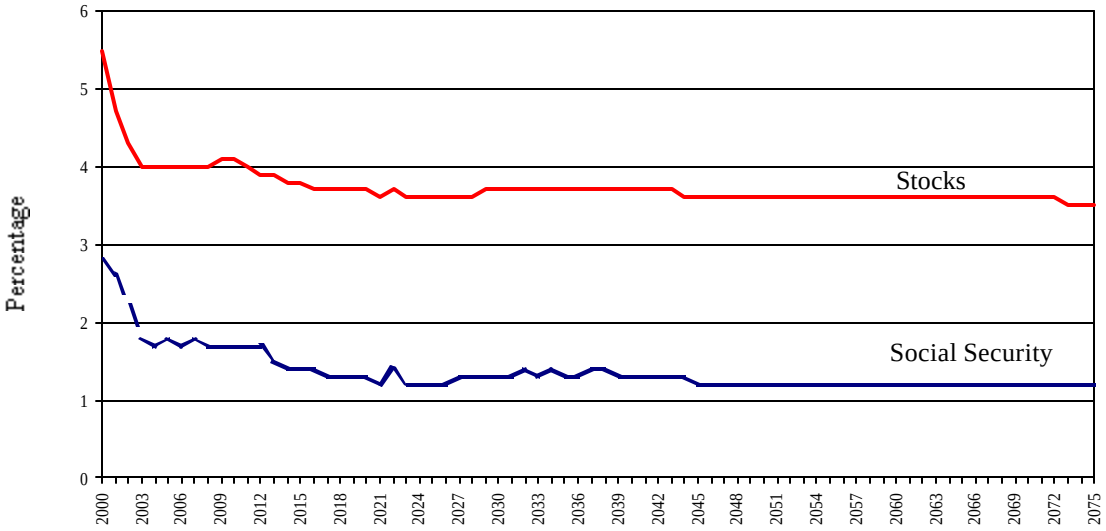
Let's Assume They're Right

Nevertheless, let us assume for the moment that these critics are correct. Let us assume that, over the next 75 years, stock market returns will equal the sum of economic growth and a 2 percent average dividend, totaling an average of just 3.74 percent annually.[150] Under these dire conditions, surely the current Social Security system would provide a higher return than market investment. Unfortunately not. Even under this worst-case scenario market investment would substantially outperform Social Security.

The Social Security Administration's Dean Leimer calculated that while Social Security offered above-market returns to participants during its start-up period, such as the 25 percent real annual return offered to those born in 1880 or the 10 percent return to cohorts born prior to 1905, workers retiring today will receive only around 3 percent returns on their payroll tax contributions. Workers born in 1960 will receive just 2 percent, while those born in 2040 are expected to receive only 1 percent returns.[151]

Why are returns from Social Security droppings? As the General Accounting Office states,

Figure 13
Implicit Return from Social Security vs. Assumed Equity Returns



Sources: Social Security returns defined as sum of labor force and wage growth, derived from *2000 Trustees Report*, Table II.D1. Stock returns as calculated by Baker and Weisbrot, *Social Security: The Phony Crisis*, pp. 90–93, defined as sum of projected GDP growth and assumed 2 percent dividend.

"in a fully mature pay-as-you-go system, long-term average implicit returns roughly equal the growth of total wages covered by the system because both contributions and benefits are based directly on covered wages."[152] The authors of the GAO report are referring to Nobel laureate Paul Samuelson's formulation that the underlying rate of return in a pay-as-you-go system like Social Security is equal to growth of wages subject to payroll taxes plus labor force growth.[153] Based on the trustees' intermediate projections for these variables, Social Security's return will average just 1.37 percent annually over the next 75 years, 2.36 percentage points lower than Baker and Weisbrot estimate for stocks (Figure 13).[154] And as Baker and Weisbrot point out, even small differences in rates of return can make a large difference in outcomes over the long run. For instance, a worker who invested $50 per month for 40 years at 3.74 percent interest would retire with 75 percent more than a similar worker who invested at 1.37 percent interest. Even investing in government bonds, projected to return 3 percent annually over the next 75 years, a worker would receive a return substantially higher than that from Social Security while owning a risk-free asset that carries no administrative cost.

Indeed, it would be strange if private investments did not outperform Social Security. Most economists consider the U.S. economy to be "dynamically efficient," which means that the return on capital exceeds the growth rate of the economy. Under these conditions, a funded pension system investing in real economic assets should *always* outperform a pay-as-you-go system over the long term even if the funded system invests in riskless assets like government bonds.[155]

In fact, the spread between Social Security's pay-as-you-go return and the return from a funded system could be even greater. On the one hand, to the degree that the funded system raised national savings the government would receive increased corporate tax revenues, which could be credited to the system. On the other hand, there is substantial evidence that pay-as-you-go pension systems reduce national savings, thereby cutting economic growth. A Congressional Budget Office survey, while noting the difficulty of precisely measuring savings effects, says, "The Social Security system most likely has had a negative impact on private saving. The best empirical estimates, those using cross-section data, indicate that each dol-

lar of Social Security wealth reduces other assets by between zero and 50 cents."[156]

Of course, in practice some workers earn higher rates of return from Social Security than others, because of factors such as income, longevity, and marital status. While the progressivity of gains from Social Security is still debated, even if the program's benefits are assumed to be progressive most workers would receive a lower rate of return from Social Security than under Baker and Weisbrot's worst-case scenario for stock market investments. For instance, the Social Security Administration calculated inflation-adjusted rates of return of single women of various earning levels born in 1973. Even a low-income woman, who benefits from Social Security's progressive benefit formula, would receive a return of just 2.8 percent annually. Moreover, the SSA's rate-of-return calculations for individuals and couples show that only single-earner couples, who are generally higher-income, receive a return exceeding 3.5 percent (because of Social Security's benefits for nonworking spouses). Two-earner couples, single women, and single men all receive returns of below 1.8 percent.[157] So even if the critics are correct and future stock returns are below historical averages, market investment returns would still be significantly *above* those from Social Security.

Critics will respond that such rate of return comparisons are invalid because they do not include the so-called "transition costs" necessary to adopt Social Security reform based on personal retirement accounts.[158] But against these transition costs must be weighed the cost of the current system's unfunded liabilities, which over the next 75 years exceeds $20 trillion (in 2000 dollars). Beyond the 75-year period, funding shortfalls would increase. If the present value of transitioning to a funded system of personal accounts is less than that of the current system's unfunded liabilities, it makes sense from a financial point of view to make the change even if the return from personal accounts will be no higher than from Social Security.[159]

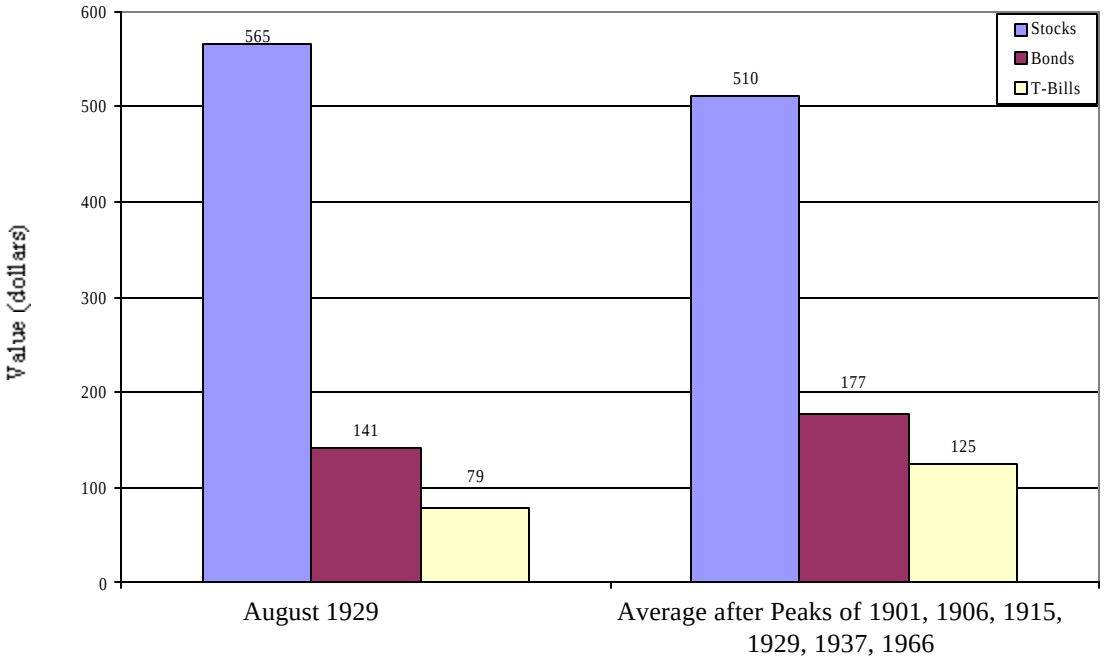
Is the Stock Market Overvalued, and Does It Matter?

Leaving the above discussion aside, the argument made by Baker and Weisbrot and others depends heavily on the assumption that the stock market is currently overvalued. This assumption is hardly unwarranted. After all, spectacular gains of recent years raised the price-to-earnings ratio of the total stock market as of January 2000 to 44, versus an average P/E ratio over the past 20 years of just 19.[160] Many analysts believe that stock prices exhibit "reversion to the mean," such that a period of above-average returns tends to be followed by a period of subnormal returns.[161] James Poterba and Lawrence Summers found, however, that sophisticated equity markets like those of the United States exhibit substantially less mean reversion than less well-developed markets.[162] Nevertheless, it is in no way irrational to presume that stock returns in the near future will be lower than those of the recent past.

In response, the Technical Panel recommended that when the Social Security Administration projects stock market returns for the future it use a lower equity risk premium to reflect the current valuation of the market.[163] The equity premium is the additional return that investors demand on top of the risk-free rate of return to compensate them for the additional volatility posed by stocks. Assuming the riskless return to be government bonds' projected real interest rate of 3 percent, the panel's recommendation would imply 6 percent real average stock returns over the long run.[164] This figure is below the 1802–1997 historical average of 7 percent,[165] but is still substantially higher than the 1.4 percent implicit rate of return from Social Security.

But there are several reasons to believe that current market valuations will not lead to a long-term and severe underperformance by stocks as predicted by Baker, Weisbrot, and others. First, Baker himself argues that a "gradual decline in the stock market is not a very plausible scenario."[166] But if a large market correction is imminent, it will be current investors who experience the largest losses. Future workers investing their payroll taxes in personal retirement accounts would experience small losses, if any. After all, workers with personal accounts would have invested only a few months or years worth of payroll taxes, with decades in which to make up the losses. Workers with personal accounts would practice dollar cost averaging, purchasing more shares when they are inexpensive and fewer when they are costly. Consequently, a worker starting a personal retirement account does not invest a given percentage of his total lifetime income in

Figure 14
Value of $100 Invested at Market Peak and Held for 30 Years



Source: Jeremy J. Siegel, *Stocks for the Long Run,* pp. 29–31.

the stock market at the *market's current price.* Rather, he invests merely a portion of that month's income, which could be just a fraction of a percent of his lifetime total contribution.

Second, Baker and Weisbrot's assumption of 3.5 percent stock returns implies an equity risk premium of just 0.5 percent over the trustees' projected government bond rate of 3.0 percent. Historically, investors in stocks have demanded a premium of approximately 7 percentage points over the government bond rate to compensate for the extra risk they would be taking on. Few investors would take on the extra risk associated with stocks without additional compensation above the risk-free rate of return, which would also point toward a near-term correction. Commentators such as James Glassman and Kevin Hassett of the American Enterprise Institute do foresee such a low equity risk premium, based on Wharton School professor Jeremy Siegel's finding that stocks are less risky than government bonds over the long term.[167] But Glassman and Hassett conclude that a very low equity premium is justified only at prices vastly *higher* than those today.[168]

Third, the track record of even market experts at predicting when stocks are overvalued is not just mixed: it is poor. Burton Malkiel of Princeton University cites research showing that active stock managers have tended to move out of stocks when prices were relatively low and to buy when prices were high, precisely the opposite of the intended strategy.[169] Moreover, Siegel shows that even if we knew beforehand that a certain point in time would constitute a market peak, stocks would still be the wisest investment over the long term (Figure 14). Siegel calculated the value of $100 invested in stocks, bonds, or Treasury bills at six stock market peaks during the 20th century. In all cases, Siegel found that stock investors would have done by far the best, ending with an average of between 2.7 and 4.0 times more money than those who invested in bonds or bills, even when purchasing what appeared to be overpriced stocks.[170]

In summary, even if we knew for a fact that the stock market is today overvalued, a wise long-term investment strategy would still include stocks in its portfolio.

The Economy and the Stock Market

Leaving the current value of the stock market aside, the basic connection between the stock market and the economy is not as clear-cut as many critics claim. On a theoretical level, Baker and Weisbrot confuse the rate of return from a capital investment with the rate of growth of total capital profits. A simplified example illustrates the difference. Imagine that each worker invests a fixed percentage of his income and receives a fixed 10 percent return on that investment. Hence, the investments' total profits for that year will equal the product of the (labor force) • (average wages) • (investment rate) • 10 percent. As wages and the labor force increase, total profits will grow, at a rate approximating the growth rate of the economy as a whole,[171] even if the savings rate and the rate of return are unchanged. Of course, if the labor force or wages growth declines then profit growth would also fall. Thus slower growth of profits and slower growth of GDP are consistent with an unchanging rate of return on capital investments.[172]

A similar process takes place with wages. Total wages equals the product of the (labor force) • (wage rate), and the rate of total wage growth is determined by changes in these factors. The rate of total wage growth is slated to decline, because of nearly nonexistent growth of the labor force. Yet, the trustees project that the wage rate will grow faster than it has over the past three decades, as reflected in their estimates for the real wage differential. Hence, just as lower rates of total wage growth do not entail lower wage rates, lower rates of profit growth do not necessarily entail lower profit rates on investments.

If investments are currently overpriced, they will not necessarily produce historical rates of return over the long run. But nothing in theory says that a slower growing economy necessarily implies lower returns on capital investments.

Empirical study bears out these conclusions. Research by Philippe Jorion, professor of finance at the University of California-Irvine, shows that it is easier to say "slower economic growth equals lower stock market returns" than to prove it. Jorion points out:

> It is widely believed that the performance of stock markets is related to economic growth. Indeed this relationship is routinely used to advocate investments in foreign markets, in particular emerging markets, which have enjoyed fast rates of economic growth in the last decades. Astonishingly, there is no cross-country evidence to support this link.[173]

Jorion's study of 31 countries around the globe, ranging from established markets like the United States and United Kingdom to newer economic powers like Japan and Germany to developing countries like Chile and Pakistan, indicates that slower economic growth in the future need not entail lower returns to stock market investments.

Jorion acknowledges the bookkeeping idea that "asset prices should grow at the same rate as cash flows," but warns that in the real world, "this relationship . . . may be blurred by a number of factors."[174] Jorion's theoretical model shows that returns on capital investments "should be related to real GDP growth per capita, instead of total GDP growth. Indeed, there can be substantial variations in labor growth across countries, which creates differences in total GDP growth without necessarily affecting growth per capita."[175]

Jorion's empirical investigation confirms the theory. Drawing on research on global equity markets conducted with Prof. Will Goetzmann of Yale,[176] Jorion examined the relationship between economic growth and stock returns for 31 countries. While Jorion found "no observable relationship between stock market returns and GDP growth," his statistical analysis revealed that "stock market returns are positively correlated to GDP *per capita* growth."[177] For instance, developing economies grew 1.4 percentage points faster on average than did the economies of developed countries, but equity returns of developing economies averaged 2.6 percentage points below those in the developed world. How could this be? Developing economies expanded total GDP through rapid labor force growth, not productivity improvements. In accordance with Jorion's model, their GDP growth per capita—and their stock returns—lagged behind those of developed countries. Consequently, Jorion concluded, "Lower capital gains are really associated with lower *per capita* economic growth," not lower *total* economic growth.[178]

This link between per capita GDP growth and equity returns is relevant, since the eco-

nomic slowdown projected by Social Security's trustees stems almost entirely from reduced labor-force growth, which Jorion found to have no effect on equity prices. Productivity growth, which has the greatest effect on per capita GDP growth, will remain at the 1969–98 average of 1.5 percent and per capita GDP growth will be respectable.

In summary, those who argue that historical rates of return are no guarantee for the future are correct. And a highly valued market indeed poses a double-edged sword for advocates of personal accounts: while rising stock prices fan public enthusiasm for investing, an overvalued market can lead to lower returns in the near future. But to assume returns over the next 75 years at less than half the historical average, while simultaneously predicting a near-term correction that would make historical returns possible, pushes an otherwise reasonable case too far.

Of course, the real benefit from reforming Social Security through personal accounts is not simply higher rates of return; it is increased savings, the building of wealth, and the independence that comes from personal ownership and control. But historically high market returns would smooth the transition to a system of personal accounts and lead to a lower tax burden and higher retirement incomes in the future.

Conclusion

"When Federal finances are in a jam," Steuerle, Spiro, and Carasso state, "unexpected economic growth usually helps. . . . However, Social Security is unable to take advantage of economic growth in the same way as other programs."[179] The critics termed herein as "crisis deniers" wish it were otherwise. They argue that Social Security's projected payroll tax insolvency in 2015 and massive deficits thereafter are merely the function of pessimistic economic assumptions and that higher economic growth will surely save the program.

However, Social Security's demise is not, as Mark Twain said of his reported death, "greatly exaggerated." Just the opposite may be the case. A government-appointed nonpartisan panel of experts concluded that the trustees' projections actually underestimate the program's deficits by 25 percent. Moreover, even vastly increased economic growth will not be enough to keep the system solvent, because much of the gains from increased payroll tax revenue are lost as benefit entitlements increased alongside.

But even if everything the crisis deniers say is true—that the trustees' projections are extremely pessimistic, and that faster economic growth will keep the system solvent forever—Social Security reform based on personal accounts would make sense. For even without a "crisis," Social Security is still a lousy deal. The bipartisan 1994–1996 Advisory Council on Social Security estimated that even if Social Security could pay full promised benefits forever without raising taxes by a penny, a typical single worker born in 1973 would receive an annual return of just 1.7 percent.[180] Personal accounts holding only ultra-safe inflation-adjusted Treasury bonds, currently paying 3.9 percent annually, would more than double workers' retirement incomes. More important than higher rates of return, personal accounts give workers more security and control over their retirement savings, while helping them build wealth for themselves, their communities, and their children.

Certainly, there will be differences of opinion regarding reform: Should Social Security be defined contribution or defined benefit? Should investment be controlled by workers or by the government? And if workers are to invest, what portion of their payroll taxes should they control, what should they be allowed to invest in, and how should other aspects of the program be modified?

But differences of opinion regarding the proper type of reform should not distract from the *need* for far-reaching change in the nation's public pension system. Social Security will not save itself. If Social Security is to fulfill its founders' goals for generations to come, difficult decisions will have to be made. The principal decision should be to move from a system that simply redistributes wealth to one that creates wealth by saving and investing. The "crisis that doesn't exist" is alive and well, and grows more formidable with every day that reform is delayed.

Notes

1. President William J. Clinton, Remarks to "The Great Social Security Debate," sponsored by the Concord

Coalition and AARP, Kansas City, Mo., April 7, 1998. Transcript available at <www.concordcoalition.org/ entitlements/kcss0498.html>.

2. Rep. Jerrold Nadler, Constituent newsletter, 1997, Issue 2, p. 1.

3. Jane Bryant Quinn, "Should We Go Private?" *Newsweek*, December 7, 1999, p. 89.

4. Jane Bryant Quinn, "A Challenge, Not a Crisis," *Newsweek*, July 3, 2000, p. 26.

5. Editorial, "Social Security: Here We Go Again," *Business Week*, February 1, 1999, p. 138.

6. For instance, a March 1999 Zogby International poll found personal accounts favored by 65 percent of whites, 75 percent of African Americans, and 89 percent of Hispanics. Likewise, 63 percent of Democrats, 70 percent of Independents and 75 percent of Republicans favor accounts. Seventy-one percent of males favor personal accounts, compared to 67 percent of females. For more information on public opinion and Social Security reform, see the Cato Institute/Zogby International poll on Social Security reform conducted August 1999, available at <www.socialsecurity.org>.

7. See the Cato Institute/Zogby International poll, which found 78 percent of respondents disagreeing with proposals to maintain Social Security's solvency by raising payroll taxes, 84 percent opposing benefit reductions, and 65 percent opposing an increased retirement age; and respondents by a five-to-one margin preferred that any Social Security funds to be invested in the market be invested by workers rather than by the government.

8. Dean Baker and Mark Weisbrot, "Stirring Up Social Security," *San Francisco Chronicle*, May 21, 2000, p. 1/Z1.

9. The trustees' latest projections are included in Board of trustees, Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds, *2000 Annual Report* (Washington: Government Printing Office, 2000), hereafter referred to as the *2000 Trustees Report.*

10. Dean Baker and Mark Weisbrot, *Social Security: The Phony Crisis* (Chicago: University of Chicago Press, 1999).

11. Dean Baker and Mark Weisbrot, "Social Security Scaremongering," *Washington Post*, December 13, 1999, p. A25.

12. Robert B. Reich, "The Sham of Saving Social Security First," *American Prospect*, November 1, 1999. Available at <www.prospect.org/columns/reich/rr980600. html>.

13. Christian Weller and Edie Rasell, "Getting Better All the Time, Social Security's Ever-Improving Future," The Economic Policy Institute, Issue Brief #140, March 30, 2000, p. 1.

14. 2030 Center, "Strengthening Social Security for Young Workers," undated, p. 2.

15. Jane Bryant Quinn, "A Challenge, Not a Crisis," *Newsweek*, July 3, 2000, p. 26.

16. William J. Clinton, Remarks to "The Great Social Security Debate," sponsored by the Concord Coalition and AARP, Albuquerque, New Mexico, July 27, 1998. Transcript available at <www.concordcoalition.org/ entitlements/abqss0798.html >.

17. Quoted in Katharine Q. Seelye, "The 2000 Campaign: The Vice President; Gore Assails Bush on Taxes and Calls Rival Inexperienced," *New York Times*, March 13, 2000, p. A16.

18. Quoted in David R. Francis, "Save Social Security? It's Already Solvent," *Christian Science Monitor*, September 20, 1999, p. 17. Langer argues that the "long-term" entails basing projections on GDP growth since 1930. In fact, the trustees do not assume a GDP growth figure based on past growth at all, but construct one from projections for changes in the components of GDP, such as labor force growth, productivity growth, etc., based on 30 years of historical data for these variables.

19. David Langer, "Cooking Social Security's 'Deficit'" *Christian Science Monitor*, January 4, 2000, p. 9.

20. Mark Weisbrot, "Social Security: Can the Trustees Be Trusted?" *Knight-Ridder/Tribune Media Services*, May 19, 1999.

21. *2000 Trustees Report*, p. 223.

22. General Accounting Office, "Social Security Actuarial Projections," containing PricewaterhouseCoopers' "Report on the Actuarial Projection of the Social Security Trust Funds" (Washington: Government Printing Office, January 14, 2000). Hereafter referred to as *PwC Report.*

23. Ibid., p. 4.

24. Ibid.

25. See 1999 Technical Panel on Assumptions and Methods, "Report to the Social Security Advisory Board," November 1999, hereafter referred to as the *1999 Technical Panel Report*. The report is available at <www.ssab.org>.

26. This figure is calculated by applying the changes in assumptions the Technical Panel recommended regarding the 1*999 Trustees Report* to the overall set of assumptions contained in the *2000 Trustees Report.* The *2000 Trustees Report* modified the prior year's assumptions regarding real wage growth and mortality declines, though in neither case did the trustees go as far as the Technical Panel had recommended.

27. Baker and Weisbrot, "Social Security Scaremongering," p. A25.

28. The section "If Economic Growth Exceeds Projec-tions, Will It Save Social Security?" shows why this may not always be the case and how that would affect Social Security.

29. Bureau of Labor Statistics, Series PRS85006092.

30. *2000 Trustees Report*, pp. 151–52.

31. "The Great Productivity Delusion," *Grant's Interest Rate Observer*, March 31, 2000, p. 1, citing research by James Medoff and Andrew Harless. Medoff and Harless note that the Bureau of Labor Statistics assumes that non-production employees work an average of 37.6 hours weekly, when many in the information technology sector

spent far more time in 1999 preparing for the Year 2000 problem. Consequently, output would have been divided by an unrealistically low number of hours worked, producing exaggerated measure of productivity.

32. Some have criticized the trustees' use of the recent past as the base for their future estimates, but the Technical Panel concurred that recent economic performance merited more weight than the more distant past. The panel recommended incorporating relatively old data but adjusting each year such that more recent years carry greater statistical weight. Applying such geometric weighting to productivity data for the period 1951–97 would lead to a slight increase in assumed productivity, on the order of 0.18 percent annually.

33. For instance, *Business Week* editor in chief Stephen B. Shepard declares that "two broad trends, globalization and information technology, are undermining the old order, forcing business to restructure. . . . The result: a radical restructuring that is making us more efficient. These trends can combine in powerful ways to raise Americans' standard of living, create jobs, spur entrepreneurial effort —and do all this without boosting inflation. To the believers in the New Economy, we have here the magic bullet—a way to return to the high-growth, low-inflation conditions of the 1950s and 1960s. Forget 2% real growth. We're talking 3%, or even 4%." Stephen B. Shepard, "The New Economy: What It Really Means," *Business Week*, November 17, 1997, p. 38.

34. Robert J. Gordon, "Has the 'New Economy' Rendered the Productivity Slowdown Obsolete?" paper presented to Congressional Budget Office's Panel of Economic Advisors, June 14, 1999, p. 1. Available at <http://faculty-web.at.northwestern.edu/economics/gordon/334 pdf>.

35. Congressional Budget Office, "The Budget and Economic Outlook: Fiscal Years 2001–2010," January 2000, Appendix A.

36. *1999 Technical Panel Report*, p. 21.

37. Congressional Budget Office, "The Budget and Economic Outlook: Fiscal Years 2001–2010," Appendix A. The CBO warns that "future events may show that the acceleration was entirely cyclical and will be reversed during the next business cycle. Or the future may demonstrate that CBO has underestimated the trend, which could continue at recent rates indefinitely. The uncertainty surrounding the projection of productivity, though never small, seems even larger than usual."

38. Henry Aaron, "Trustees Reports on Social Security: The Dangers of Legislative Micro-Management of Statistical Reports," Testimony before the Subcommittee on Social Security of the Committee on Ways and Means, U.S. House of Representatives, April 11, 2000.

39. Dale Jorgenson and Kevin Stiroh, "Raising the Speed Limit: U.S. Economic Growth in the Information Age," *Brookings Papers on Economic Activity*, forthcoming, p. 43.

40. *PwC Report*, pp. 58–59.

41. For instance, Pigeon and Wray point to Europe and Japan, both with slow-growing labor forces, arguing that it may correlate with increased productivity growth. See Marc-Andre Pigeon and L. Randall Wray, "Demand Constraints and Economic Growth," The Jerome Levy Economics Institute, Working Paper no. 269, May 1999.

42. *1999 Technical Panel Report*, pp. 20–21.

43. *PwC Report*, p. 67.

44. Baker and Weisbrot, "Social Security Scaremongering," p. A25.

45. The *Trustees Report* generally refers to high, low, and intermediate projections for all variables together. However, for certain variables the trustees perform sensitivity analyses, which examine the outcome of changing one variable, such as wage growth, while holding all other variables constant at their intermediate-cost levels. The real wage differential and actuarial balance vary on a one-to-one basis. Hence, for instance, a one percentage point increase in real wage growth would lead to a one percentage point improvement in the program's actuarial balance (*2000 Trustees Report*, p. 138).

46. *2000 Trustees Report*, Table II.G.4.

47. Ibid., Table II.D.1.

48. In 1997, Steve Goss, Deputy Chief Actuary for the Social Security Administration, estimated Social Security's actuarial balance for perpetuity (i.e., its surplus or deficit extending indefinitely) as a deficit of 4.7 percent of payroll. In conversation with the author, Goss estimated that using assumptions contained in the *2000 Trustees Report* would produce a similar projection or perhaps slightly closer to 5 percent of payroll. Real wage growth is estimated at 1 percent in the *2000 Trustees Report*; given the roughly one-to-one relationship between real wage growth and actuarial balance (see n.45), maintaining actuarial balance indefinitely would require at least 5.7 percent real annual wage growth. Goss's calculations are unpublished; available from the author on request.

49. Eugene Steuerle and John M. Bakija, *Retooling Social Security for the 21st Century* (Washington: Urban Institute Press, 1994), p. 63.

50. Alan Greenspan, Testimony before the Select Committee on Aging, U.S. Senate, March 27, 2000.

51. *2000 Trustees Report*, Table II.F.19. Figures reflect only Old Age and Survivors Insurance (OASI) beneficiaries.

52. *1999 Technical Panel Report*, pp. 21–22.

53. Ibid., p. 21.

54. *PwC Report*, pp. 36–37. Fertility rates for U.S. ethnic groups are as follows. Whites: 1.8, African-Americans: 2.2, Hispanics: 3.0.

55. Population Division of the United Nations Secretariat, *World Fertility Patterns 1997* (New York: United Nations, 1997). Available at <www.undp.org/popin/wdtrends/fer/fer.htm>.

56. Based on sensitivity analysis of fertility rates, *2000 Trustees Report*, pp. 133–34.

57. *2000 Trustees Report*, pp. 146–47.

58. *1999 Technical Panel Report*, p. 23.

59. *2000 Trustees Report*, p. 137.

60. For instance, see Ben J. Wattenberg, "The Easy Solution to the Social Security Crisis," *New York Times Magazine*, June 22, 1997, p. 30; and Peter Francese, "Social Security Solution," *American Demographics*, February 1992, p. 2.

61. Thorvaldur Gylfason, *Principles of Economic Growth* (New York: Oxford University Press, 1999), p. 21. Emphasis in original.

62. Reduced infant mortality rates increase total life expectancies, but have little effect on Social Security because children who die before reaching adulthood generally neither pay taxes nor collect benefits from the system.

63. *2000 Trustees Report*, p.136.

64. Ibid., pp. 134–36.

65. Ronald Lee and Shripad Tuljapurkar, "Death and Taxes: How Longer Life Will Affect Social Security," *Demography*, February 1997. Available at <www.mvr.org>.

66. *1999 Technical Panel Report*, p. 64. The United States has lower life expectancies than many of these countries for various reasons, including the makeup of its population, its dietary patterns and crime rates, and so forth. But what is important is trends, not absolute life expectancies, and the trustees project a slowing trend for longevity increases that many analysts find unlikely.

67. Lee and Tuljapurkar, p. 8.

68. *1999 Technical Panel Report*, p. 31.

69. For instance, the trustees' low-cost scenario envisions increases in both fertility rates and female labor force participation. While it is possible for women to both bear more children and work more hours, it is more likely that these two variables would be negatively correlated. See *2000 Trustees Report*, pp. 60, 148–49.

70. *1999 Technical Panel Report*, p. 75.

71. See Lawrence Carter and Ronald D. Lee, "Modeling and Forecasting U.S. Mortality: Differentials in Life Expectancy by Sex," in Dennis Ahlburg and Kenneth Land, eds., Popula-tion Forecasting, a special issue of *The International Journal of Forecasting*, November 1992, pp. 393–412; and *2000 Trustees Report*, Table II.D.2.

72. Lee and Tuljapurkar, pp. 67–82.

73. *1999 Technical Panel Report*, p. 64. Emphasis in original.

74. Ibid., pp. 8, 64–67. The trustees' high cost assumption for mortality in the *1999 Trustees Report* is for a 54 percent decline in death rates, which would worsen actuarial balance by 0.44 percent of payroll.

75. As discussed later, 75-year actuarial balance is in many ways a poor measure of the program's sustainability. Also see Neil Howe and Richard Jackson, "The Myth of the 2.2 Percent Solution," Cato Institute Social Security Paper no. 11, June 15, 1998.

76. Lawrence Kudlow, "What Now? . . . A Roundup of Advice for Bush," *National Review*, April 3, 2000.

77. Aldona Robbins, "Would Prolonged Economic Growth Save Social Security? Yes. Tax Reform Would Fuel the Growth That Will Ease the Transition to a Pre-funded System," *Insight on the News*, October 25, 1999, p. 40.

78. *2000 Trustees Report*, p. 191.

79. *1999 Technical Panel Report*, pp. 50–52.

80. National Income and Product Accounts.

81. *2000 Trustees Report*, p. 191.

82. For instance, see Neil Howe and Richard Jackson, "Have We Turned the Corner on Medicare Costs?" The Concord Coalition, May 30, 2000. Howe and Jackson term projections of future Medicare cost increases as "outlandish" in their optimism regarding cost containment.

83. The ceiling on payroll taxes is adjusted each year according to wage growth. Medicare's payroll tax applies to all wages and salary.

84. Social Security Administration, *Annual Statistical Supplement, 1999 to the Social Security Bulletin* (Washington: Social Security Administration, 1999), Table 4.B1. Covered earnings are those derived from jobs subject to payroll taxes; some workers, such as those working for state and local governments, are often not subject to Social Security taxes and thus not "covered."

85. *2000 Trustees Report*, p. 191.

86. Jared Berstein, Elizabeth C. McNichol, Lawrence Mishel, and Robert Zahradnik, "Pulling Apart: A State-By-State Analysis of Income Trends," Center on Budget and Policy Priorities/Economic Policy Institute, January 2000, p. vii.

87. Isaac Shapiro and Robert Greenstein, "The Widening Income Gulf," Center on Budget and Policy Priorities, September 5, 1999.

88. As the following section explains, wage growth concentrated above the payroll tax ceiling would actually harm Social Security's finances by raising benefits without a concomitant increase in payroll tax revenues.

89. Dean Baker and Mark Weisbrot, "Social Security: A Phony Crisis," *Buffalo News*, March 12, 2000, p. 1H.

90. *2000 Trustees Report*, Table III.C2.

91. Social Security is currently running payroll tax surpluses and is projected to continue doing so until 2015.

92. See Greenspan, Testimony before the Senate Select Committee on Aging.

93. Lewis Carroll, *Alice's Adventures in Wonderland and through the Looking Glass* (London: Penguin Books, 1998), p. 143.

94. Higher wage growth would reduce the present value of the program's deficits, but this is a function of the delay in insolvency and not of a reduction in the size of those

deficits. Because Social Security is a pay-as-you-go program, deficits cannot be prepaid and present value estimates are less meaningful.

95. Eugene Steuerle, "Are Estimates for Years to Come Merely Science Fiction?" *Tax Notes,* The Urban Institute, October 25, 1999.

96. *2000 Trustees Report,* p. 138.

97. Ibid., p. 208.

98. Office of Management and Budget, *Budget of the United States Government, Fiscal Year 2000* (Washington: Government Printing Office, 2000), Analytic Perspectives, p. 337.

99. William Jefferson Clinton, Speech at Georgetown University, Washington, February 9, 1998. Available at <www.ssa.gov/history/clntstmts.html>.

100. Greenspan chaired the National Commission on Social Security, informally known as the Greenspan Commission, appointed in 1981. The Commission's final report is available at <www.ssa.gov/history/reports/gspan.html>.

101. Alan Greenspan, Testimony before the Senate Finance Committee, February 27, 1990.

102. Carolyn Weaver, "Controlling the Risks Posed by Advance Funding—Options for Reform," in Carolyn Weaver, ed., *Social Security's Looming Surpluses: Prospects and Implications* (Washington: The AEI Press, 1990), p. 171.

103. Ibid., p. 169.

104. Greenspan also argued that the fund's contribution to national savings, even if not offset by dissaving in the on-budget and private sectors, is more accurately calculated by the principal rather than the interest on the fund, since the interest payments to the fund represent a true paper transaction between two parts of the government. Given that almost two-thirds of trust fund surpluses over the next 15 years are attributable to interest payments rather than payroll tax surpluses, Greenspan concludes that "while the contribution of Social Security to national savings is sizable, over both the medium and long term, it is clearly much smaller than the conventional calculations suggest." Alan Greenspan, testimony before the Senate Finance Committee, February 27, 1990.

105. James M. Buchanan, "The Budgetary Politics of Social Security," in Weaver, ed., pp. 45–56.

106. The Bureau of the Public Debt distinguishes between debt held by the public and debt held by the government, such as government bonds held in the Social Security trust fund. Currently, around 39 percent of total government debt is held by the government. Public discussion, however, focuses almost exclusively on debt held by the public, ignoring government-held debt. For instance, a Gore campaign press release says the Vice President "will invite the American people to join in a bold plan to completely eliminate the national debt" ("Securing America's Future: Gore's Plan for Expanding Prosperity for America's Families," Gore Campaign press release, June 13, 2000). Under Vice President Gore's proposal, however, total government debt will increase as reductions in publicly held debt are more than matched by increases in debt held by the government.

107. Milton Friedman, *Tax Limitation, Inflation and the Role of Government* (Dallas: The Fisher Institute, 1978), p. 5.

108. W. Mark Crain and Michael L. Marlow, "The Causal Relationship between Social Security and the Federal Budget," in Weaver, ed., p. 129.

109. John Cogan, "The Congressional Response to Social Security Surpluses, 1935–1994," Hoover Institution, Essays in Public Policy, August 1998.

110. "Al Gore Proposes New Reforms to Modernize Social Security and Strengthen It for the Future," campaign publication, available at <www.algore2000.com/agenda/agenda_social_security_reform.html>.

111. *Report of the 1989–1991 Advisory Council on Social Security* (Washington: Government Printing Office, March 1991), pp. 172–73.

112. CBO Director Dan L. Crippen and Deputy Director Barry B. Anderson, Testimony before the House Ways and Means Committee, February 23, 1999.

113. Testimony of Henry J. Aaron before the Senate Committee on the Budget, January 19, 1999.

114. That is not to imply that the obligations created by trust fund financing are invalid; they should be honored. It is simply to say that we should not assume that the trust fund mechanism made it easier to meet those commitments.

115. This double-counting is easy to observe when one considers that under the administration plan debt to the trust funds increases more quickly than debt to the public is reduced. Hence, gross government debt (publicly held debt plus debt in government trust funds) actually increases under what the administration has touted as a debt reduction plan.

116. David M. Walker, Comptroller General of the United States, "Social Security: What the President's Proposal Does and Does Not Do" (Washington: General Accounting Office, February 9, 1999), p. 10.

117. The so-called wealth effect proposes that increases in the value of stock holdings boost consumer spending, while Ricardian equivalence, proposed by Robert Barro, argues that changes in government's net savings are countered by opposing movements in private savings, effectively unraveling the savings effects of government fiscal policy. See Martha Starr-McCluer, "Stock Market Wealth and Consumer Spending," Federal Reserve Board of Governors, April 1998; R. J. Barro, "Are Government Bonds Net Wealth?," *Journal of Political Economy,* November/December 1974, pp. 1095–1118. Martin Feldstein, however, argues that since most low-income households have such low levels of savings that liquidity constraints prevent them from consuming more, dissaving as a response to personal account balances would be relatively light. See Martin Feldstein, Testimony before the Senate Finance Committee, March 16, 1999.

118. On savings offsets for Individual Retirement Accounts, see Orazio P. Attanasio and Thomas C. DeLeire, "IRAs and Household Saving Revisited: Some

New Evidence," National Bureau of Economic Research, October 1994.

119. See Neil Howe and Richard Jackson, "The Myth of the 2.2 Percent Solution," Cato Social Security Paper no. 11, June 15, 1998.

120. Baker and Weisbrot, "Social Security: A Phony Crisis," p. A25.

121. Laura D'Andrea Tyson, "Social Security Is Working Just Fine, Thank You," *Business Week*, June 26, 2000, p. 32.

122. Baker and Weisbrot, "Social Security: A Phony Crisis." Data on military spending from *Economic Report of the President 2000*, Table B-77.

123. *2000 Trustees Report*, Table II.C.1.

124. The Office of Management and Budget estimates income tax revenues for 2000 at $952 billion. Revenues growing at the same rate projected by the trustees for the economy would reach $2.06 trillion in 2015, $5.43 trillion in 2035, and $36.97 trillion in 2075. Social Security's payroll tax deficits in those years will be $11 billion, $951 billion, and $7.36 trillion, respectively. Source: Office of Management and Budget, *Budget of the United States, Fiscal Year 2001*, Historical Tables, Table 2.1; *2000 Trustees Report*, Table III.B4.

125. In addition to payroll taxes, Social Security also receives a portion of income taxes collected on benefits. These are a relatively small amount and are ignored for these purposes.

126. Sylvester Schieber, "The need for Social Security reform and the implications of funding benefits through personal security accounts," *Benefits Quarterly*, Third Quarter 1997, pp. 29–39. Schieber calculates the federal government's share of GDP based upon three-year averages in order to smooth the effects of the business cycle on tax receipts.

127. Dean Baker, "Say What?" *In These Times*, May 30, 1999, p. 2.

128. The federal government spent $3.22 billion on prisons in 1999, 0.23 percent of current federal spending. Social Security's payroll tax deficit in 2015 will be approximately 0.29 percent of federal spending, assuming that spending rises at the same rate as economic growth. We could include state spending on prisons as well, though Baker argues that Social Security should be viewed in isolation from other programs (see Baker and Weisbrot, *Social Security: The Phony Crisis*, pp. 4–6). Including state prison expenditures, it would be 2017 or 2018 before trust fund bond repayments exceeded government spending on prisons. Bureau of Justice Statistics, U.S. Department of Justice.

129. The Office of Management and Budget estimates total federal spending for 2000 at $1.79 trillion. Spending growing at the same rate projected by the trustees for the economy would reach $3.78 trillion in 2015, $9.69 trillion in 2035, and $61.99 trillion in 2075. Social Security's payroll tax deficits in those years will be $11 billion, $951 billion, and $7.36 trillion, respectively. Office of Management and Budget, *Budget of the United States, Fiscal Year 2001*, Historical Tables, Table 3.1; and *2000 Trustees Report*, Table III.B4.

130. Vincent J. Truglia, "Can Industrialized Countries Afford Their Pension Systems?" *Washington Quarterly*, Summer 2000, p. 201. Emphasis added.

131. See *2000 Trustees Report*, Tables I.E.1, II.D.1, II.D.2, III.B.1, and III.B.2.

132. The trustees' low-cost scenario projects a 75-year actuarial deficit of 0.38 percent of taxable payroll (Table I.G.2); the sensitivity analysis combining the low-cost assumption for wage growth with the intermediate-cost assumptions for all other variables produces an actuarial deficit of 1.38 percent of payroll (Table II.G.4).

133. The Concord Coalition, "Federal Budget Primer, Part II: Demographics Is Destiny," available at <www.ssa.gov/history/clntstmts.html>.

134. Baker and Weisbrot, *Social Security: The Phony Crisis*, p. 32.

135. See 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.

136. *2000 Trustees Report*, Table II.B1.

137. Richard Leone, "Don't Worry, Generation X; Why the Demographic Nightmare of the Twentysomethings Isn't Likely to Come True," *Washington Post*, April 30, 1996, p. A13.

138. Congressional Budget Office, "Letter to the Honorable John R. Kasich regarding federal spending on the elderly and children," July 27, 2000.

139. Congressional Budget Office, *Long-Term Budgetary Pressures and Policy Options*, May 1998, p. 6.

140. For instance, the Century Foundation supports increased government payments to low-income single parents raising children. Baker argues that tens of billions of dollars in federal budget surpluses should be devoted to greater investments in education, among other things. See Dean Baker, "The Great Surplus Debate," *The American Prospect*, May–June 1998, p. 80.

141. Sylvester Schieber and John Shoven, *The Real Deal: The History and Future of Social Security* (New Haven: Yale University Press, 1999), p. 251.

142. Baker and Weisbrot, *Social Security: The Phony Crisis*, p. 4.

143. See, for example, Neil Howe and Richard Jackson, "The Graying of the Welfare State," National Taxpayers Union Foundation, Policy Paper 117, August 30, 1999. Howe and Jackson are analysts for the Concord Coalition.

144. See Baker and Weisbrot, *Social Security: The Phony Crisis*, p. 32, where the authors declare that "the increase in the future burden of caring for a larger elderly population will be offset to a large extent by the reduced costs of education, child care, and other expense of caring for dependent children."

145. Jeff Faux, "Making Social Security Work," statement by

Jeff Faux, President, Economic Policy Institute, to the White House Conference on Social Security, December 8, 1998.

146. Dean Baker, "Saving Social Security With Stocks: The Promises Don't Add Up," The Century Foundation/Economic Policy Institute, 1997. See also, Baker and Weisbrot, *Social Security: The Phony Crisis*, pp. 90–104. It is not just advocates of reform through creation of personal accounts who rely on historical stock returns when projecting returns for the future. The 1994–1996 Advisory Council on Social Security made similar projections (see *Report of the 1994–1996 Advisory Council on Social Security*, Volume I: *Findings and Recommendations* [Washington: Government Printing Office, January 1997], p. 170), and even Vice President Gore's campaign refers to the historical 5.3 percent real return on a mixed stock/bond fund as "conservative" (Gore campaign press release, "Gore Offers 'Retirement Savings Plus,'" June 20, 2000).

147. See, for instance, Martin Feldstein, "Privatizing Social Security: the $10 Trillion Opportunity," Cato Social Security Paper no. 7, January 31, 1997.

148. 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. The standard deviation of returns on capital was 1.0 percent.

149. See Martin Feldstein and Andrew Samwick, "Allocating Payroll Tax Revenue to Personal Retirement Accounts to Maintain Social Security Benefits and the Payroll Tax Rate," National Bureau of Economic Research, June 2000. Corporate tax revenues can be credited to Social Security only insofar as they are generated by increased investment. Feldstein and Samwick assume that three-quarters of the deposits to personal accounts will constitute new savings; the remainder will be offset by dissavings elsewhere. See also n. 114.

150. See Baker and Weisbrot, *Social Security: The Phony Crisis*, pp. 91–93. Baker and Weisbrot's calculation is based on the *1999 Trustees Report*'s projected 1.5 percent annual growth of GDP. Average GDP growth in the *2000 Trustees Report* is estimated at 1.74 percent, an increase due to changes in the calculation of the consumer price index.

151. See Leimer, "Cohort-Specific Measures of Lifetime Net Social Security Transfers."

152. General Accounting Office, "Social Security: Issues in Comparing Rates of Return with Market Investment" (Washington: General Accounting Office, August 1999), p. 25.

153. See Paul A. Samuelson, "An Exact Consumption-Loan Model of Interest with or without the Contrivance of Money," *The Journal of Political Economy*, December 1958, pp. 467–82.

154. Baker and Weisbrot, *Social Security: The Phony Crisis*, p. 93.

155. On whether the U.S. economy is dynamically efficient, see Andrew B. Abel et al., "Assessing Dynamic Efficiency: Theory and Evidence," *Review of Economic Studies*, January 1989, pp. 1–20. In a dynamically inefficient economy, where the capital stock is so large that the return on capital is below the economic growth rate, all individuals could be better off over the long run by consuming a portion of that capital today (for instance, by establishing a pay-as-you-go pension system) rather than by saving. For a comparison of funded and pay-as-you-go systems, see "Reinventing Social Security for the New Economy," by Thomas F. Siems of the Federal Reserve Bank of Dallas, forthcoming Cato Institute Social Security Paper.

156. Congressional Budget Office, "Social Security and Private Saving: A Review of the Empirical Evidence," July 1998, p. 30. "Social Security wealth" is the present value of the benefits to which a worker is currently entitled. Social Security wealth is not built upon real savings, but workers treat it as de facto wealth and reduce real savings in response to an increase in their Social Security wealth. Twelve of 14 cross-sectional studies surveyed concluded that Social Security reduced savings, though most found that it did so on less than a proportional basis (i.e., a one-dollar increase in Social Security wealth led to less than one dollar's decrease in real savings). The CBO also analyzed time-series and cross-country surveys, but found them inconclusive and inapplicable to the current case.

157. General Accounting Office, "Social Security: Issues in Comparing Rates of Return with Market Investments" (Washington: General Accounting Office, August 1999), pp. 27–29. Rates of return for other income levels are as follows: average earnings, 1.8 percent; high earnings, 1.2 percent; maximum taxable earnings, 0.4 percent.

158. See, for instance, Alicia H. Munnell, "Reforming Social Security: The Case Against Individual Accounts," *National Tax Journal*, December 1, 1999, p. 803.

159. On transition costs, see William Shipman, "Facts and Fantasies about Transition Costs," Cato Social Security Paper No. 13, October 13, 1998; Milton Friedman, "Speaking the Truth about Social Security Reform," Cato Briefing Paper no. 46, April 12, 1999.

160. Data compiled by Robert Shiller for his book, *Irrational Exuberance* (Princeton, N.J.: Princeton University Press, 2000). Data available at <www.econ.yale.edu/~shiller/>.

161. See Jeremy Siegel, *Stocks for the Long Run* (New York: McGraw-Hill, 1998), Chapter 1.

162. Poterba and Summers found evidence of mean reversion in U.S. stock returns during the 1926–85 period, supplemented by evidence from prior to 1926 and from 17 foreign countries. However, the authors noted "a clear tendency for more mean reversion in less broad-based and sophisticated equity markets." Hence, stock returns prior to 1926 and those from countries with less well-developed capital markets exhibit greater mean reversion than in the U.S. at present. See James M. Poterba and Lawrence H. Summers, "Mean Reversion in Stock Prices: Evidence and Implication," National Bureau of Economic Research, August 1987.

163. The SSA does not project stock or corporate bond returns as part of the annual *Trustees Report*, but does incorporate projected returns when constructing cost estimates of legislation incorporating market investment.

164. Whether and when any possible market correction took place could greatly affect the distribution of those returns over time.

165. See Siegel, p. 14.

166. Dean Baker, "Double Bubble: The Implications of the Over-Valuation of the Stock Market and the Dollar," Center for Economic Policy and Research, May 31, 2000.

167. See Siegel, Chapter 1.

168. See James Glassman and Kevin Hassett, *Dow 36,000* (New York: Times Books, 1999).

169. See, for instance, Burton G. Malkiel, *A Random Walk Down Wall Street,* 6th ed. (New York: W. W. Norton & Co., 1996), pp. 186–88.

170. Siegel, p. 31.

171. The reason: economic growth is a function of the number of workers and output per worker.

172. Over time it would be expected that slower labor force growth would lead to a somewhat lower return on capital, as capital became relatively more abundant and labor less abundant. But even over the long term such an effect would be relatively minor. For instance, Feldstein and Samwick estimate that even with a system of personal accounts raising the capital stock, after 70 years the pretax return on capital would fall only from 8.5 percent to 6.9 percent, though this would be balanced by higher incomes to labor. See Martin Feldstein and Andrew Samwick, "Maintaining Social Security Benefits and Tax Rates through Personal Retirement Accounts," National Bureau of Economic Research, Cambridge, Mass., March 1, 1999, p. 9, n. 16.

173. Philippe Jorion, "Global Stock Markets and Economic Growth," paper presented at "The Equity Premium and Stock Market Valuations" conference held at the Anderson School of Management, University of California, Los Angeles, April 30, 1999, p. 1.

174. Ibid., p. 5.

175. Ibid., p. 7. Jorion's model assumes the workforce and the population to be identical, which in the real world is clearly untrue. Mathematically speaking, Jorion's model says that capital returns should vary with changes in output per worker, not GDP per capita. Applying this distinction to the current discussion would strengthen the conclusions drawn in this paper.

176. See Philippe Jorion and William N. Goetzmann, "Global Stock Markets in the Twentieth Century," *Journal of Finance,* June 1999. Available at <www.gsm.uci.edu/~jorion/>.

177. Jorion, p. 12. Emphasis added.

178. Ibid., p. 9. Emphasis added.

179. Eugene Steuerle, Christopher Spiro, and Adam Carasso, "Squandered Opportunity? Increasing Social Security Liabilities in Flush Times," The Urban Institute, April 15, 2000.

180. *Report of the 1994–1996 Advisory Council on Social Security,* Volume I: *Findings and Recommendations,* Appendix II, p. 219–20. A single male with average earnings is projected to earn a 1.48 percent return; a single female, 1.94 percent. Both assumptions assume that tax rates and benefit levels continue according to current law. If taxes are increased as need to pay promised benefits, annual returns for these individuals would fall to an average of 1.5 percent.