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# *Coping with the Demographic Challenge: Fewer Children and Living Longer*

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## *Summary*

Due to demographic changes, the U.S. Social Security system will face financial challenges in the near future. Declining fertility rates and increasing life expectancies are causing the U.S. population to age. Today 12 percent of the total population is aged 65 or older, but by 2080, it will be 23 percent. At the same time, the working-age population is shrinking from 60 percent today to a projected 54 percent in 2080. Consequently, the Social Security system is experiencing a declining worker-to-beneficiary ratio, which will fall from 3.3 in 2005 to 2.1 in 2040 (the year in which the Social Security trust fund is projected to be exhausted). This presents a significant challenge to policymakers.

One policy option that could help keep the Social Security system solvent is to reduce retirement benefits, either by raising the normal retirement age or through life expectancy indexing, to reflect the fact that people are living longer. However, these reductions in benefits have the potential to harm economically vulnerable retirees. Other options, such as progressive price indexing proposals, explicitly protect the retirement benefits of low lifetime earners. Still other options would seek to raise additional revenue for the system.

Since individuals will be living longer in retirement, many policymakers believe it is important to encourage older workers to delay retirement so that they can maintain a quality standard of living throughout their retirement. One proposal to encourage continued work would be to increase the early eligibility age for Social Security benefits from age 62 to age 65. This could possibly hurt individuals who need to retire from physically demanding jobs but would ensure that people receive higher benefit amounts once they were able to fully retire.

Other proposals that could promote more work at older ages include expanding phased retirement options and reforming pension and defined contribution systems to create incentives to work and save.


## *Introduction*

Americans are living longer and are having fewer children. Together these factors result in the aging of the U.S. population and a subsequent strain on the Social Security system. This demographic challenge has been recognized

by policy analysts as well as policymakers. President Bush, in his 2005 State of the Union Address (White House 2005), highlighted this problem, saying:

> In today's world, people are living longer and, therefore, drawing benefits longer. And those benefits are scheduled to rise dramatically over the next few decades. And instead of sixteen workers paying in for every beneficiary, right now it's only about three workers. And over the next few decades that number will fall to just two workers per beneficiary. With each passing year, fewer workers are paying ever-higher benefits to an ever-larger number of retirees.

This article describes policy implications and some potential policy solutions to this demographic challenge. It first provides context for the policy discussion by examining fertility, mortality, work, and retirement patterns in the United States and then discusses different policy options.

## *Background*

As in many countries, the population in the United States is graying. Table 1 shows how the elderly population has increased over time and how it is projected to grow in the future. In 1950, 8 percent of the total population was aged 65 or older. That share was 12 percent in 2005 and is projected to reach 23 percent by 2080. The elderly population will have more than doubled as a percentage of the total population in just over 100 years. At the same time, the working-age population will have shrunk, from 60 percent in 2005 to 54 percent in 2080.

These demographic changes can be traced to declining fertility rates as well as increasing life expectancies. At the start of the baby boom (1946), the average number of children born to a woman in her lifetime was 2.86. By the end of the baby boom (1964), that number had increased to 3.17. The fertility rate was much lower in the postboomer years, although the rate has increased since 1980 and is projected to decline slightly in the coming decades (Chart 1).

Unlike the fertility trends, which exhibit large swings over particular periods, life expectancy exhibits a steady increase (Chart 2). In 1960, a 65-year-old individual could expect to live another 15.5 years. By 2000, life expectancy at age 65 had risen by 2.5 years. Projections indicate further gains of similar magnitude by 2040, at which point 65-year-olds can expect to live an additional 20.4 years.

Immigration also plays a role in the age structure of the population. Compared with earlier decades, net immigration has increased in recent years (Table 2). Because immigrants tend to be younger and have higher fertility rates than the general population, immigration mitigates the aging of the population. Without immigration the aging trend would be more pronounced.

**Table 1.**
**U.S. population, by age, selected years 1950–2080**

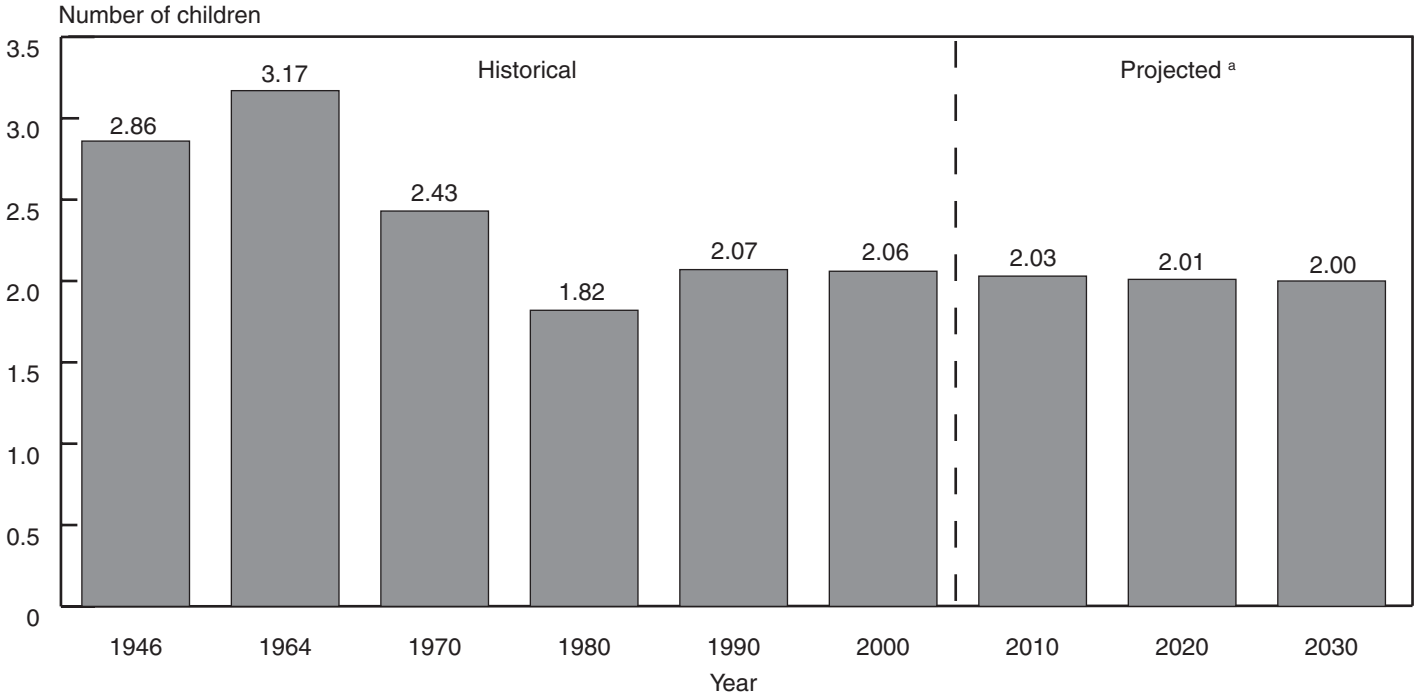
| Year | Population (thousands) | | | | Percentage 65 or older |
|---|---|---|---|---|---|
| | All ages | Under 20 | 20–64 | 65 or older | |
| | | | ***Historical*** | | |
| 1950 | 160,118 | 54,466 | 92,841 | 12,811 | 8 |
| 1970 | 214,765 | 80,684 | 113,158 | 20,923 | 10 |
| 1990 | 260,458 | 75,060 | 153,368 | 32,029 | 12 |
| 2005 | 302,323 | 83,963 | 181,457 | 36,902 | 12 |
| | | | ***Projected*** [a] | | |
| 2020 | 339,269 | 87,547 | 198,213 | 53,510 | 16 |
| 2040 | 376,856 | 92,268 | 207,416 | 77,172 | 20 |
| 2060 | 402,079 | 96,760 | 218,777 | 86,543 | 22 |
| 2080 | 428,214 | 101,159 | 230,137 | 96,918 | 23 |

SOURCES: Board of Trustees (2006, Table V.A2) and authors' calculations.

NOTE: For the purpose of this table, the U.S. population is the Social Security area population, comprising residents of the 50 states and the District of Columbia (adjusted for net census undercount); civilian residents of Puerto Rico, the Virgin Islands, Guam, American Samoa, and the Northern Mariana Islands; federal civilian employees and persons in the armed forces abroad and their dependents; crew members of merchant vessels; and all other U.S. citizens abroad.

a. Projected using the intermediate assumptions in the 2006 annual report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds.

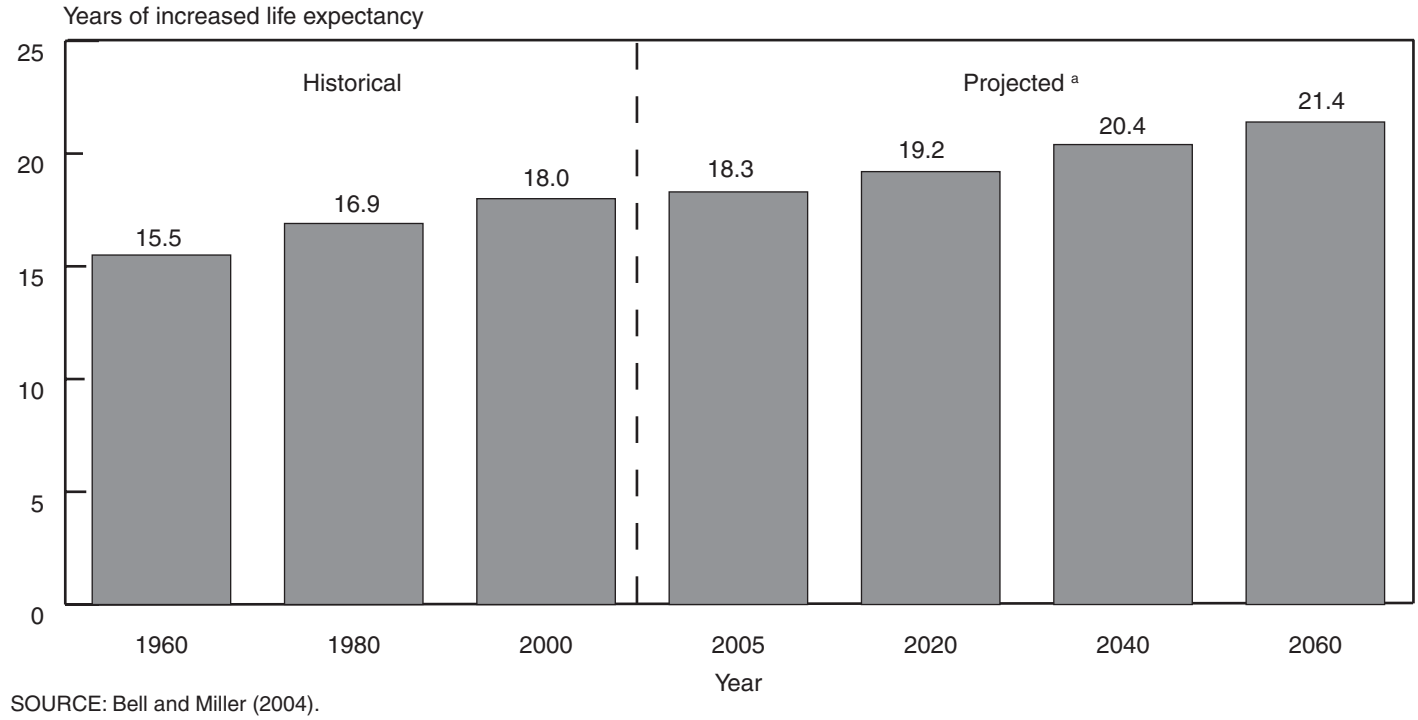
**Chart 1.**
**Fertility rates, selected years 1946–2030**




SOURCE: Board of Trustees (2006, Table V.A1).

a. Projected using the intermediate assumptions in the 2006 annual report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds.

**Chart 2.**
**Unisex cohort life expectancy at age 65, selected years 1960–2060**




SOURCE: Bell and Miller (2004).

a. Projected using the intermediate assumptions in the 2004 annual report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds.

**Table 2.**
**Net immigration, selected years and total for 1960–2030**

| Year | Legal | Other |
|---|---|---|
| | ***Historical*** | |
| 1960 | 201,276 | -- |
| 1970 | 278,928 | -- |
| 1980 | 410,348 | 375,000 |
| 1990 | 501,065 | 550,000 |
| 2000 | 677,579 | 550,000 |
| 2005 | 675,000 | 400,000 |
| | ***Projected*** [a] | |
| 2010 | 600,000 | 400,000 |
| 2020 | 600,000 | 350,000 |
| 2030 | 600,000 | 300,000 |
| Total, 1960–2030 | 35,034,621 | 21,250,000 |

SOURCE: Board of Trustees (2006, Table V.A1).

NOTE: -- = not available before 1980.

a. Projected using the intermediate assumptions in the 2006 annual report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds.

## *Challenges Facing the Social Security Program*

Rising life expectancy is a positive development in that it gives people more years to enjoy life, but adjustments and adaptations are needed so that people will have the means to enjoy their extra years. Rising life expectancy, along with falling fertility rates, is also a primary cause of the financial difficulties that social insurance systems face in the United States and throughout the world. "Under current law the cost of Social Security will soon begin to increase faster than the program's income, because of the aging of the baby-boom generation, expected continuing low fertility, and increasing life expectancy" (Board of Trustees 2006, 16).

The aging of America has created a situation in which relatively fewer workers will be asked to support a growing retired population. The historical and projected ratios of workers to beneficiaries, measured as the number of workers in Social Security–covered employment divided by the number of Social Security beneficiaries, is shown in Chart 3. The pattern of those ratios reflects the presence of the boomer generation: the worker-to-beneficiary ratio is fairly stable in years the boomers are in the workforce (1980–2005) but is substantially lower when the boomers are in their retirement years (2020–2040).

The worker-to-beneficiary ratio has fallen from 5.1 in 1960 to 3.3 in 2005. Some of the historical decline is related to the natural maturing of a pay-as-you-go social insurance program, but the projected future decline is due to the aging of the U.S. population. This ratio is of fundamental importance to the long-run fiscal health of the U.S. Social Security program. With currently scheduled tax rates and benefits, the system needs a worker-to-beneficiary ratio of about 2.8 to function at a pay-as-you-go level (meaning that tax revenue approximately equals benefit payments). The Social Security Trustees project that the ratio will slip below this level by 2020 and will fall to only 2.1 workers per beneficiary by 2040 (Chart 3). The current Social Security program is not a strict pay-as-you-go program because a sizable trust fund exists. Projections indicate, however, that the trust fund will be exhausted in 2040, and the low worker-to-beneficiary ratio will present a significant challenge to policymakers.

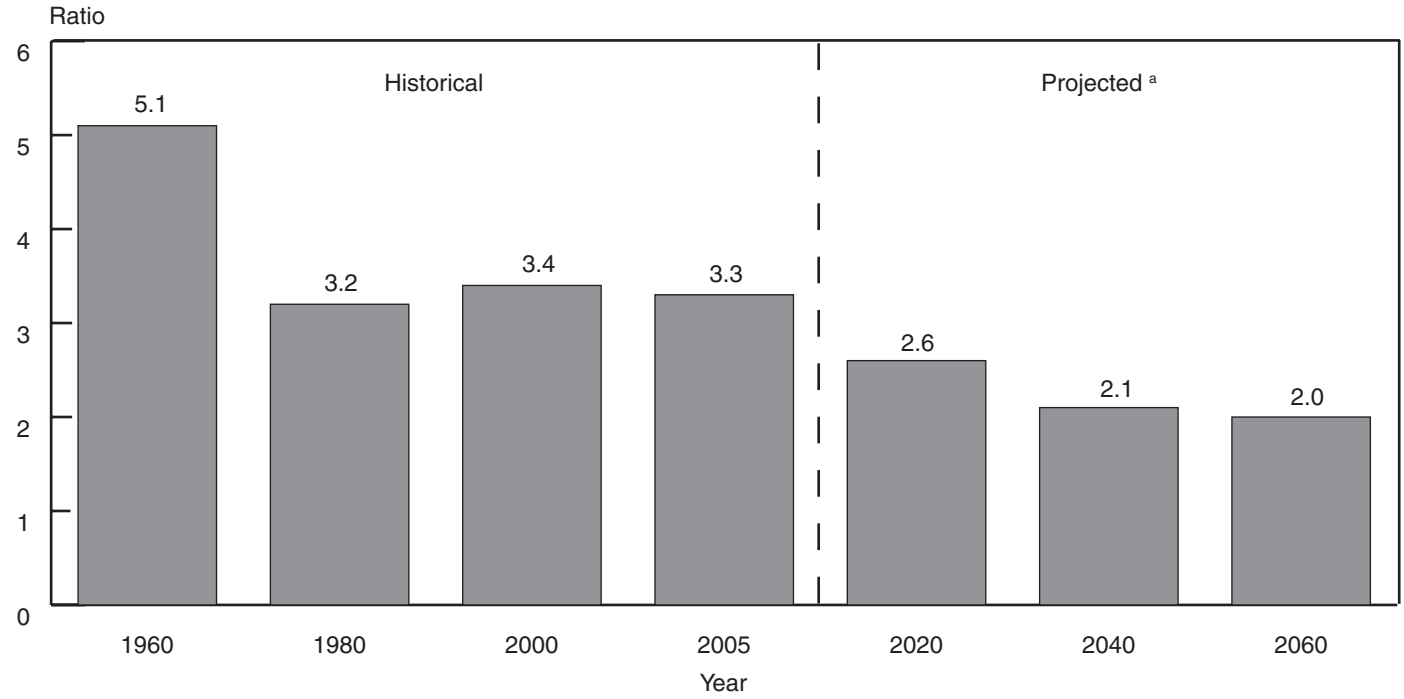
## *Policy Options for Social Security Solvency*

In the United States, a number of analysts believe that retirement benefits should be adjusted to reflect the fact that people are living longer—a concept referred to as **longevity indexing**. Edward M. Gramlich, chairman of the 1994–1996 Advisory Council on Social Security and a former Federal Reserve Governor, argues that a "'slight cut in the growth of future benefits' is a fair way to deal with the fact that retirees are likely to live longer—and collect more in benefits—than in 1935, when the retirement age was set at 65" (Bethell 2005). Proponents of longevity indexing point to the fact that, because people are living longer, yearly benefits can be reduced in a proportion equivalent to rising life expectancy and average lifetime benefits will remain constant.

A number of reforms would achieve the goal of adjusting yearly benefits in proportion to rising life expectancy. The Social Security program currently has a 75-year actuarial deficit of 2.02 percent of payroll. In 2080 the system will have a cash flow deficit of 5.38 percent of payroll. One option to narrow these gaps would be to index initial benefits each year beginning in 2018 using changes in life expectancy at age 67. This longevity-indexing proposal would yield savings of 0.45 percent of payroll over the next 75 years and 1.77 percent of payroll in the 75th year. These estimates of savings are from the Office of the Chief Actuary (OCACT) of the Social Security Administration and are based on assumptions in the 2005 Trustees Report (OCACT 2006b).

A reform proposal by Peter Diamond and Peter Orszag includes an additional life expectancy indexing method that would calculate the proportion of the present expected value of lifetime benefits for people retiring in one year divided by the present expected value of lifetime benefits for people retiring in the next year. This

**Chart 3.**
**Worker-to-beneficiary ratio, selected years 1960–2060**




SOURCE: Board of Trustees (2006, Table IV.B2).

a. Projected using the intermediate assumptions in the 2006 annual report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds.

method would yield savings of 0.55 percent of payroll over 75 years (Orszag and Diamond 2003). One difference in the Diamond-Orszag proposal is that the indexing would be split between benefit reductions and payroll tax increases.

The effects of longevity-indexing proposals on system financing are generally similar to the effects of proposals to **raise the normal retirement age**. For example, an option to speed up the increase in the normal retirement age to age 67 and then increase it 1 month every 2 years until it reaches age 68 would generate 75-year savings equal to 0.52 percent of payroll (OCACT 2006b). Raising the normal retirement age to 70, instead, would produce savings of 0.69 percent of payroll (OCACT 2006b).

A potential justification for longevity indexing or similar changes to the normal retirement age is the direct relationship between the option and the underlying demographic circumstances. This direct relationship may make the option more easily understood and accepted by the public.

However, there are also important critiques to proposals to reduce benefits in proportion to rising life expectancy. Most important is the great variety in the types of jobs people have and their reasons for retiring when they do. Quantitative research corroborates the concern that many early retirees face greater health and mortality risks. Hilary Waldron of the Social Security Administration's Office of Policy used data from federal surveys matched with administrative records to compare men who retired early with men who retired at the normal retirement age of 65. She found that "the majority of early retirees are in poorer health and have higher mortality risk than that of age 65 retirees, and only a minority have health and mortality risk as good as that of age 65 retirees . . . . Some, but not all, of this difference is explained by early retirees being more likely to have low education and average lifetime earnings" (Waldron 2004, pages 3–4). Further, Johnson, Mermin, and Uccello (2005) suggest that many individuals develop health problems, suffer job losses, or take on caregiving responsibilities in the years around the age of early eligibility. Thus, the evidence shows that a reduction in benefits in proportion to rising life expectancy has the potential to disadvantage some retirees, including some who are vulnerable to economic hardship.

Options tied closely to changes in life expectancy, such as changes in the normal retirement age or longevity indexing, are not the only ones considered in the current reform debate. For example, a prominent type of reform proposal, referred to as **progressive price indexing**, would explicitly protect the retirement benefits of low lifetime earners. Progressive price indexing was first

developed as part of a comprehensive reform plan offered by Robert Pozen (see OCACT 2005 for a discussion of the plan). President Bush has endorsed the concept of progressive price indexing.

One proposal for progressive price indexing would hold harmless retired workers who are at or below the 30th percentile in career average earnings (OCACT 2006b). For these workers, the system would continue to provide successive generations with initial benefits that increase with wage growth. For career maximum earners, however, initial benefits would increase over time with price growth. For workers in the middle part of the career average earnings distribution, growth in initial benefits would be at a level between wage growth and price growth.

This proposal for progressive price indexing would generate savings equal to 1.21 percent of payroll over 75 years and 3.97 percent in the 75th year (OCACT 2006b). Some proponents of this type of proposal prefer them to longevity-indexing proposals because of the protections afforded to low earners, although progressive and longevity indexing are not mutually exclusive. It is possible to combine the two types of proposals, as was done in a plan offered by Senator Robert Bennett (OCACT 2006a).

Other things being equal, improvements in longevity and declines in fertility worsen the solvency outlook for Social Security. Except for the Diamond-Orszag plan, the options just reviewed would adjust only the benefit formula to account for these demographic changes. Improving Social Security solvency generally requires reducing benefits or increasing revenues. Thus, the alternative to benefit reductions as a response to solvency strains created by demographic change is to boost revenue through tax increases or other means. Numerous proposals to increase the system's revenue have been made. SSA's Chief Actuary has scored many such proposals (see OCACT 2006b).

### *Policy Options for Work and Retirement*

Although solvency has been the focal point of the reform debate, there has also been extensive discussion of the effect of longevity on the well-being of the aged. In particular, policymakers have expressed a desire to encourage later retirement in the hopes that such behavior will better prepare future retirees for a longer life span. A recent study by Urban Institute researchers confirmed the positive effects of continued work (Butrica, Smith, and Steuerle 2006). Summarizing one of the important findings, C. Eugene Steuerle noted that "workers on average would have an annual income 55 percent higher if they retired for five fewer years, saved some of their additional earnings, and delayed receipt of Social Security benefits" (Steuerle 2006).

Part of policymakers' concerns regarding work and retirement stem from long-run declines in labor force participation among older men. In 1965, nearly three-quarters of men aged 62–64 were in the labor force (Table 3). By 1995, this figure had dropped to 45 percent. Despite promising recent developments, such as the modest reversal of the decline in participation rates in the past 10 years, participation rates among men continue to be well below pre-1970 levels.

The share of workers claiming early retirement benefits under Social Security has also increased since the 1960s (Table 4). Today, about 58 percent of retirees take benefits at the earliest possible age of 62. The concern among policymakers is that early retirement

**Table 3.**
**Labor force participation rates, by sex and age, selected years 1965–2005 (in percent)**

| | Men | | Women | |
|---|---|---|---|---|
| Year | 62–64 | 65–69 | 62–64 | 65–69 |
| 1965 | 73.2 | 43.0 | 29.5 | 17.4 |
| 1970 | 69.4 | 41.6 | 32.3 | 17.3 |
| 1975 | 58.6 | 31.7 | 28.9 | 14.5 |
| 1980 | 52.6 | 28.5 | 28.5 | 15.1 |
| 1985 | 46.1 | 24.4 | 28.7 | 13.5 |
| 1990 | 46.5 | 26.0 | 30.7 | 17.0 |
| 1995 | 45.0 | 27.0 | 32.5 | 17.5 |
| 2000 | 47.0 | 30.3 | 34.1 | 19.5 |
| 2005 | 52.5 | 33.6 | 40.0 | 23.7 |

SOURCE: Bureau of Labor Statistics (BLS), Current Population Survey. Data published in Federal Interagency Forum on Aging-Related Statistics (2006, Table 11).

**Table 4.**
**Percentage of workers electing Social Security benefits at various ages, and the average age of claiming, selected years 1965–2004**

| Year | Age 62 | Ages 63–64 | Age 65 | Ages 66 or older | Average age (years) |
|---|---|---|---|---|---|
| 1965 | 23.0 | 17.7 | 23.4 | 35.9 | 65.9 |
| 1970 | 27.8 | 23.2 | 36.9 | 12.1 | 64.2 |
| 1975 | 35.7 | 24.5 | 31.1 | 8.7 | 63.9 |
| 1980 | 40.5 | 22.2 | 30.7 | 6.6 | 63.7 |
| 1985 | 57.2 | 21.1 | 17.7 | 4.0 | 63.6 |
| 1990 | 56.6 | 20.2 | 16.6 | 6.7 | 63.6 |
| 1995 | 58.3 | 19.5 | 16.3 | 6.0 | 63.6 |
| 2000 | 51.7 | 17.2 | 19.6 | 11.5 | 64.0 |
| 2004 | 57.5 | 19.0 | 18.6 | 4.8 | 63.7 |

SOURCE: Administrative records of the Social Security Administration. Data for 1965–2000 are from House Committee on Ways and Means (2004, Table 1-14). Data for 2004 are derived from Social Security Administration (2005, Table 6.A4) and exclude disability conversions. The average age for 2004 is from Social Security Administration (2005, Table 6.B5).

results in permanently reduced benefits. For example, the monthly benefit for today's new retirees is reduced 25 percent if claimed at the early eligibility age of 62.

Some analysts have suggested raising Social Security's earliest eligibility age from 62 to 65. This reform is included with some of the reforms mentioned earlier to raise the normal retirement age. Raising the earliest eligibility age would not improve Social Security's finances, because benefits would be increased to reflect the fact that people would receive them for fewer years. However, it could help people earn and save more, which would mitigate other changes in benefits needed to achieve solvency. Moreover, it would result in significantly higher periodic benefits later in life, at a time when benefits are most needed.

Gary Burtless has written about the possible effects of increasing both the earliest eligibility age and the normal retirement age, stating that "most recent research suggests the effect of increasing the normal retirement age on labor force participation will probably be small. The increase in labor force participation rates of older workers would almost certainly be larger if the increase in the normal retirement age were combined with an increase in the early eligibility age for pensions (currently age 62)" (Burtless 1998). A hard incentive such as an increase in the earliest eligibility age, which would force people to change their behavior, could ultimately help people become better situated in retirement.

Critics of raising the earliest eligibility age point to the fact that many people retire at age 62 or earlier not by choice but because they are unable to keep working. Analysts from the Center for Retirement Research at Boston College note that "opponents claim that many individuals can neither work longer nor save more for retirement" (Munnell and others 2004, 1). Sara Rix, a senior policy adviser with AARP, notes that "a lot of people who retire early don't do it voluntarily . . . . If the age of eligibility was raised, it would be a hardship on many people, especially those in physically demanding jobs or in poor health" (Cauchon 2005, A.1). Social Security's Disability Insurance (DI) program would provide a backstop for some of these individuals, provided that they met the insured status and disability requirements (DI benefits are not actuarially reduced).

An important issue is whether improvements in the life expectancy of older persons are associated with an increased ability to postpone retirement. Several trends and underlying factors related to health status were examined in a comprehensive study funded by the National Institute on Aging (He and others 2005). Self-reported health status among the aged improved during the 1991–2000 period, and reports of disabling conditions have declined in the past two decades. Whether future populations of older Americans will enjoy better health is unknown. Some trends, such as an increased incidence of obesity, are of concern, but He and others note that one of the strongest predictors of health status is educational attainment. Baby boomers and the generations that followed them have substantially higher levels of educational attainment than do prior generations.

There are two perspectives on the issue of whether raising the earliest eligibility age would help or hurt vulnerable individuals. Some workers would face a strain in their early 60s by not being able to access Social Security benefits. At the same time, if benefits were reduced to achieve solvency and people still retired at 62, some people might face a strain throughout retirement from having annual Social Security benefits that were too low to provide adequate income.

In addition to changes in Social Security, many people argue for adjustments to private pension systems to encourage people to work longer. An important concern with defined benefit plans has been their effect on early retirement. The formulas used in many of these plans encourage workers to retire early and claim their pensions. Most such systems are designed to provide a full pension somewhere between the ages of 55 and 65, giving workers less incentive to continue working because delaying retirement will not increase the size of their pension. As analysts from the National Institute on Aging note, "because almost all traditional pension plans contain retirement incentives at ages younger than 65, and often beginning at age 55, many workers who are covered by pension plans in the United States choose early retirement" (*Early Retirement in the United States* 1999).

However, this incentive to retire earlier is already changing without any public policy reforms because companies are moving away from defined benefit pension systems and toward defined contribution systems. Defined contribution plans encourage working longer, which would allow for more years of contributions and accumulations, especially later in life when account balances can accumulate quickly. Because this shift is occurring at present, it is hard to know with certainty what the ultimate effect will be of the movement from defined benefit to defined contribution retirement systems, but people may work longer as a result of this change.

In addition, some people argue that encouraging more flexible work environments can help enable older individuals to work longer. One method is to promote phased retirement, allowing people who have pensions available to collect some of their pension while also working part time and then eventually move to full retirement. Defined benefit plans have not easily allowed workers to phase into retirement. Federal regulations have not allowed pension distributions before a defined benefit plan's normal retirement age unless the worker separates from service. Firms have responded to this policy environment by offering phased retirement on an ad hoc, rather than a general, basis. Penner, Perun, and Steuerle (2002) discuss some of the legal complexities that firms face with regard to phased retirement and offer policy recommendations that would encourage employers and employees to use phased retirement. In another paper, Penner, Perun, and Steuerle argue that some type of reform is necessary if more workers are to take advantage of phased retirement. "The reality is that a special statute amending the tax code, ERISA and the ADEA to authorize phased retirement programs will probably be required before they [phased retirement plans] can become a routine employee benefit program" (Penner, Perun, and Steuerle 2003, 5). The Pension Protection Act of 2006 has attempted to address these concerns by easing some of the restrictions to phased retirement (Public Law 109-280, section 905).

In sum, there are possible hard incentives, such as raising the earliest eligibility age, and soft incentives, such as encouraging phased retirement among older workers. Raising the earliest eligibility age would certainly ensure that people worked longer and would in turn help people have more income in retirement, but it also could impose hardships on some individuals who were forced to retire early. Soft incentives like phased retirement programs would probably encourage people to work longer. How large an effect soft incentives would have is unclear, but they would be less likely to have negative consequences.

## *Conclusion*

The leading edge of the baby-boom generation will reach the early eligibility age for retirement under Social Security in just 2 years. The United States will then enter a sustained period in which the older population will grow at a rate that far outpaces that of the working-age population.

Policymakers, researchers, and analysts have responded to this challenge by offering proposals that seek to directly address the underlying demographic trends and those that indirectly address the effects of the trends. The first set of proposals includes those that would tie benefit changes explicitly to changes in life expectancy have been offered. The second set includes proposals, such as progressive price indexing, that would address the shortfall in system financing but would not be based on particular demographic developments. Each approach involves tradeoffs. Longevity indexing can be explained to the public as a policy necessitated by an underlying demographic trend. Progressive price indexing, however, offers the promise of tailoring benefit changes to the individuals who are most able to afford them. In reality, some combination of these and other proposals are likely to be considered.

Aside from solvency issues, policymakers have expressed concerns about the effects of changes in longevity on preparedness for retirement. Whether workers have received the message that longer work lives and increased savings are necessary to maintain their standard of living in retirement is an open question. Some options to encourage work, such as raising the early eligibility age under Social Security, have generated substantial debate. Other options, such as improving flexibility in the workplace, have broad appeal, but their effects may be limited. In the immediate term, the government and the research community may need to focus on practical options such as improved financial

education. By providing tools (benefit calculators and retirement planning tools) and information on how work affects retirement income, it is possible to allow individuals to adjust work and saving behavior to fit the new demographic realities.

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