United States Government Accountability Office

GAO

Report to Congressional Committees

July 2007

RETIREMENT DECISIONS

Federal Policies Offer Mixed Signals about When to Retire

GAO-07-753

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GAO Accountability · Integrity · Reliability

Highlights

Highlights of GAO-07-753, a report to congressional committees

Why GAO Did This Study

While many factors influence workers' decisions to retire, Social Security, Medicare, and pension laws also play a role, offering incentives to retire earlier and later. Identifying these incentives and how workers respond can help policy makers address the demographic challenges facing the nation.

GAO assessed (1) the incentives federal policies provide about when to retire, (2) recent retirement patterns and whether there is evidence that changes in Social Security requirements have resulted in later retirements, and (3) whether tax-favored private retiree health insurance and pension benefits influence when people retire. GAO analyzed retirement age laws and SSA data and conducted statistical analysis of Health and Retirement Study data. Under the Comptroller General's authority, GAO has prepared this report on its own initiative.

What GAO Recommends

Congress may wish to consider changes to law, programs, and policies that support retirement security, including retirement ages, in order to provide a set of signals that work in tandem to encourage work at older ages.

GAO received comments from HHS, and technical comments from SSA and the departments of Labor and the Treasury, which were incorporated where appropriate.

www.gao.gov/cgi-bin/getrpt?GAO-07-753.

To view the full product, including the scope and methodology, click on the link above. For more information, contact Barbara Bovbjerg at (202) 512-7215 or bovbjergb@gao.gov.

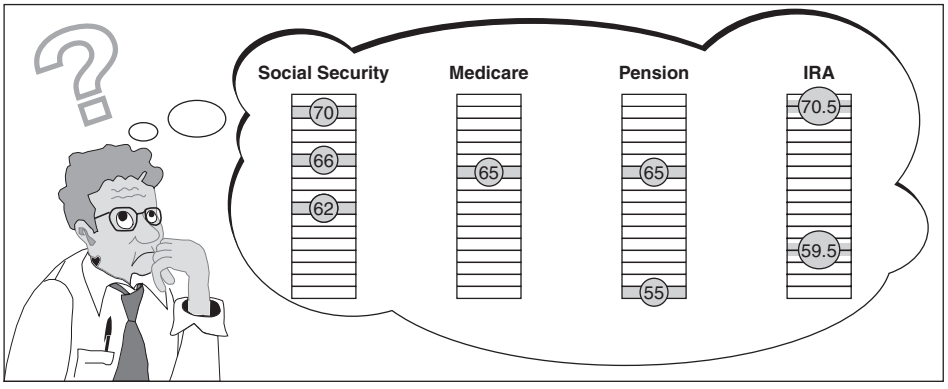
What GAO Found

Federal policies offer incentives to retire both earlier and later than Social Security's full retirement age depending on a worker's circumstances. The availability of reduced Social Security benefits at age 62 provides an incentive to retire well before the program's age requirement for full retirement benefits; however, the gradual increase in this age from 65 to 67 provides an incentive to wait in order to secure full benefits. The elimination of the Social Security earnings test in 2000 for those at or above their full retirement age also provides an incentive to work. Medicare's eligibility age of 65 continues to provide a strong incentive for those without retiree health insurance to wait until then to retire, but it can also be an incentive to retire before the full retirement age. Meanwhile, federal tax policy creates incentives to retire earlier, albeit indirectly, by setting broad parameters for the ages at which retirement funds can be withdrawn from pensions without tax penalties.

Nearly half of workers report being fully retired before turning age 63 and start drawing Social Security benefits at the earliest opportunity—age 62. Early evidence, however, suggests small changes in this pattern. Traditionally, some workers started benefits when they reached age 65. Recently, workers with full retirement ages after they turned 65 waited until those ages to start benefits. Also, following the elimination of the earnings test, some indications are emerging of increased workforce participation among people at or above full retirement age.

GAO's analysis indicates that retiree health insurance and pension plans are strongly associated with when workers retire. After controlling for other influences such as income, GAO found that those with retiree health insurance were substantially more likely to retire before the Medicare eligibility age of 65 than those without. GAO also found that men with defined benefit plans were more likely to retire early (before age 62) than those without, and men and women with defined contribution plans were less likely to do so.

Federal Retirement Age-Related Rules



Sources: GAO (analysis); Art Explosion (images).

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Abbreviations

BEPUF	Benefit and Earning Public Use File
CPS	Current Population Survey
DB	defined benefit
DC	defined contribution
EBRI	Employee Benefit Research Institute
ERISA	Employee Retirement Income Security Act
HRS	Health and Retirement Study
IRA	individual retirement account
NBDS	New Beneficiary Data System
PBGC	Pension Benefit Guarantee Corporation
SSA	Social Security Administration

GAO
Accountability * Integrity * Reliability

United States Government Accountability Office
Washington, DC 20548

July 11, 2007

Congressional Committees

The first wave of the 78 million member baby boom generation is now reaching retirement age. The number of people age 62, the earliest age of eligibility for Social Security retired worker benefits, is expected to be 21 percent higher in 2009 than in 2008. In addition, by 2030, the number of workers supporting each retiree is projected to be 2.2, down from 3.3 in 2006. This demographic shift poses challenges to the economy, federal tax revenues, the nation's old-age programs, and individuals' financial security in retirement. For those who are able to work longer, later retirement can strengthen the economy and also retiree incomes by postponing the time at which people will start drawing retirement benefits rather than working. A wide range of factors including the features of employers' benefit plans, personal finances, social norms, health, and individual attitudes influence workers' decisions about when to retire. Federal policies may also play a role: these include Social Security, Medicare, and tax policies related to certain private retiree health and defined benefit (DB) and defined contribution (DC) pension plans.[1] Identifying both the incentives posed by these policies and the extent to which workers respond to them can help to inform policy makers as they consider ways to address the demographic challenges facing the nation.

To determine the extent to which federal policies—directly and indirectly—pose incentives and are influencing individuals' decisions about the age at which they retire, we have pursued the following questions: (1) What incentives do federal policies provide about when to retire? (2) What are the recent retirement patterns, and is there evidence that recent changes in Social Security requirements have resulted in later retirements? (3) Is there evidence that tax-favored private retiree health insurance and pension benefits have influenced when people retire?

[1] Types of pension plans include (1) DB plans, which provide a guaranteed benefit generally expressed as a monthly benefit based on a formula that generally combines salary and years of service, and (2) DC plans, which establish individual accounts for employees to which the employer, participants, or both make periodic contributions. DC plan benefits are based on employer and participant contributions to and investment returns (gains and losses) on the individual accounts.

We have prepared this report under the Comptroller General's authority to conduct evaluations on his own initiative as part of a continued effort to provide Congress with relevant information on the aging of the American workforce.

To identify which federal policies may influence the age at which workers retire, we reviewed the relevant literature and interviewed agency experts. To answer our second and third objectives, we used two main data sources: (1) Social Security Administration (SSA) data and (2) longitudinal data from the Health and Retirement Study (HRS) conducted by the University of Michigan, which looks at the circumstances under which recent retirees or people who are approaching retirement are making their decisions to retire. We used the SSA data to determine when workers who reached ages 66 through 71 in 2006 started drawing Social Security retired worker benefits. We conducted various statistical analyses of the HRS survey data to determine which factors were associated with decisions to retire at early ages (before age 62) and decisions to retire at later ages (at or after age 65). We focused on workers who were born from 1931 to 1941 (reaching age 62 at some point between 1993 and 2003) and who were in the labor force when the HRS survey began in 1992. To select appropriate variables to consider in our analyses, we reviewed relevant literature and interviewed experts in the field. We conducted reliability assessments of these data and found them to be sufficiently reliable for our study. As is the case with most statistical analyses, our work is limited by factors such as the unavailability of information and the inability to account for influences that cannot be quantified or observed. In addition, our analysis of the HRS survey, which includes only one cohort of workers, may not apply to older or younger groups of workers. In different parts of our analysis we considered workers to be retired based on four different definitions:

- *Reported retirement:* Workers who described themselves as completely retired in response to HRS interviews.

- *Full retirement:* Workers who described themselves as fully retired in response to HRS interviews and who were no longer working for pay.

- *Partial retirement:* Workers who described themselves as retired in response to HRS interviews who were working part-time or for a portion of the year.

- *Social Security retirement:* Workers who received Social Security retired worker benefits as indicated in Social Security administrative data.

These definitions can be used to examine different aspects of retirement whether it be the decision to leave the workforce or the decision to start drawing Social Security benefits. These definitions are not mutually exclusive. For further discussion of these definitions of retirement and details concerning our scope and methodology, see appendix I. We conducted our work between July 2006 and June 2007 in accordance with generally accepted government auditing standards.

Results in Brief

Federal policies offer incentives to retire at different ages depending on a worker's circumstances. The availability of reduced Social Security benefits at age 62 provides an incentive to retire well before the full retirement age, particularly for those in poor health or with short life expectancies. However, the incremental rise in the Social Security full retirement age from 65 to 67 makes it more costly for future cohorts to draw benefits early because of the progressively higher reductions in benefits. This increase in full retirement age gives workers born after 1937 a greater incentive to remain in the workforce longer in order to secure full benefits. The elimination in 2000 of the Social Security earnings test for those at or above full retirement age also provides an incentive (or removes a disincentive) to continue working. With regard to Medicare, the age 65 eligibility requirement for nearly all workers is a strong incentive for those without retiree health insurance to wait until then to retire, since most have only expensive alternatives in the form of extended employer coverage or individual policies. On the other hand, Medicare's availability at 65 can be an incentive to retire before the rising full retirement age. Meanwhile, federal tax policy creates incentives to retire earlier, albeit indirectly, by setting broad parameters for the ages at which retirement funds can be withdrawn without penalty from employer-sponsored pension plans. For example tax laws generally allow workers to begin withdrawing funds from individual retirement accounts (IRAs) and pension plans starting at age 59 ½ without penalty or earlier under certain circumstances. Withdrawals must generally begin by about age 70 ½. Additionally, the Employee Retirement Income Security Act (ERISA) allows employer-sponsored, DB pension plans to set earlier eligibility ages without tax penalties. Many of these plans allow workers to retire with reduced benefits at age 55.

Considering how these incentives affect retirement behavior, we found that nearly half of all workers fully retire by the time they reach age 63, but early evidence suggests that alterations in Social Security policy may be fostering some later retirements. Despite Social Security's full retirement age of 65 and above, 46 percent of the workers we studied in the HRS reported having completely retired before their 63rd birthday. In addition, Social Security administrative data shows that 62 remains the median age for starting to draw Social Security benefits—meaning that half of recipients born in the years 1935 through 1940 began drawing benefits before they reached age 62 ½. There is, nevertheless, evidence that some workers have started drawing benefits later than workers born in earlier years—changes that coincide with changes in Social Security policy. First, there is a slightly smaller proportion of people subject to the higher full retirement age who are drawing Social Security benefits at age 62. Second, although in years past many workers started Social Security benefits when they reached age 65, more recently workers have had full retirement ages some months after they turned 65 and often waited until those ages to start benefits. Third, there are indications that a somewhat higher proportion of people are working in their late 60s following the elimination of the Social Security earnings test for people at or above full retirement age.

Our analysis indicates that employer-provided retiree health insurance and pension plans are strongly associated with when workers retire. After controlling for other factors, we found that those with retiree health insurance in our HRS study group were substantially more likely to retire before the Medicare eligibility age of 65 than those who lacked such coverage. This may reflect the scarcity of affordable options workers have for obtaining health insurance on their own. With regard to our analysis of current employer-sponsored pension plans, we found that men with DB plans were about 28 percent more likely to retire before age 62 than those without these pensions. We found no statistically significant relationship between DB pensions and the age at which women retired. On the other hand, we found that men and women with DC plans were less likely to retire before age 62 than those without DC pensions.

The results of any given policy change continue to be difficult to project given the many countervailing forces at work and workers' sometimes limited understanding of the incentives they face. Nonetheless, as policy makers consider reforms to the Social Security and Medicare programs, it will be important to consider the consolidated impact of the incentives that such reforms might create and act to send signals that consistently encourage those able to continue working to do so. In light of the range of

challenges facing the country in the 21st century, Congress may wish to consider changes to laws, programs and policies that support retirement security, including retirement ages, in order to provide a set of signals that work in tandem to encourage work at older ages.

We provided a draft of this report to the Social Security Administration, the departments of Labor, Health and Human Services, and Treasury. The Department of Health and Human Services commented on the report, generally agreeing with our findings on the incentives posed by Medicare and retiree health insurance. (See appen. V.) In addition, SSA and the departments of Labor and the Treasury provided technical comments, which we have incorporated as appropriate.

Background

Demographic Changes

In the 21st century, older Americans are expected to make up a larger share of the U.S. population, live longer, and spend more years in retirement than previous generations. The share of the U.S. population age 65 and older is projected to increase from 12.4 percent in 2000 to 19.6 percent in 2030 and continue to grow through 2050. In part, this is due to increases in life expectancy. The average number of years that men who reach age 65 are expected to live is projected to increase from just over 13 in 1970 to 17 by 2020. Women have experienced a similar rise—from 17 years in 1970 to a projected 20 years by 2020. These increases in life expectancy have not, however, resulted in an increase in the average number of years people spend in the workforce. While life expectancy has increased, labor force participation rates of older Americans only began to increase in recent years.[2] As a result, individuals are generally spending more years in retirement. In addition to these factors, fertility rates at about the replacement level are contributing to the elderly population's increasing share in the total population and a slowing in the growth of the labor force. Also contributing to the slowing in the growth of the labor force is the leveling off of women's labor force participation rate. While women's share of the labor force increased dramatically between 1950 and 2000—from 30 percent to 47 percent—their share of the labor force is

[2] Between 2000 and 2005, for example, the labor force participation rate for those aged 65 to 69 increased from 24.5 to 28.3 percent according to the Bureau of Labor Statistics. See Mitra Toosi, "A New Look at Long-Term Labor Force Projections to 2050" *Monthly Labor Revi*ew, vol. 129, no. 11 (November 2006) 27.

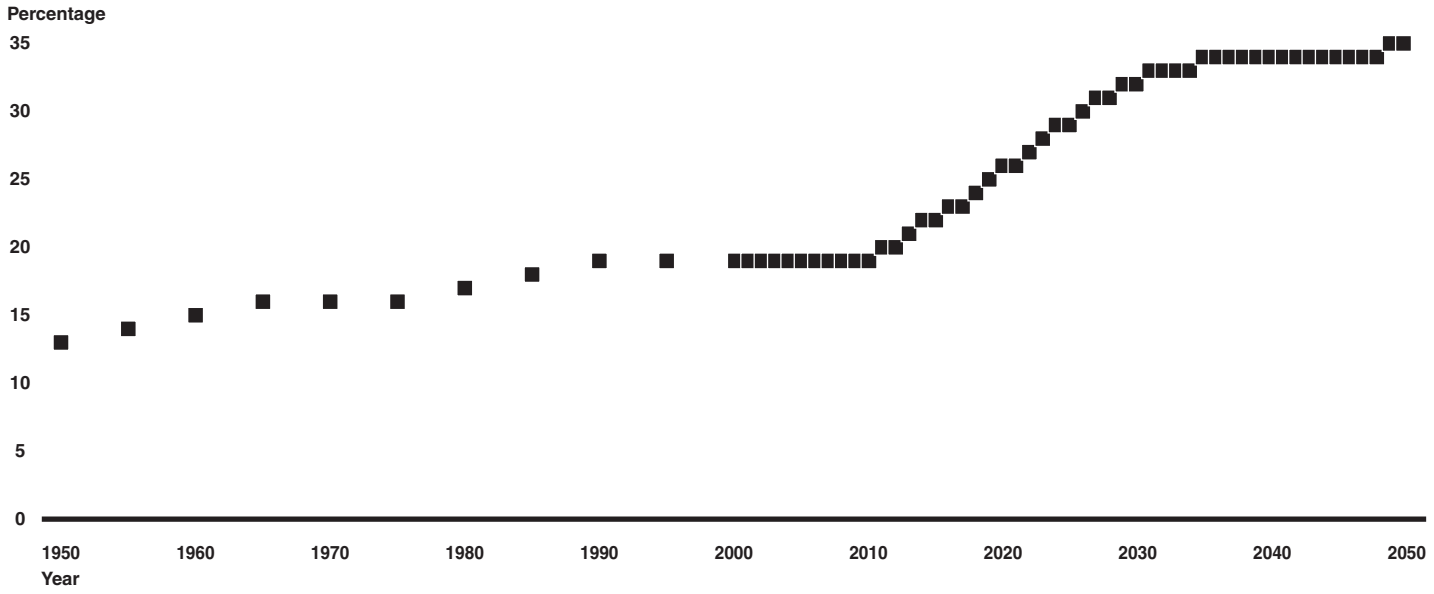
projected to remain at around 48 percent over the next 50 years. While hard to predict, the level of net immigration can also affect growth in the labor supply.[3] Taking each of these factors into account Social Security's trustees project that the annual growth rate in the labor force, about 1.2 percent in recent years, will fall to 0.3 percent by 2022.

The aging of the baby boom generation, increased life expectancy, and fertility rates at about the replacement level are expected to significantly increase the elderly dependency ratio—the estimated number of people aged 65 and over in relation to the number of people aged 15 to 64 (fig. 1). In 1950, the ratio was 12.5 percent. It increased to 20 percent in 2000 and is projected to further increase to 33 percent by 2050. As a result, there will be relatively fewer younger workers to support a growing number of Social Security and Medicare beneficiaries. The age at which workers choose to retire has implications for these trends. If workers delay retirement, the ratio of workers to the elderly will decrease more slowly.[4]

[3]According to SSA's trustees, a substantial increase in net immigration would delay the exhaustion of the Social Security trust fund by 2 years. This projection assumes, for example, that net immigration in each year 2008 through 2016 will be 1.4 million, compared to the estimated 2007 level of 1.075 million, including legal and undocumented immigrants.

[4] Demographers and policy makers pay close attention to the elderly dependency ratio as well as the total dependency ratio (including both the elderly and children as dependents) as these can be important factors influencing trends in the quality of life. For example, the numbers of workers and retirees have implications for the financing of social insurance programs. In 2006 current workers' and their employers' contributions represented 113 percent of Social Security expenditures. The principal sources of Medicare funding are current workers' and their employers' contributions (44 percent of Medicare expenditures in 2006), premiums (12 percent), and general revenue (42 percent).

Figure 1: U.S. Elderly Population is Rising Compared to the Working-Age Population



Source: GAO analysis of Census Bureau estimates and projections.

Note: Population age 65 and older as a percent of population age 15 to 64. Data for 2006 through 2050 are projected. The elderly dependency ratio equals the number of people age 65 and older divided by the number between age 15 and 64, expressed as a percentage.

The aging of the population also has potential implications for the nation's economy. As labor force growth continues to slow as projected, there will be relatively fewer workers available to produce goods and services. In addition, the impending retirement of the baby boom generation may cause the net loss of many experienced workers and possibly create skill gaps in certain occupations. Without a major increase in productivity or higher than projected immigration, low labor force growth will lead to slower growth in the economy compared with growth over the last several decades and potentially slower growth of federal revenues. Social Security's trustees project that real (inflation-adjusted) GDP growth will subside from 2.6 percent in 2007 to 2.0 percent in 2040, in part due to slower growth in the labor force. The prospect of slower economic growth is likely to accentuate the pressures on the federal budget from growing benefit claims and the shrinking proportion of workers to beneficiaries. Later retirement and increases in labor force participation by older workers could help diminish those pressures.

Retirement Dynamics

Retirement has traditionally been thought of as a complete one-time withdrawal from the labor force. However, such transitions are no longer as common. A recent study found that only half of first-time retirees fully retired from the workforce and remained fully retired after 3 to 5 years.[5] The other half chose to partially retire by reducing their work hours or taking bridge jobs—transitional jobs between career work and complete retirement—or they re-entered the labor force after initially retiring.[6] According to our analysis of the HRS, about one in five workers who fully retire later re-enter the workforce on at least a part-time basis sometime over the next 10 years. There are various reasons behind these trends. In some cases, older workers need the income or benefits a job provides; in other cases, they wish to start a new career in a different field. With no universal definition of retirement, researchers use different definitions depending on their purpose. Since our focus is on labor force participation, we are using definitions of retirement that combine whether or not people say they are retired with measures of their labor force participation.[7]

Workers have generally been retiring at younger ages over the last several decades, but over more recent periods, retirement ages appear to have stabilized. This finding holds for a variety of definitions of retirement. Census Bureau data indicate that the average age at which workers left the labor force dropped from about 71 and 70 years for men and women respectively in 1960, to about age 65 for both men and women in 1990 (fig. 2).[8] Since that time, retirement trends appear to have stabilized for men, with their retirement occurring on average between 64 and 65. The retirement age for women continued to decline. Similar trends appear in the age at which workers start drawing Social Security benefits. From 1960 to 1990, the average age of workers starting to draw Social Security

[5] Nicole Maestas, "Back to Work: Expectations and Realizations of Work After Retirement," *Working Paper WR-196-1* (RAND Corporation, August 2005).

[6] While partial retirement can refer to workers who have reduced hours or changed jobs, phased retirement refers specifically to workers who reduce their hours at their existing (previous full-time) job.

[7] We use definitions of full and partial retirement developed by RAND's HRS researchers. If a respondent identifies himself or herself as retired and works for pay less than 35 hours per week or less than 36 weeks per year, they are classified as partially retired. For details, see appendix I.

[8] This decline reflects, in part, the adoption of age 62 as Social Security's early eligibility age in 1956 for women and 1961 for men and increases in the level of benefits during this period.

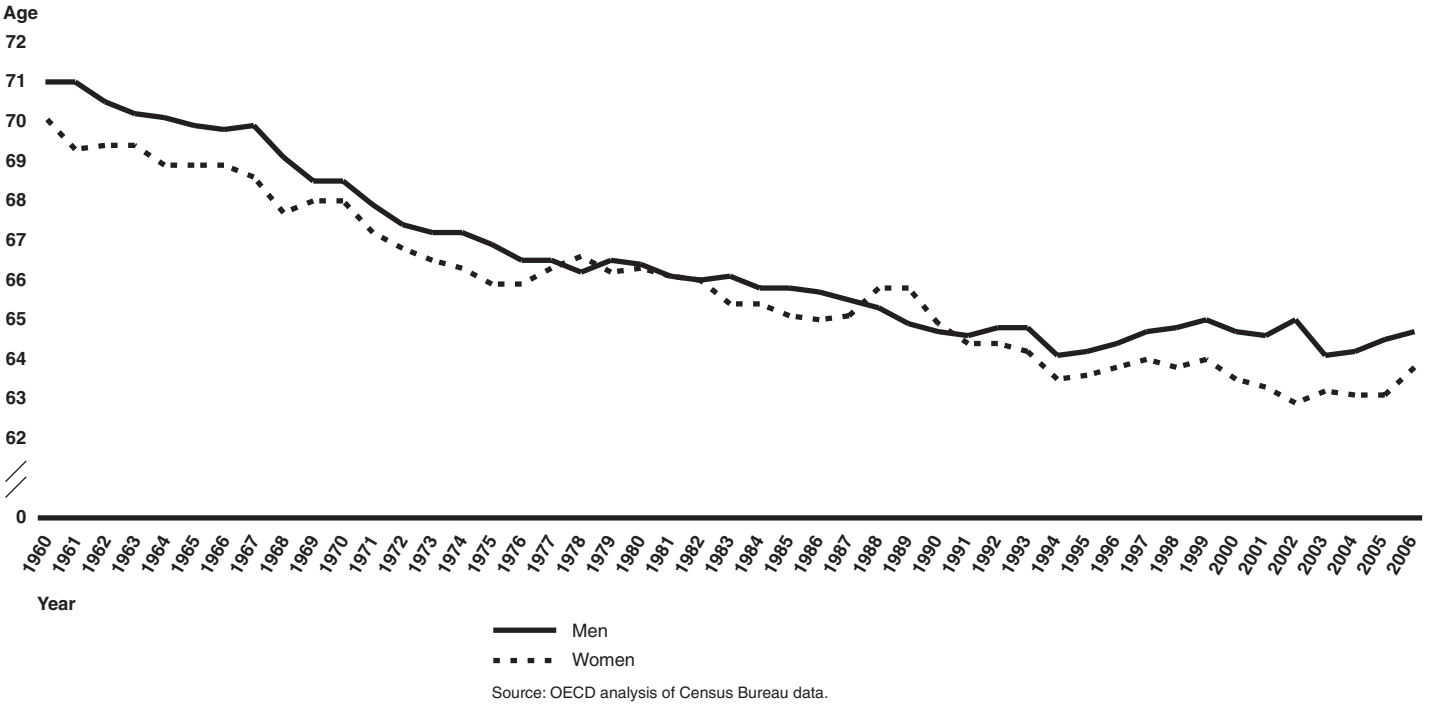
benefits declined 3 years for men (from 66.8 to 63.7) and about 2 years for women (from 65.2 to 63.5).[9] Since 1990, these averages have changed little. The averages were 63.7 years for men and 63.8 for women in 2005. In addition, in the 2007 Retirement Confidence Survey, workers responded on average that they planned to retire at age 65, up from age 62 in 1996.[10] We, along with others, have suggested that increasing labor force participation for older workers could lessen problems for the economy and the Social Security and Medicare trust funds, and boost income security for retirees as well.[11]

[9] These data are from Social Security's *Annual Statistical Supplement* for 2006. Data from 1997-2005 include conversions from nondisabled widow(er)'s benefits to higher retired-worker benefits.

[10] Ruth Helman, Jack VanDerhei, and Craig Copeland, "The Retirement System in Transition: The 2007 Retirement Confidence Survey," *Issue Brief No. 304* (Washington, D.C.: Employee Benefit Research Institute, April 2007) 12.

[11] According to the Social Security and Medicare trustees, the annual cost of Social Security benefits represented 4.2 percent of GDP in 2006 and is projected to be 6.3 percent of GDP in 2081. Meanwhile, Medicare's annual costs were 3.1 percent of GDP in 2006; they are projected to exceed 11 percent of GDP in 2081.

Figure 2: Average Effective Retirement Ages, 1960 to 2006



Source: OECD analysis of Census Bureau data.

Note: This is a 5-year moving average based on labor force participation data in the Current Population Survey. For each 5-year period ending in the year shown in the figure, the effective age of retirement corresponds to the average age of exit for all labor force participants initially aged 40 and over who were no longer in the labor force 5 years later.

Workers retire for a variety of reasons, some of which are under their control while others are not. Some personal reasons for retiring include workers' job situation, their financial situation, and social norms regarding retirement. In addition, there are often factors outside of a person's control that may lead to retirement. According to focus groups that we conducted in 2005 with workers and retirees, we found that health problems and layoffs were common reasons to retire and that few focus group members saw opportunities to gradually or partially retire. Workers also cited what they perceived as their own limited skills and employers' age discrimination as barriers to continued employment.[12] Similarly to our focus group results, the Employee Benefit Research Institute (EBRI) found that an estimated 37 percent of workers retire sooner than they had

[12] GAO, *Older Workers: Labor Can Help Employers and Employees Plan Better for the Future*, GAO-06-80 (Washington, D.C.: Dec. 5, 2006) 20-22.

expected.[13] Of those, the most often cited reasons were health problems or disability, changes at their company, such as downsizing or closure, or having to care for a spouse or another family member. The role federal policies play in influencing retirement behavior needs to be considered as well. Depending on workers' circumstances, these policies can provide incentives to retire at certain ages, and send signals or set norms about when it is appropriate to retire. In addition, many employers have structured their own retirement benefits, such as pension eligibility ages, based on federal policies.

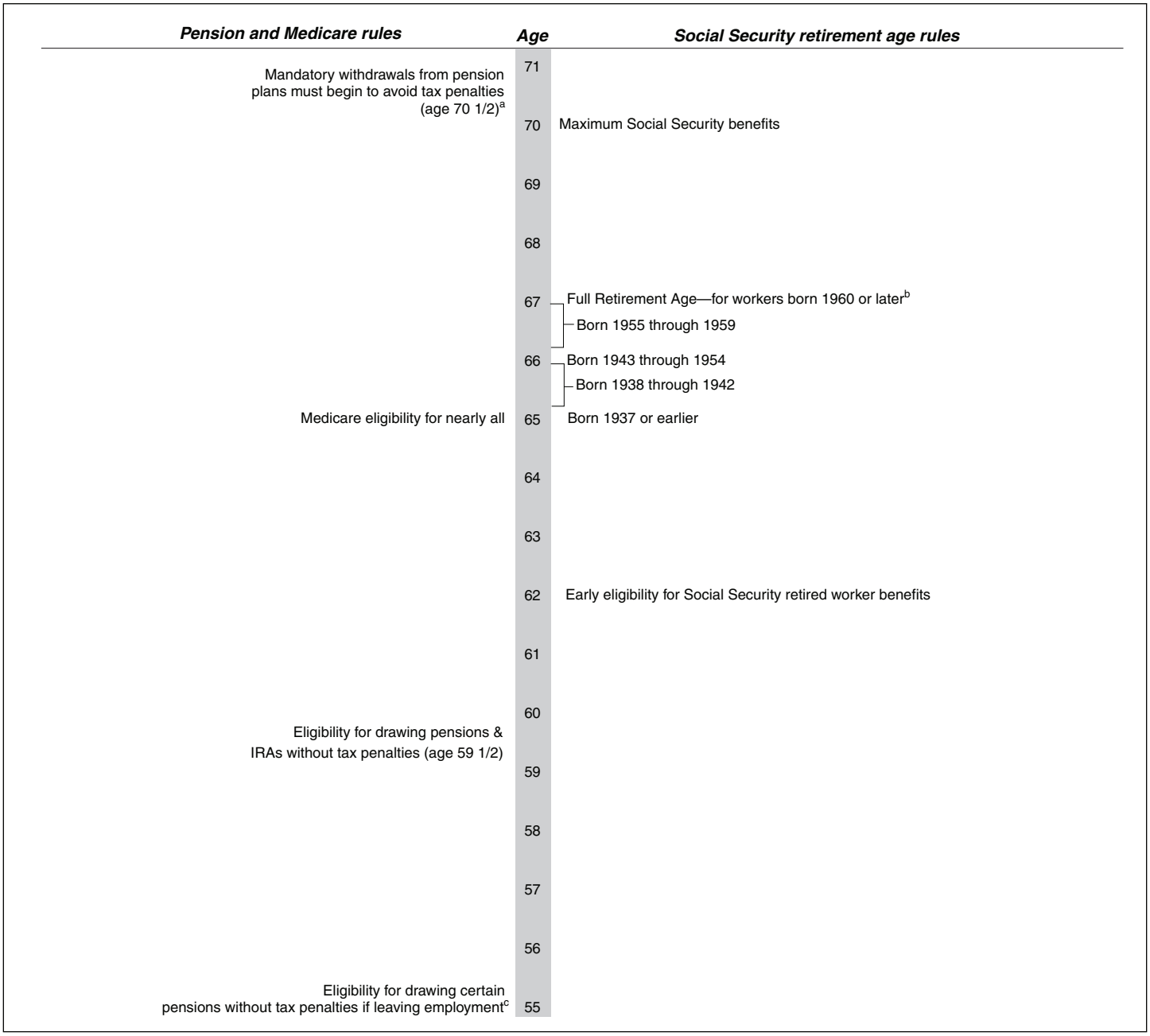
Federal Policies Provide Incentives for both Early and Late Retirement

Federal policies present a mix of retirement incentives, some of which encourage individuals to retire well before their Social Security full retirement age and others that promote staying in the workforce. (See fig. 3 below.) The effect of these incentives also varies substantially with personal circumstances. In general, the availability of Social Security benefits at age 62 offers an incentive to retire before full retirement age, though changes in program rules are progressively weakening that incentive. The recent elimination of the Social Security earnings test for those at full retirement age and beyond, which had formerly reduced benefits for those beneficiaries who had earnings above a certain threshold, also may discourage drawing benefits early. The fact that most individuals are eligible for Medicare at age 65 generally deters them from leaving the labor force before then, especially if they are not covered by retiree health insurance.[14] Federal pension tax policies give employers discretion to set pension plan rules that provide incentives for many workers to retire somewhat earlier than the norms established by Social Security, often age 55, or in some cases earlier. However, these incentives to retire early apply to fewer workers, due to the diminished prevalence of DB plans.

[13] Helman, VanDerhei, and Copeland, "The 2007 Retirement Confidence Survey."

[14] Medicare is available at earlier ages for disability insured workers who have end stage renal disease, and Social Security or Railroad Retirement disability beneficiaries after a 2-year waiting period.

Figure 3: Federal Retirement Age-Related Rules



Source: GAO analysis of Social Security, Medicare and pension tax laws.

[a]The age 70 ½ rule applies by April 1 of the year following the year in which the participant turns 70 ½. Some exceptions apply, but not for IRAs.

[b]For workers born in 1937 or earlier the Social Security full retirement age is 65 and 0 months. For those born in later years it is as follows:
1938 – 65 years and 2 months
1939 – 65 years and 4 months
1940 – 65 years and 6 months
1941 – 65 years and 8 months
1942 – 65 years and 10 months
1943 through 1954 – 66 years and 0 months
1955 – 66 years and 2 months
1956 – 66 years and 4 months
1957 – 66 years and 6 months
1958 – 66 years and 8 months
1959 – 66 years and 10 months
1960 and later – 67 years and 0 months.

[c]Distributions without tax penalty are allowed at any age in cases where distributions are a series of substantially equal periodic payments for the beneficiary's life or life expectancy, or in other cases including rollover distributions, total and permanent disability, and death.

Social Security Policies Provide Mixed Incentives, While Recent Program Changes Reward Later Retirement

Several characteristics of the Social Security program—including eligibility ages and the earnings test—provide incentives to retire at different ages. The Social Security full retirement age, which has traditionally been age 65, is gradually rising to 67. However, workers can begin receiving reduced benefits at 62; benefits are progressively larger for each month workers postpone drawing them, up to age 70.[15] In general, benefits are "actuarially neutral" to the Social Security program; that is, the reduction for starting benefits before full retirement age and the credit for starting after full retirement age are such that the total value of benefits received over one's lifetime is approximately equivalent for the average individual.[16] However, Social Security creates an incentive to start drawing early retirement benefits for those who are in poor health or

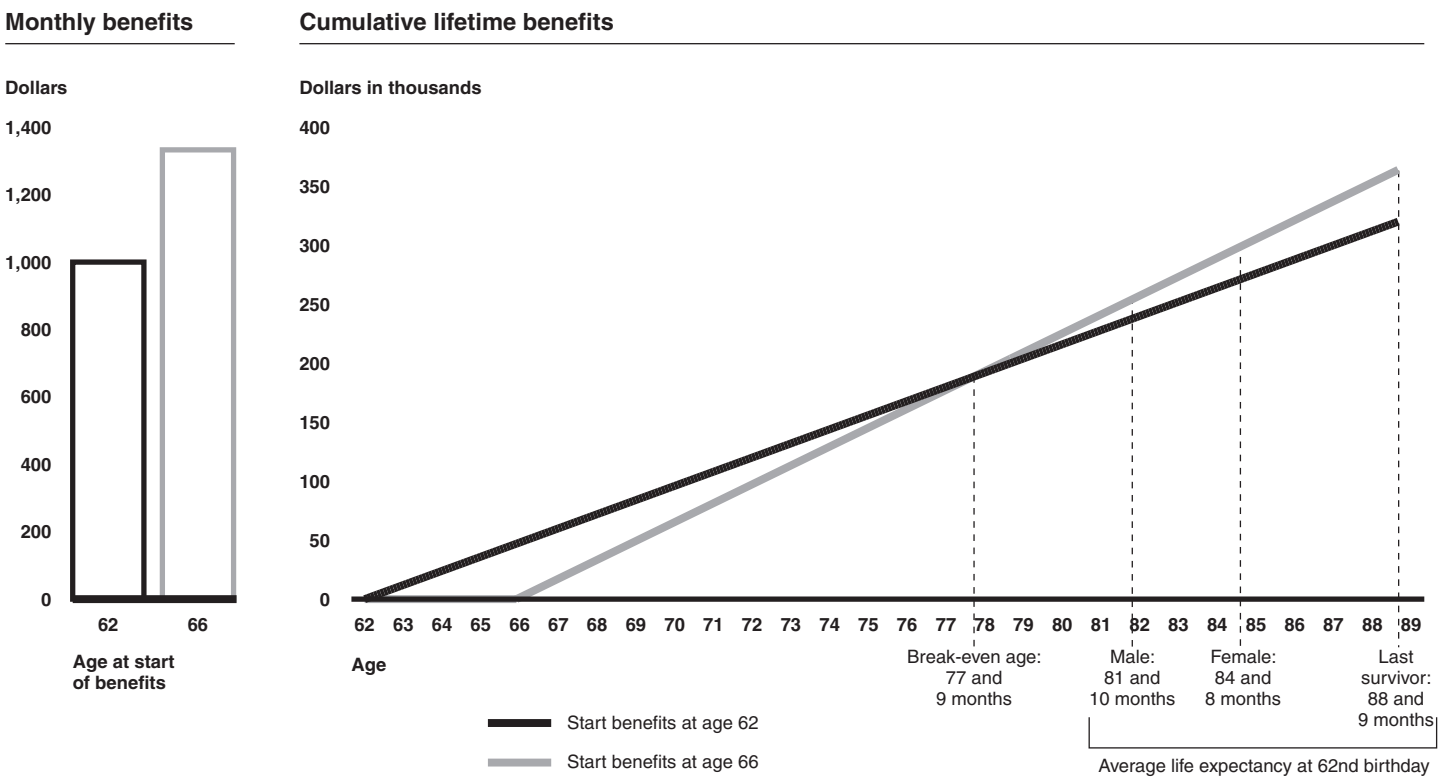
[15] SSA reduces retired-worker benefits by 5/9 of 1 percent per month for the first 36 months and 5/12 of 1 percent for each additional month that a worker elects to start benefits in advance of full retirement age. Conversely, delayed retirement credits increase benefits for each month a worker delays the start of benefits after full retirement age until they reach age 70. The factor used to calculate these credits varies by birth year. For workers born 1943 or later the increase is 2/3 of 1 percent each month (8 percent per year).

[16] This is the case if lifetime benefits are calculated on a present value basis with a discount rate equal to the expected return for the Social Security trust fund—a projected 2.9 percent above inflation after 2015, according to the intermediate assumptions in the trustees' 2007 report-- The Board of Trustees, Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds, *The 2007 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Disability Insurance Trust Funds* (Washington, D.C.:, Apr. 23, 2007) 94.

otherwise expect to have a less than average lifespan.[17] If a worker lives long enough—past a "break-even" age—he or she will receive more in life-long retired worker benefits by starting benefits at a later, rather than an earlier date. (See figure 4 below for examples of the kinds of considerations workers face in making a decision about when to begin drawing Social Security benefits.)

[17] In addition, people who have cut back on work or otherwise need to supplement their income may also be better off receiving reduced benefits at 62 if they have retirement savings on which they expect a relatively high rate of return. The return on one's savings must exceed the increase in benefits one would receive for waiting to start drawing benefits later.

Figure 4: Lifetime Social Security Retired Worker Benefits are Higher if a Worker Starts Benefits Later and Lives Past His or Her Break-Even Age, Analysis of a Hypothetical Case



Source: GAO analysis.

Notes: This figure illustrates the case of a worker born in 1950 (with a full retirement age of 66) who would be entitled to a monthly retired worker benefit of $1,000 beginning at age 62 or a monthly benefit of $1,333 beginning at age 66—a 33 percent increase. This assumes no increase in adjusted indexed monthly earnings. If earnings during additional years of work from age 62 through age 65 are high enough to increase the workers' adjusted average earnings over the best 35-years of credited work, the break-even age would be lower. The break-even age varies depending on the ages at which the worker is considering starting benefits and the amounts of benefits available at each age.

As Social Security benefits are adjusted annually for changes in the CPI for wage earners, dollar amounts are shown in constant (inflation-adjusted) terms as of the worker's 62nd birthday. These calculations do not reflect discounting or adjustments for interest rates that may increase the break-even age if, for example, a worker would increase debt or decrease savings as a result of delaying the start of retired-worker benefits. The average last survivor life expectancy is the average life expectancy as of the 62nd birthday for the longest-lived spouse if a man and a woman are born on the same day in 1950.

For additional information about break-even ages, see SSA's Web site at http://www.ssa.gov/OACT/quickcalc/when2retire.html.

The increase in full retirement age and the larger penalty for early retirement reduce the incentive to start drawing Social Security benefits and retiring early.[18] Because the early retirement age has remained fixed at 62 while full retirement age is gradually rising to 67, workers taking early retirement benefits are progressively incurring bigger reductions. For example, workers who reached 62 in 1999 and started drawing benefits that year faced a reduction of 20 percent because their full retirement age was 65. In contrast, workers drawing benefits when they turn 62 in 2022, when their full retirement age will be 67, will face a 30 percent reduction. On the other hand, workers with health problems may now have a greater incentive to apply for Social Security Disability Insurance as these benefits are not based on age.[19]

Social Security rules can pose different incentives for married workers because their decision about when to start drawing benefits has important implications for the surviving spouse. For example, if a retired worker who is entitled to a larger benefit than his spouse starts drawing early benefits and dies shortly thereafter, his widow may be left for many years with a relatively small survivor benefit since her payment would be limited to what he was receiving.[20] This risk affects female survivors in particular. Widow beneficiaries are one of the largest and most vulnerable groups with a relatively high incidence of poverty.[21]

[18] As noted earlier, in the context of the Social Security program a retired person refers to someone who has started drawing retired worker benefits.

[19] A worker eligible for both retired worker benefits and disability benefits would typically receive a higher benefit as a disabled beneficiary than as a retired worker beneficiary drawing benefits reduced for early retirement. Low-income people with low net worth may also seek Supplemental Security Income. The Congressional Budget Office projects that an increase in the SSA's early eligibility retirement age from age 62 to age 65 phased in over the 2023 to 2040 period would result in an increase in the 75-year present value deficit equal to 0.06 percent of taxable payroll. Increasing the early eligibility age can result in increases in the number of disability beneficiaries.

[20] The amount of survivor benefit ranges from 50 to 67 percent of the combined benefits received by the couple. The closer their earnings, the larger the drop will be at widowhood. Widow or widower's benefits also depend on the age at which he or she starts drawing survivor benefits. Divorced spouses, children, and dependent parents may also be entitled to the same survivor benefits.

[21] Data from SSA show in 2004 about 4 percent of married women 65 and older lived below the poverty line. But among widowed women in that age group, the poverty rate was approximately 15 percent. Poverty rates for elderly women who were divorcees or never married were 21 percent.

The Social Security earnings test gives some workers a disincentive to earn more than a specified amount. Because of the earnings test, people collecting Social Security benefits before their full retirement age who continue to work are subject to further reduction or withholding in their benefits if they earn above a threshold. For example, in 2007, $1 of benefits is withheld for every $2 of earnings over $12,960.[22] Although early beneficiaries generally recoup the amounts withheld because of the earnings test in the form of higher recalculated benefits after they reach full retirement age, workers typically view the earnings test as a tax on work.[23] As such, it provides an incentive to reduce the number of hours worked or stop working altogether.[24] Since 2000, beneficiaries who reach their full retirement age are exempt from the earnings test. The elimination of the test for these individuals is an incentive to start benefits at full retirement age and continue working.[25]

[22] The annual exempt amount is pegged to increases in the average wage. When beneficiaries reach the calendar year, but not the month, of their full retirement age, the reduction is $1 for every $3 above $34,440 in 2007.

[23] Recomputed benefits at full retirement age may be even higher if the earnings between 62 and the full retirement age are high enough to increase the "highest 35 years" used in calculating a worker's benefit amount. For a discussion of perceptions that the earnings test is a tax on work, see for example, Jonathan Gruber and Peter Orszag, "What to do about the Social Security Earnings Test?" An Issue in Brief July 1999, no. 1 (Boston, Mass.: Center for Retirement Research at Boston College, July 1999) and Liqun Liu and Andrew J. Rettenmaier, "Work and Retirement," *Policy Backgrounder* no. 162 (Dallas, Tex.: National Center for Policy Analysis, November 2006) 4.

[24] This is especially true for people whose mortality risk is higher than average or people who are risk-averse, i.e. value the certainty of a dollar today more than the promise of a larger amount in the future.

[25] On the other hand, delayed retirement credits continue to provide an incentive for some workers to defer the start of benefits. As noted above, up until they reach age 70, workers receive an increase in the benefit amount for each month they wait to start receiving benefits.

Medicare's Age Requirement Generally Provides an Incentive Not to Retire Before 65

Because Medicare provides health insurance coverage for virtually all individuals 65 and older, it has important implications for the decision about when to retire.[26] The Medicare eligibility age, fixed at 65 since the program's inception, is a strong incentive not to retire before that age, particularly for people who do not have employer-sponsored health benefits as retired workers. These individuals would either have to purchase expensive private coverage if they retired before 65, or remain uninsured until they qualify for Medicare because private health insurance may be difficult to obtain at older ages, especially for those with pre-existing medical conditions.[27] Given the steep rise in health care costs and the high health risks older people face, Medicare's eligibility age encourages them to delay retirement until age 65.[28] Workers with no employer-based health insurance during their working years are arguably less affected by Medicare eligibility rules because their decision to retire does not affect their health coverage. However, to the extent that they are exposed to the same potentially expensive health problems as they get older, Medicare does provide an incentive to postpone retirement until age 65 because retirement often involves a significant drop in income.

The incentive posed by Medicare may become more important if the proportion of workers with no retiree health insurance continues to increase. The share of large private employers offering retiree health insurance declined from an estimated 66 percent in 1988 to 35 percent in 2006.[29] Similarly, a 2003 study found that only about one-quarter of private

[26] People younger than 65 are eligible for Medicare if they meet certain conditions: workers who have end stage renal disease, and Social Security or Railroad Retirement disability beneficiaries after a 2-year waiting period. Because the program does not cover all medical expenses or the cost of most long-term care, many Medicare beneficiaries supplement their Medicare coverage with other types of insurance, such as private Medicare supplemental plans.

[27] A person may purchase continued health insurance coverage after leaving his or her employer, under the Consolidated Omnibus Budget Reconciliation Act of 1985 (COBRA) and the Health Insurance Portability and Accountability Act (HIPAA). With COBRA, continuation of coverage is generally available for a period of at least 18 months. Such coverage can be prohibitively expensive, as the retiree may be required to cover the entire premium. Once COBRA or other continuation coverage has been exhausted, HIPAA may enable a person to purchase individual coverage without regard to pre-existing medical conditions.

[28] Individuals who have health insurance through a spouse or other family members may not face the same incentives.

[29] TIAA-CREF Institute, *The Retiree Health Care Challenge* (Prepared by Hewitt Associates, November 2006).

sector employees worked for companies that offered retiree health insurance.[30] Further, the value of the coverage for retirees is eroding because of higher costs, eligibility restrictions, and other benefit changes. A recent study estimated that the percentage of after-tax income spent on health care by the typical older married couple will almost double from 16 percent in 2000 to 35 percent in 2030.[31]

On the other hand, Medicare's availability at 65 can be an incentive to retire before Social Security's rising full retirement age. Eligibility for Medicare upon reaching age 65 encourages workers to retire then, rather than wait to collect somewhat higher Social Security benefits when they reach their later full retirement age.[32]

Certain Tax Laws for Pension Plans Enable Employers to Create Incentives for Retirement before Age 62

Federal tax and pension laws, including the Employee Retirement Income Security Act (ERISA), give employers some discretion to set retirement ages and other terms and conditions that support earlier retirement for workers who have employer-sponsored pension plans. For example, IRS rules on tax-qualified pensions put an upper limit on what may be treated as a "normal retirement age" (NRA).[33] For a DB plan, this can be no greater than age 65.[34] In practice, some employers have set their NRA lower.[35]

[30] Thomas Buchmueller, Richard W. Johnson, and Anthony T. Lo Sasso, "Trends in Retiree Health Insurance, 1997-2003," *Health Affairs*, vol. 25, no. 6 (2006) 1507–1516.

[31] Richard W. Johnson and Rudolph G. Penner, "Will Health Care Costs Erode Retirement Security?" *Issue in Brief, No. 23* (Boston, Mass: Center for Retirement Research at Boston College, October 2004).

[32] In addition, since workers contact SSA to apply for Medicare, some who had not already done so may choose to apply for Social Security benefits at the same time.

[33] Tax-qualified pensions receive preferential tax treatment in exchange for satisfying certain requirements established in the Internal Revenue Code (employers receive a current deduction on contributions they make to qualified plans within certain limits). Under current law, there are a number of requirements that private pension plans must satisfy, including contribution, benefit, and vesting requirements. Qualified plans include, for example, 401(k), 403(b), 457, and qualified employee annuity plans.

[34] Or the 5th anniversary of plan entry if a participant entered within 5 years of NRA.

[35] On May 22, 2007, the Treasury Department issued final regulations under the Internal Revenue Code, permitting distributions to be made from a pension plan upon the attainment of the plan's NRA, but stating that the plan cannot set an NRA that is earlier than the typical retirement age for the industry in which the covered workforce is employed. The regulations provide a safe harbor of age 62 or above (age 50 or above when substantially all the participants in the plan are public safety employees). See "Distributions From a Pension Plan Upon Attainment of Normal Retirement Age," 72 Fed. Reg. 28604 (May 22, 2007).

According to the Department of Labor's 2003 National Compensation Survey, 17 percent of private workers with DB plans had an NRA less than 65 and 6 percent had no age requirement. Many workers with DB plans could retire with reduced benefits at age 55.[36] IRS rules also state that payouts with specified minimum amounts must generally begin by about age 70 ½.[37] Additionally, tax rules generally permit withdrawals without penalty from both DB and DC plans (including IRAs) as early as age 59 ½. Exceptions to this rule allow for even earlier withdrawals. For example, participants can access their funds without penalty beginning at age 55 if they leave their current employer.[38] Workers taking distributions prior to age 59 ½ may do so without the tax penalty if they receive the distribution in the form of a fixed annuity.[39] For those who are no longer working for the plan's sponsor, tax law generally requires at a minimum that such a series of payments begin at about age 70 ½ at the latest or that they receive a lump sum payment of the entire amount. If a plan participant is working for the plan sponsor at age 70 ½ the required distributions must generally begin in the calendar year in which he or she stops working for the employer maintaining the plan.[40]

Workers who have employer-sponsored pension plans from their current employer constitute only about half of full-time private sector workers. Employers have increasingly shifted from traditional DB to DC pension

[36] In 2003, an estimated three-quarters of workers with private sector DB plans, had plans providing early retirement at age 55 or earlier. U.S. Bureau of Labor Statistics, *National Compensation Survey: Employee Benefits in Private Industry in the United States, 2003*, Bulletin 2577, October 2005.

[37] Exceptions to this rule apply in cases where a plan participant continues to work for an employer that maintains a plan allowing distributions to begin by April 1 of the calendar year after the year in which the worker retires.

[38] In these cases distributions may be lump sums or other payments. In addition, an employee may receive distributions from a multiemployer or union plan as long as the employee no longer works for any of the participating employers.

[39] This must be in the form of a series of substantially equal periodic payments and must be for the participant's life or life expectancy or the participant's and his or her spouse's joint life expectancy. Other exceptions to the tax penalty for claiming before 59 ½ include rollovers to IRAs or other pensions, and cases of total and permanent disability, and death.

[40] Internal Revenue Service, *Pension and Annuity Income*, Publication 575, cat. no. 15142B, 2006, 31.

plans.[41] Specifically, in 1992, about 29 percent of heads of household had a DB plan; by 2004, the figure had dropped to 20 percent. Over this same period, the proportion of household heads with DC plans increased from about 28 percent to 34 percent.

As the prevalence of DC plans has increased relative to DB plans, workers face a different set of incentives.[42] The benefits of a worker covered by a DB plan often reach their high value when the worker attains a specific age, and as a result, may offer little incentive to work past that age.[43] The predetermined retirement benefit generally depends on years of service and wages or salaries, and changes little after its peak value, especially if subsequent salary increases are not substantial.[44] Additional years of work after the NRA, often age 65 for private sector workers in 2003, do not necessarily change lifetime retirement benefits because of the shortened

[41] A cash balance plan, a type of hybrid plan, is legally classified as a DB plan because participants' benefits are determined by a benefit formula. However, cash balance plans have certain features, such as hypothetical "individual accounts," that make it resemble a DC plan. However, changes in the value of investments do not directly affect the benefits available to participants.

[42] Both DB and DC pension holders face risks. For example, workers with a 401(k) plan face the risk that the value of their account may decline during the additional year of work even if the balance is invested entirely in bonds. In addition to the risk of default, the value of bonds falls when interest rates rise. Should a worker with a 401(k) choose to purchase a fixed annuity, they also face a risk that the amount of the annuity they receive may decline over the year. The annual income from a fixed immediate annuity generally declines when interest rates decline. Both DB and DC plan holders typically face a risk that an increase in inflation will diminish the purchasing power of their pension over time. Instead of purchasing an annuity providing a flat benefit, a DC pension holder could purchase annuities that provide an increase by a set rate, such as 3 percent per year, to compensate for anticipated inflation, but the initial amount of the annuity payments would be lower. Annuities that are fully adjusted for inflation are not widely available in the U.S. In contrast, DB pension holders face some risk that their employer may not be able to fulfill its pension commitment. In DB plans, investment risks rest with the employer or plan sponsor and benefits are, within limits, insured by the Pension Benefit Guaranty Corporation (PBGC). For discussion of the PBGC's role in insuring DB pensions see GAO, *Answers to Key Questions about Private Pensions Plans*, GAO-02-745-SP (Washington, D.C.: Sept. 18, 2002) and GAO, *Private Pensions: The Pension Benefit Guaranty Corporation and Long-Term Budgetary Challenges*, GAO-05-772T (Washington, D.C.: June 9, 2005).

[43] Abbigail J. Chiodo and Michael T. Owyang, "Putting Off Retirement: The Rise of the 401(k)" *National Economic Trends* (St. Louis, Missouri: Federal Reserve Bank of St Louis, March 2002).

[44] In 2003 an estimated 23 percent of private sector workers with DB pensions had plans that were also integrated plans, i.e. they take into account Social Security benefits received by workers.

retirement period.[45] (See table 1 for an example showing the effect of another year of work with a hypothetical DB pension.)

Table 1: A Delay in Retirement Can Result in Lower Lifetime Benefits from a DB Pension, Analysis of a Hypothetical Case

	Retire at 62	Retire at 63	Difference
Annual pension beginning age 62 1.5% x $31,177 x 35 years of service	$16,368		
Annual pension beginning age 63 1.5% x $ $32,112 x 36 years of service (adjusted for inflation at 3 percent)		$16,836	
Increase in annual pension as a result of the 36th year of work			$468
Total pension expected over a retirement based on remaining life expectancy at 62nd birthday (average for men and women) $16,368 x 21.2 years adjusted for inflation	248,965		
Total pension expected over a retirement beginning on 63rd birthday based on remaining life expectancy at 62nd birthday $16,836 x 20.2 years adjusted for inflation		246,694	
Increase (decrease) in lifetime benefit for retirement at age 63 compared with retirement at age 62			(2,270)

Source: GAO analysis.

With DC plans, benefit levels depend on total employer and employee contributions and investment earnings; as such, DC plans do not offer the same age-related retirement incentive as DB plans. Individuals typically allocate the balance of their DC accounts among bonds, stocks, and money market funds, bearing all of the investment risks. In addition, since at retirement most DC plans allow people to receive the accumulated value of the funds in their account as a lump sum, individuals also bear the risk of outliving their resources. The fact that different people will make different contribution and investment decisions is likely to lead to a greater variability in retirement ages. (See table 2 below for an example

[45] According to the 2003 National Compensation Survey, an estimated 14 percent of private sector workers participating in a DB plan have an age of 60 or less or no age requirement, and another 9 percent have a retirement age of 62. An estimated 20 percent of those with DB plans face maximum benefits provisions that cap the number of years of service in the benefit formula. Researchers studying pensions held by older workers concluded that most of those participating in DB plans faced decreasing lifetime benefits for additional years of work beginning about age 60. These estimates of negative accruals were based on analysis using a 3 percent real discount rate. See Leora Friedberg and Anthony Webb, "Retirement and the Evolution of Pension Structure," *NBER Working Paper No. 9999* (Cambridge, Mass.: National Bureau of Economic Research, September 2003).

showing the effect of another year of work on lifetime benefits with a DC pension.)

Table 2: A Delay in Retirement Can Result in Higher Lifetime Benefits from a DC Pension, Analysis of a Hypothetical Case

	Retire at age 62	Retire at age 63	Difference
401(k) balance on 62nd birthday	$200,000	$200,000	
Expected interest on the balance (at 5.125 percent) during an additional year of work		10,250	
Worker's contribution during additional year of work		3,000	
Employer's matching contribution during additional year of work		1,500	
Expected earnings during the year on additional contributions		115	
Total expected balance on 63rd birthday		214,865	
Total expected balance on 63rd birthday adjusted for inflation at 3%		208,607	
Annuity beginning age 62 based on balance of $200,000 (annual amount)	16,368		
Annuity beginning age 63 based on a balance of $214,865 adjusted for inflation (annual amount)		17,417	
Increase in annual pension as a result of the 36th year of work			$1,049
Total pension expected over the period of retirement (lifetime benefit) based on life expectancy at 62nd birthday $16,368 x 21.2 years (adjusted for inflation at 3 percent)	248,965		
Total pension expected over the period of retirement beginning on 63rd birthday (lifetime benefit) based on life expectancy at 62nd birthday $16,917 x 20.2 years (adjusted for inflation at 3 percent)		255,220	
Increase (decrease) in lifetime benefit for retirement at age 63 compared with retirement at age 62			6,255

Source: GAO analysis.

Note: Both pension holders in tables 1 and 2 would receive the same annual pension if they retire on their 62nd birthdays. Both would realize an increase in their annual pension income if they worked another year and retired on their 63rd birthday, but the amount of the DC annual pension would increase more. The worker with a DB pension wouldn't receive enough of an increase to compensate for the shorter expected period of retirement.

While a DB pension plan generally does not encourage continued work after a certain age, recent changes in DB pension provisions have created an incentive to remain in the workforce somewhat longer. First, recent IRS regulations permit workers to receive money from their DB plans while still working after they have reached the plan's NRA.[46] These

[46] 72 Fed. Reg. 28604 (May 22, 2007); see also the Pension Protection Act of 2006, Pub. L. No. 109-280, § 905, providing for distributions to employees who have reached age 62 and have not separated from employment.

regulations also include rules restricting a plan's NRA. Those reaching a plan's NRA or age 62 who want to reduce the number of hours they work for a particular employer may be able to do so and at the same time receive prorated pension benefits. As a result, these workers are able to ease out of their jobs while maintaining their previous level of income by combining paycheck and pension.[47] The new provisions are likely to encourage longer careers by formally allowing more flexible work arrangements and the opportunity to gradually transition into retirement rather than make a sudden shift. By comparison, participants in DC plans can often begin receiving their pension at age 59 ½ while continuing to work (if allowed by their plan administrator), so they often face fewer limitations to phased retirement.[48]

Half of Workers Retire Well before Their Full Retirement Age, Although Early Evidence Points to Some Changes Following Recent Implementation of Social Security Policies

About half of those in the HRS study group reported being fully retired by the time they reached age 63, and over the last several years SSA data indicate that nearly half started drawing benefits at age 62 and 1 month, their earliest opportunity to do so.[49] However, there is some evidence that this behavior is starting to change to a limited extent. With the graduated rise in full retirement ages for persons born after 1937, a somewhat smaller proportion of these workers are starting to draw benefits at 62. Others are waiting to draw benefits until the higher full retirement ages that apply to them. Also, since the January 2000 elimination of the earnings test for workers at full retirement age and beyond, labor force participation among such older workers has increased.

[47] Because of the recent changes in the Social Security earnings test, people at or above their full retirement age can also receive full social security benefits together with their paycheck and pensions.

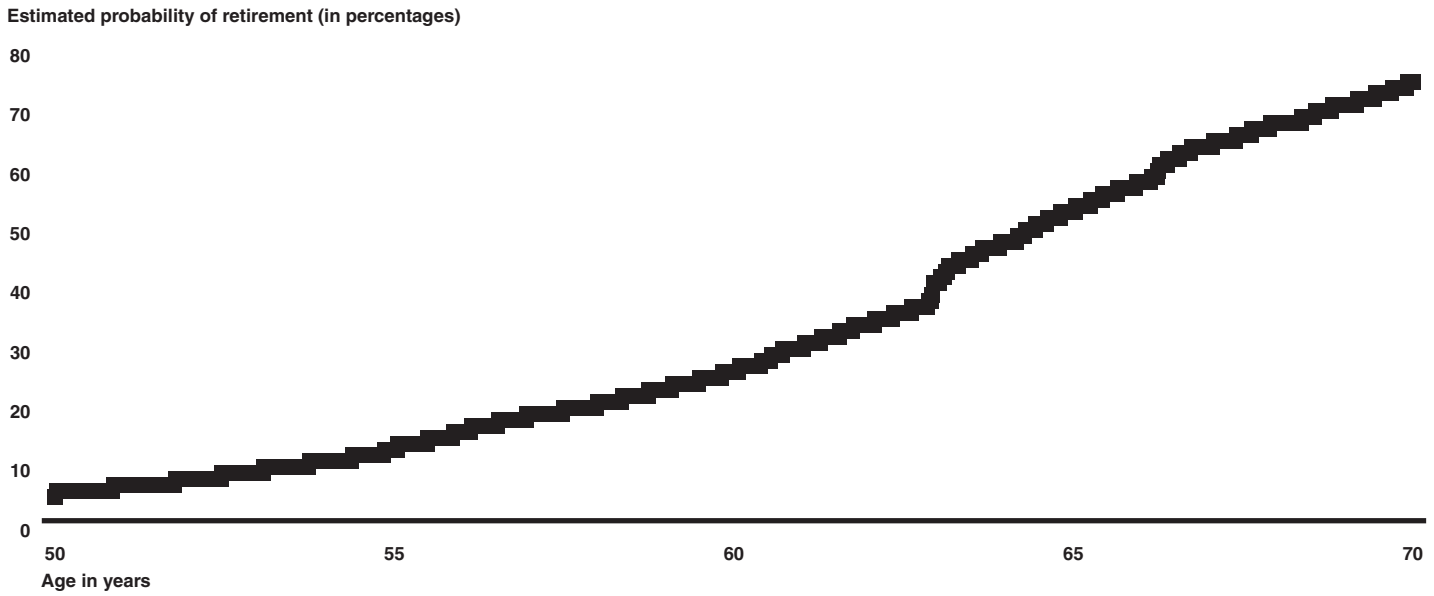
[48] Although tax law generally permits non-hardship in-service distributions from qualified DC plans without tax penalty beginning at age 59 ½, plan administrators have the option to make them available or not. A 2006 survey of plans by the Profit Sharing/401(k) Council of America indicated that a majority of responding plans made them available and nearly three quarters of them did so for participants over age 59 ½.

[49] Eligibility for reduced retired worker benefits begins the first full calendar month in which eligible workers are age 62. Benefits for that month are paid during the following month. If, for example, a worker's 62nd birthday is January 5, his or her first month of eligibility will be February, and he or she will receive the first check in March.

Nearly Half of Workers Fully Retire before Reaching Age 63

Despite Social Security's full retirement age of 65 and later, we found that about half of the workers in the HRS study group reported that they fully retired by age 63. Specifically, an estimated 46 percent of workers born in 1931 through 1941 reported fully retiring before their 63rd birthday, based on our analysis of workers interviewed in the HRS sample.[50] As shown in figure 5 below, we found a pattern of retirement marked by a steady increase in retirements among people in their late 50s until ages 62 and 65, when the numbers increase sharply. For workers in the study group the estimated probability of fully retiring prior to age 60 was 28 percent, and the estimated probability prior to age 65 was 60 percent.

Figure 5: Retirement Pattern among Workers Born from 1931 to 1941



Source: GAO analysis of RAND HRS data.

Note: This analysis is for workers born 1931 through 1941. It excludes outliers among workers born in 1937, 1938, and 1939. Workers born in 1940 or 1941 had not reached age 65 by the end of the study period, so the probabilities at later ages are not shown. Those who reached 65 during the study period were classified as having the following labor force status at that age: 56 percent were fully retired; 15 percent were partially retired; 19 percent were working full time; 5 percent were working part time; 4 percent were not in the labor force; 2 percent were disabled; and 0.4 percent were unemployed.

[50] These descriptive statistics are for HRS respondents born 1931 to 1941 who had worked at least 10 years by the time they reached age 62. Some workers leave retirement and return to the work force.

Social Security Administration data provide similar indications of early retirement patterns. Many workers begin drawing Social Security benefits at age 62. Half the workers born 1935 through 1940 started to draw Social Security benefits before they reached age 62 ½. The most common age was 62 and 1 month—the earliest age at which most workers are eligible. Only about 13 to 17 percent of workers born in these years started to draw benefits at their full retirement age.

In a 2005 study, researchers analyzing the characteristics of workers who began drawing Social Security benefits at age 62 found that many had no earnings or comparatively low earnings in the years before they reached age 62.[51] Among workers in this study born in 1937 (who reached 62 in 1999), for example, 20 percent had no earnings at age 55, and this figure rose to 32 percent at age 61 for men who started drawing Social Security benefits at age 62.[52] The comparable figures for those who started drawing benefits between age 63 and 65 ranged from 11 to 12 percent. It is not clear to what extent these low earners or non-earners had chosen to retire before reaching age 62 or whether they were in the labor force, but not able to find work before reaching age 62. As discussed above, EBRI found that an estimated 37 percent of workers retire sooner than they had expected to. The most often cited reasons were health problems or disability, changes at their company, such as downsizing or closure, or having to care for a spouse or another family member.

Early Evidence Points to Small Changes in the Ages at Which Workers Start Drawing Social Security Benefits

Social Security administrative data for those born between 1935 and 1940 provide evidence of some modest changes in retirement behavior among the first group of workers subject to the increases in the Social Security full retirement age. First, a declining proportion of workers are starting to draw benefits as soon as they are eligible. Whereas 46 or 47 percent of those with a full retirement age of 65 and 0 months (born in 1935 through 1937) started benefits at the earliest opportunity, 45 to 42 percent of those who were subject to an increased full retirement age did so, as shown in

[51] Mark Duggan, Perry Singleton, and Jae Song, "Aching to Retire? The Rise in the Full Retirement Age and Its Impact on the Disability Rolls," *Working Paper #11811* (Cambridge, Mass.: National Bureau of Economic Research, December 2005).

[52] This analysis focused on men; results for women were not provided.

table 3 below.[53] That many workers continue to start drawing benefits at the earliest opportunity may, in part, reflect workers' lack of knowledge about their full retirement age. A 2007 survey indicated that an estimated 56 percent of workers aged 55 and over incorrectly identified or did not know the age at which they can receive unreduced Social Security benefits.[54]

Table 3: Early Evidence That Some Workers Are Delaying the Start of Social Security Retired Worker Benefits

		Percent of workers starting to draw benefits			
Birth year	Full Retirement Age	At the earliest opportunity[a]	At full retirement age[b]	By month before 65th Birthday[c]	By month before 66th Birthday[d]
1935	65 and 0 months	47	17	78	97
1936	65 and 0 months	47	16	79	97
1937	65 and 0 months	46	15	80	96
1938	65 and 2 months	45	13	77	96
1939	65 and 4 months	43	13	73	95
1940	65 and 6 months	42	13	71	95

Source: GAO analysis of SSA data.

Note: Rows for birth years 1938, 1939, and 1940 identify workers subject to a full retirement age after their 65th birthday. The estimated percentage of workers born in 1936 through 1940 who are expected to draw benefits, but had not done so by the end of 2006 was 0, 1, 2, 3, and 5 percent, respectively.

[a]Cumulative percent from 62 and 0 months through 62 and 1 month.

[b]Percent of workers at 65 and 0 months for workers born 1935 through 1937, at 65 and 2 months for those born in 1938; 65 and 4 months for those born in 1939; and 65 and 6 months for those born in 1940.

[c]Cumulative percent from 62 and 0 months through 64 and 11 months.

[d]Cumulative percent from 62 and 0 months through 65 and 11 months.

[53] Generally workers are eligible to draw benefits at age 62 and 1 month. However, workers born on the first or second day of the month are eligible at 62 and 0 months. Recent analysis by Social Security researchers identified similar declines at age 62 following the rise in the full retirement age. Jae G. Song and Joyce Manchester, "Have People Delayed Claiming Retirement Benefits? Responses to Changes in Social Security Rules," Paper prepared for the International Social Security Association Research Conference, March 2007, Warsaw (Washington, D.C.: Social Security Administration, Division of Economic Research: December 2006).

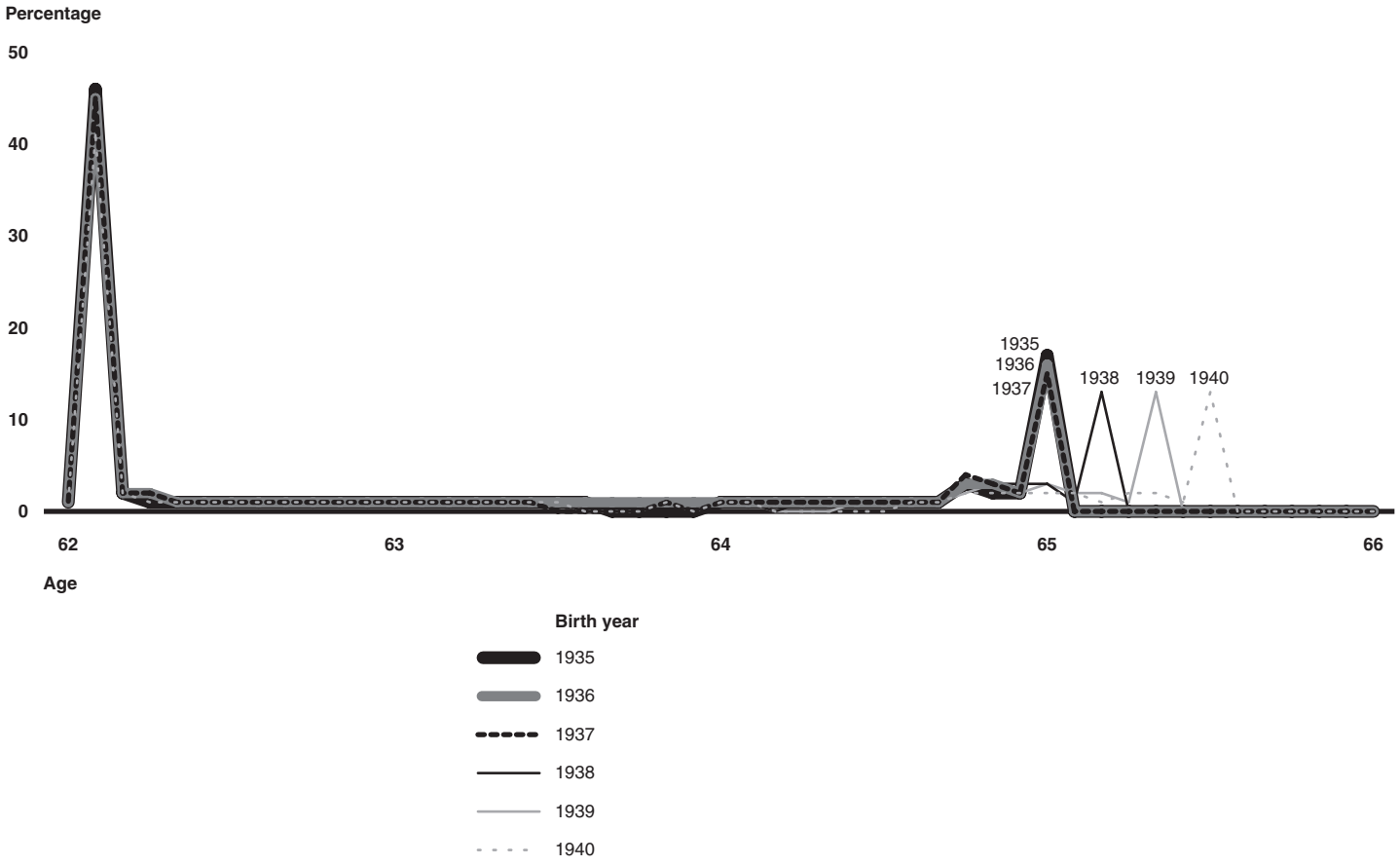
[54] Employee Benefit Research Institute and Mathew Greenwald & Associates, Inc., "2007 Retirement Confidence Survey Fact Sheet: Attitudes About Social Security and Medicare," Employee Benefit Research Institute, April 2007, 2.

Second, along with changes in the proportion of workers drawing Social Security retired worker benefits at the earliest opportunity, we see early indications of changes at workers' full retirement ages. The traditional rise in the proportion of workers beginning to draw benefits at their 65th birthday has largely shifted in concert with the gradual rise in the age required by Social Security for full retired worker benefits.[55] As shown in figure 6 below, some of the workers in successive cohorts who were born after 1937 have waited additional months to start drawing benefits—that is, until their higher full retirement ages.[56]

[55] For people who reached their full retirement age in 2000 or later, the age at which they start drawing benefits may also have been affected by the elimination of the earnings test, as described below.

[56] The estimated proportion of workers taking benefits at the full retirement age has, however, declined somewhat from 17 percent to 13 percent for workers born in 1935 and 1940 respectively.

Figure 6: People Typically Begin Drawing Retired Worker Social Security Benefits at Age 62 or at Full Retirement Age



Source: GAO analysis of SSA data.

Note 1: This graph shows estimates for ages 62 and 0 months through 66 and 0 months. The maximum proportion for ages 66 and 1 month through 70 and over was 1 percent. Although the proportion of workers starting benefits each month after age 62 and 1 month and before age 65 is relatively low, the cumulative percent of workers starting benefits during this period was substantial —ranging from 29 percent for those born in 1940 to 33 percent for those born in 1936 and 1937.

Note 2: These percentages are calculated as the number of workers starting to draw benefits at each age in months divided by the total number of workers born in the same year who have or are expected to eventually draw benefits. These figures for benefits awarded in 1997 through 2006 exclude workers who had previously drawn disability benefits and subsequently begun drawing retired worker benefits. The workers born in 1940 reached age 66 in 2006 and those born in 1935 reached age 71 in 2006.

Following Elimination of the Earnings Test, More Workers Are Remaining in the Labor Force beyond Full Retirement Age

Along with these modest delays in claiming Social Security benefits that are associated with the rising full retirement age, we found that some increases in labor force participation coincided with the elimination of the earnings test in January 2000. Our analysis of all workers in the HRS sample found that the proportion of 66 and 67 year olds who were employed (full-time, part-time, or partially retired) increased between 2000 and 2004 by 4 percentage points.[57] Another researcher's analysis of BLS data found that between 1994 and 2005, the proportion of 65 to 69 year olds in the labor force increased by about 7 percentage points for men and by about 6 percentage points for women. While there may be a variety of reasons for this upward trend, some researchers attribute it to the elimination of the Social Security earnings test. After controlling for other factors associated with retirement, one study concluded that the labor force participation rate among those 65 to 69 increased by 0.8 to 2 percentage points and that earnings for this group increased.[58] The authors hypothesized that this increase resulted from the retention of older workers who were still in the workforce instead of attracting retirees to return to work. This study also found that applications for Social Security benefits among individuals at ages 65 or above increased and that earnings for this group increased as well. A second study also concluded that the elimination of the earnings test had increased labor force participation among older workers, and that there was some indication that participation rates among younger workers increased in anticipation of this policy change.[59] A third study found that men aged 66 to 69 had an increase in annual earnings of $1,326 following the earnings test elimination.[60] This study did not find that labor force participation increased overall, but rather that the hours per week worked by men

[57] The proportion of 66 year-olds in the workforce increased from 34 percent in 2000 to 38 in 2004. The proportion of 67 year-olds increased from 35 to 39 percent. By assessing the proportion of 66 and 67 year-olds in the workforce between 2000 and 2004, we are limiting the number of birth year cohorts we can examine because not all of the birth cohorts had reached these ages between 2000 and 2004. For example, only four and three of the 10 birth cohorts in the HRS had reached the ages of 66 and 67 respectively, in 2000.

[58] Jae G. Song and Joyce Manchester, "New Evidence on Earnings and Benefit Claims Following Changes in the Retirement Earnings Test in 2000," *Journal of Public Economics* vol. 91, nos. 3-4, April 2007.

[59] Leora Friedberg and Anthony Webb, "Persistence in Labor Supply and the Response to the Social Security Earnings Test," *Working Paper 2006-27* (Boston, Mass.: Center for Retirement Research at Boston College, December 2006).

[60] Steven J. Haider and David S. Loughran, "The Effect of the Social Security Earnings Test on Male Labor Supply: New Evidence from Survey and Administrative Data" (Forthcoming, Journal of Human Resources, 2007).

increased. A final study found the effect of the elimination of the earnings test has not only been confined to those above full retirement age. Rather, this change has resulted in men with earnings above the earnings test threshold reporting an increased probability that they will work after full retirement age.[61]

These studies also indicate that relatively more workers in the upper-middle income range have responded to the elimination of the earnings test by continuing to work. Specifically, two studies found that earnings increased for those in the higher income percentiles, but not for those in lower income groups.[62] See appendix III for more information on these studies.

Tax-Favored Private Retiree Health Insurance and Pension Plans May Influence Retirement Patterns

We found employer-provided retiree health insurance and pension plans are strongly associated with when workers retire based on our analysis of retirement behavior using the HRS.[63] We found that workers with access to retiree health insurance were more likely to retire before age 65 than those without it.[64] However, other factors, such as poor health, could become an overriding factor for some of these workers, in terms of their retirement decisions. At the beginning of the study period (1992), those workers who lacked retiree health insurance tended to be those with lower incomes and levels of education.[65] Pension plans also influenced the timing of workers' retirements, though this varied by type of pension plan. Men with DB plans were more likely to retire earlier, whereas both men and women with DC

[61] Pierre-Carl Michaud and Arthur Van Soest, "How did the Elimination of the Earnings Test above the Normal Retirement Age affect Retirement Expectations?" *RAND Working Paper 478* (RAND Corporation, January 2007).

[62] Friedberg and Webb (2006) found an increase among those in the 60th – 80th percentiles. Song and Manchester (2007) found an increase among those in the 50th – 80th percentiles.

[63] To analyze the relative likelihood of retiring we used a subset of HRS workers who were either in the labor force or partially retired at the beginning of the study in 1992. See appendix I for complete description of our sample selection criteria.

[64] For convenience we use the terms "more likely" or "less likely" to refer to adjusted odds ratios above or below 1, respectively. See appendix I for details.

[65] The income measure in our analysis was limited to the respondent's earnings (including wages, salary, and bonuses from employment or self-employment), but not his or her spouse's income. This income measure excludes other types of income such as interest, dividends, and rent.

plans tended to retire later compared to those who did not have these plans.[66]

Workers with Employer-Provided Retiree Health Benefits Have Been More Likely to Retire before 65

Our analysis of retirement behavior suggests that workers who have access to health insurance in retirement are substantially more likely to retire before becoming eligible for Medicare at age 65 than those without such access.[67] Men with retiree health insurance either through their own or their spouse's current or former employer were an estimated 86 percent more likely to retire before they turned 65 than those who were not eligible for benefits in retirement. Women with retiree health insurance were more than twice as likely (139 percent more likely) to retire by this same age. We also found that workers with retiree health insurance were more likely to retire before they became eligible for early Social Security benefits at the age of 62 (109 percent and 76 percent more likely, respectively for men and women). For a complete discussion of our model results, please see appendix II. The population without access to retiree health insurance tended to be those with lower incomes and less education. See Appendix IV for information on the demographic characteristics of people with access to retiree health insurance at the beginning of the study period.

These findings are consistent with a larger body of research indicating a strong link between health insurance availability and retirement decisions. For example, a 2002 study found that having retiree health insurance available increased the likelihood of workers retiring before age 65 by an estimated 15 to 35 percent.[68] According to the 2003 Health Confidence Survey, almost 80 percent of current workers over age 40 consider their

[66] We did not find a statistically significant relationship between DB pensions and women's retirement age.

[67] In the earlier years of the HRS, respondents were asked if they had any type of health insurance coverage obtained through their or their spouses' or partners' employer, former employer or union. If they indicated having such coverage, they were asked whether the health insurance plan was available to people who retire. In later years of the study respondents were asked about whether they had employer-sponsored retiree health insurance until the age of 65.

[68] David M. Linsenmeier, "Do Retiree Health Benefits Cause Early Retirement?" *Working Paper 22* (Princeton, NJ: Princeton University Center for Health and Wellness, November 2002). In this study, the author used the same dataset and birth year cohorts that we are using in our analysis. But he used the first five waves of the data set and respondents were included in the analysis if they were working and had health insurance at the beginning of the study period.

access to health insurance in planning the age at which they expect to retire.[69] That people without access to retiree health insurance are more likely to wait until they are eligible for Medicare to retire may reflect the scarcity of options for affordable health insurance outside of employer-based plans. Particularly for those in poor health, market-based health insurance coverage may be prohibitively costly.

Health problems that limit work lead to earlier retirement for many workers regardless of the availability of retiree health benefits. After controlling for other factors, including whether one had access to retiree health insurance, we found that men who said that their health limited their work were over two times more likely to retire by age 62 and that women were 96 percent more likely to do so. Similarly, men and women reporting these limitations were more likely to retire by age 65 (71 percent and 72 percent, respectively).[70]

Pension Plans May Influence Retirement Timing, but This Effect Differs by Pension Type

We found that men with DB plans generally retired earlier than those without, while both men and women with DC plans generally retired later, based on our analysis of the HRS data.[71] After controlling for other factors, men with DB plans through either their employer or their spouse's employer were 28 percent more likely to retire before age 62.[72] Results for women were not statistically significant. On the other hand, we found that men with DC plans were 47 percent less likely to retire by 62 than those

[69] Employee Benefit Research Institute and Matthew Greenwald Associates Inc., *Health Confidence Survey* (2003).

[70] Our analysis may underestimate the effect of health limitations on early retirement. As detailed in appendix I, the sample used in our regression had a greater proportion of those in better health than the nationally representative sample from which it was drawn.

[71] We studied the type of pension held by either the respondent or the spouse from employment during the study period. Our analysis did not include information about pensions from previous employment. We compared the likelihood of retiring before age 62 for those that had a DB plan with the likelihood for those without a DB plan. Those with a DB plan may have also had a DC plan. Those without a DB plan may have had a DC plan or no pension plan. Similarly, in our analysis of DC plans, we grouped respondents with both DB and DC plans along with those who reported having only a DC plan.

[72] We recognize that some physically demanding jobs, such as firefighters and police officers, often offer DB plans. The final model for men less than 62 also included a variable indicating if the respondent's health limited their ability to work. Our model does not attempt to explain the causality of the retirement decision, but is intended to note associations with the retirement decision, in this case both health limitations and DB plans are associated with the decision to retire, among other factors.

without DC plans.[73] We found a similar effect for women as well; those with DC plans were 37 percent less likely to retire before 62 than those without DC plans. Looking at retirements before or after age 65, we did not find a significant effect of having a DB pension plan. However, we continued to find a diminished likelihood of retiring before age 65 among those with DC plans, with men 35 percent less likely to retire by age 65 and women 45 percent less likely to retire than those without DC plans.

Our finding that men with DB pensions were more likely to retire before age 62 is consistent with a larger body of research that finds that the structure of DB plans can lead to earlier retirements. One study found that the differences in retirement patterns for those with DB or DC pensions were related to the ability of DB plans to subsidize retirements at ages as early as age 55. Some of these pensions allow long-tenured individuals to collect early benefits that are high enough to provide an incentive to retire early.[74] DC plans, on the other hand, are generally neutral with regard to retirement age since DC account balances depend on contributions made by both employers and employees instead of years of service. Another study found that retirement patterns for those with DB plans and those with DC plans began to differ at around age 55. Differences increased at around age 60, when the value of lifetime benefit began decreasing for most workers with DB plans.[75] This same study found that the absence of retirement incentives tied to age in DC plans led people with those plans to retire on average almost two years later than those with DB plans.

Conclusions

The age at which workers retire is important for the sake of their retirement income security, the cost of federal programs for the elderly, federal tax revenue, and the strength of the U.S. economy. In deciding when to retire, workers weigh their personal circumstances, the features of employers' benefit plans as well as the mix of incentives and disincentives posed by federal policies. Some of these policies encourage

[73] DC pensions may not have been as important to the older members of our sample, as 401(k) plans began in the early 1980s. The oldest members of our sample were in their early fifties at this time and did not have much time to accumulate a large balance in such accounts.

[74] Alicia H. Munnell, Kevin E. Cahill, and Natalia A. Jivan, "How has the Shift to 401(K)s Affected the Retirement Age?" *Issue Brief No. 13* (Boston, Mass.: Center for Retirement Research at Boston College, September 2003).

[75] Friedberg and Webb.

earlier retirement; others encourage later retirement; and different groups of workers face differing incentives. While preliminary evidence indicates that some workers subject to full retirement ages after their 65th birthday are drawing Social Security benefits a little later and working more after age 65 than their predecessors, more time is needed to determine whether these changes foretell any substantial shifts. With so many factors influencing workers' decisions about when to retire, changes may be gradual and limited. Moreover, changes made to one program have the potential to create an inconsistent set of incentives. For example, as Social Security's full retirement age rises to age 67, Medicare's eligibility age remains at 65. Medicare's eligibility age may become increasingly important in workers' decisions about when to retire as the availability of employer-sponsored retiree health insurance declines.

In recent years, federal policy makers have considered various options to modify policies in hopes of promoting later retirements and continued work in later years. However, the results of any given policy change continue to be difficult to project given the many countervailing forces at work and workers' sometimes limited understanding of the incentives they face. To date, we see indications of some changes in retirement behavior, but do not yet see large changes. At the same time, trends in employer-provided retirement benefits have clear implications for workers' retirement decisions. Our results suggest that with declining access to retiree health insurance and DB pension plans, those individuals who can, may indeed choose to work longer. This trend suggests the need for federal initiatives to help support workers who make that choice. These may include policies that encourage employers to hire or retain older workers and provide them with flexible options for continued work. In addition, there will be a continued need for federal policies to ensure that workers are informed about the advantages of continued work, as well as to protect and support those who, due to poor health or disability, are unable to work at older ages.

Given the increased pressures that demographic shifts will place on entitlement programs, the mix of incentives offered by programs such as Social Security and Medicare, as well as pension law, becomes more questionable. Ultimately, it will be important for policy makers to understand the incentive structures that their policies create, and to coordinate their decisions to allow for individual flexibility, but send signals that consistently encourage those who are able to continue working to do so.

Matter for Congressional Consideration

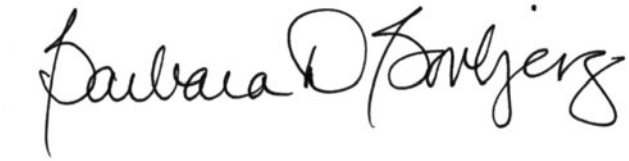
Accordingly, in light of the range of challenges facing the country in the 21st century, Congress may wish to consider changes to laws, programs, and policies that support retirement security, including retirement ages, in order to provide a set of signals that work in tandem to encourage work at older ages.

Agency Comments

We provided a draft of this report to the Social Security Administration and the departments of Labor, Health and Human Services, and the Treasury. The Department of Health and Human Services commented on the report, generally agreeing with our findings on the incentives posed by Medicare and retiree health insurance. (See appen. V.) In addition, SSA, and the departments of Labor and the Treasury provided technical comments, which we incorporated where appropriate.

We are sending copies of this report to the Commissioner of Social Security, the Secretary of the Treasury, the Secretary of Labor, and the Secretary of Health and Human Services. We will also make copies available to others on request. In addition, the report will be available at no charge on GAO's Web site at http://www.gao.gov/.

If you or your staff have any questions about this report, please contact me at (202) 512-7215 or bovbjergb@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made major contributions to this report are listed in appendix VI.



Barbara D. Bovbjerg, Director
Education, Workforce, and Income Security Issues

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The Honorable Michael R. McNulty
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Appendix I: Objectives, Scope, and Methodology

Our objectives were to 1) identify incentives federal policies provide about when to retire; (2) determine recent retirement patterns and whether there is evidence that recent changes in Social Security requirements have resulted in later retirements; and 3) determine if there is evidence that tax-favored private retiree health insurance and pension benefits influence when people retire.

To answer our first objective, we reviewed the relevant literature and interviewed agency officials to identify which federal policies may influence the age at which workers retire.

To answer our second objective, we analyzed data from the Social Security administration and reviewed studies of the effects of changes in SSA rules. We used the SSA data to look at when workers, who were between the ages of 66 to 71 in 2006, chose to start Social Security retired worker benefits. While these data allowed us to examine patterns in men's and women's claiming of Social Security benefits, they did not contain any other personal information that would allow us to control for differences between workers. Therefore, we were able to use these data for descriptive purposes only. We analyzed these data and found them to be reliable for our purposes.

To answer the third objective, we first analyzed data from the Health and Retirement Study (HRS), a national, longitudinal survey of older Americans produced by the University of Michigan.[1] In particular, we used a data set that the RAND Corporation compiled on the HRS, which is a more user-friendly subset of the HRS. This rich data set contains information on retirement timing and a wide variety of associated factors, such as demographic characteristics, income, assets, health, health care insurance, workforce status, pensions, and retirement expectations. In addition, it tracks respondents over time, allowing us to look at the initial HRS cohort (those born from 1931 to 1941) over a 12 year period from 1992 to 2004.[2] We conducted both bivariate and multivariate analyses to determine what factors were associated with workers' decisions about

[1] The HRS is sponsored by the National Institute of Aging (grant number NIA U01AG009740) and is conducted by the University of Michigan.

[2] There are five cohorts in the HRS: the AHEAD cohort, those born before 1924; the Children of the Depression cohort, those born 1924-1930; the original HRS cohort born between 1931 and 1941, the War Baby cohort, those born between 1942-1947; and the Early Baby Boomer Cohort, those born 1948-1953. The original HRS cohort respondents entered the study in 1992 and are interviewed every 2 years.

when to retire, with special attention to Social Security, health care, and pension availability. See appendix II for a full description of these analyses. We analyzed this dataset and found it to be reliable for our purposes.

We conducted our work between July 2006 and June 2007 in accordance with generally accepted government auditing standards.

This appendix is organized into three sections to more fully describe the methods we used to analyze our data, with particular focus on our analysis of the RAND HRS data: Section 1 describes the definitions of retirement used in this analysis. Section 2 describes how we selected our different samples for analysis. Section 3 describes limitations to our analysis.

Retirement Definitions

As other researchers have done, we used different definitions for retirement in different parts of our analysis. In particular, we considered workers to be retired based on one of four different definitions, which are explained in table 4 below:

Table 4: Definitions of Retirement

	Source of data	Definition
Reported retirement	HRS	The respondent reports being either completely or partly retired to the question "At this time do you consider yourself completely retired, partly retired, or not retired at all."
Full retirement[a]	HRS	To be considered fully retired, a respondent must report not working for pay at all, and report being retired in response to the question above or another question concerning retirement and employment status.
Partial retirement[a]	HRS	The respondent reports working between 1 and 35 hours per week or less than 36 weeks per year, and reports being retired in response to either of the questions referred to above.
Social Security retirement	SSA administrative data	The worker has started drawing Social Security retired worker benefits, excluding people who earlier drew disabled worker benefits and automatically converted to retired worker benefits.

Source: HRS and SSA.

[a]A respondent is considered fully or partially retired based on a labor force status variable that the RAND Corporation constructs using several questions in the HRS. If a respondent reports working full-time he or she is classified as working full-time rather than retired, whether or not he or she also reports being retired.

We conducted our multivariate analysis based on two of these retirement definitions. Since our focus in this study is on when people decided to fully withdrawal from the labor force, our primary analysis was of those

who had fully retired. We also ran an analysis on those who had fully or partially retired and received similar results. For our analysis of the claiming of Social Security benefits, we used the definition of Social Security retirement. Finally, for some of our descriptive results of those who said they retired prior to the beginning of the HRS, we used our definition of reported retirement.

Sample Selection

Just as we used different definitions of retirement, we also chose different samples of workers. Since our goal in analyzing the HRS data was to model retirement behavior, we sought to look at individuals who had a chance to retire; in other words, they had reached traditional ages of retirement. Therefore, we focused our analysis on those in the HRS cohort who were born between 1931 and 1941. These individuals were between the ages of 63 and 73 in 2004, when the most recent data for the HRS were collected. Second, we chose individuals who had been in the labor force for at least 10 years so that they could qualify for Social Security retired worker benefits based on their own work history. To calculate certain descriptive statistics, we just applied the above two criteria to create a worker sample. For our regression analyses, we added the stipulation that a respondent was in the workforce in 1992 when the HRS began.[3] Applying these criteria excludes respondents who had retired, were out of the labor force (such as homemakers), or those who were not working due to disability in 1992.[4] This allowed us to model the act of retiring from the labor force. In addition, we were not able to observe the behavior of those who retired outside of the 1992 to 2004 study period. See table 5 below for the criteria we used to construct these samples.

[3] Respondents in the workforce in 1992 were those who worked full-time, worked part-time or were unemployed (not working, but seeking work). In addition for our analysis of full retirement we included respondents classified as partially retired.

[4] We excluded these groups in part in order to be able to analyze the timing of workers' retirements in relation to their pre-retirement characteristics.

Table 5: Selection of Samples for Analysis of Health and Retirement Study Respondents

Sample	Criteria applied	Respondents dropped	Unweighted number of respondents remaining
RAND HRS Sample[a]			12,652
Health and Retirement Study Worker Sample	Respondents born 1931 through 1941	2,903	9,749
	Had 10 years of work experience prior to age 62[b]	1,133	8,616
Sample for Logistic Regression Analysis of Full Retirement	Respondents born 1931 through 1941		9,749
	Had ten years of work experience by age 62[b]	1,133	8,616
	In labor force in 1992 (working full time, working part time, unemployed, or partially retired in wave 1)[c]	1,834	6,782[d]

Source: GAO Analysis of RAND HRS data.

Note: This table includes only respondents with a positive respondent statistical weight. The respondent level weight is non-zero for living noninstitutionalized respondents born in the appropriate years. It is zero for nonrespondents, deceased respondents and respondents residing in nursing homes. It is scaled so as to yield weight sums which correspond to the number of individuals in the U.S. population as measured by the March Current Population Survey (CPS) for the year of data collection.

[a]RAND HRS file release F, October 2006. See Patricia St. Clair et al., RAND HRS Data Documentation, Version F (Santa Monica, Calif.: May 2006).

[b]Based on responses to question concerning work history and job tenure in any HRS study wave 1992 through 2004.

[c]Based on RAND's construction of a labor force status variable, RxLBRF. RAND assigned respondents to these categories: works full-time, works part-time, unemployed, partly retired, retired, disabled, or not in the labor force.

[d]The number of respondents studied who fully retired is greater than the number who partially or fully retired, because 313 respondents who were partially retired in wave one were excluded from our analysis of full or partial retirement but included in our analysis of full retirement.

Although the HRS cohort is a nationally representative sample of those born from 1931 to 1941, the samples that we constructed may not be.[5] In comparing some of the descriptive statistics of our samples with those from the larger HRS sample, there are differences, as shown in table 6 below. In particular, the sample used to analyze full retirement decisions had a greater proportion of those in better health, those with access to

[5] The HRS is a sample of the non institutionalized (community-based) population in the contiguous United States.

retiree health insurance, and higher income than either the HRS cohort or the worker sample.

Table 6: Descriptive Statistics for Our Different Samples

Weighted Demographics as of wave 1 (1992)	HRS cohort individuals born 1931 – 1941	Worker sample	Full retirement sample
Percent male	48%	52%	55%
Percent married	74%	75%	75%
Percent white non-Hispanic	81%	82%	83%
Percent with high school education or more	77%	80%	82%
Percent who have access to retiree health insurance through respondent's or spouse's current employer	52%	54%	55%
Percent who have DB plan from respondent's or spouse's current employer[a]	45%	47%	53%
Percent who have good, very good, or excellent health	80%	82%	88%
Annual earned income in 2003 dollars[b]			
Percent less than $10,000	38%	31%	18%
Percent $10,000 or more, but less than $25,000	18%	20%	23%
Percent $25,000 or more, but less than $50,000	25%	28%	33%
Percent $50,000 or more	19%	21%	26%

Source: GAO analysis of RAND HRS data.

[a]Those with a DB plan may have also had a DC plan. Those without a DB plan may have had a DC plan or no pension plan. Similarly, in our analysis of DC plans, we grouped respondents with both DB and DC plans along with those reported having only a DC plan.

[b]This includes the respondent's earnings (including wages, salary, and bonuses from employment or self-employment), but not their spouse's income. It excludes other types of income, such as interest, dividends, and rent.

Limitations

We identified factors associated with the decision about when to retire rather than the causes of that decision. Our analysis of the factors associated with retirement timing is limited to the definition of retirement that we used; others may have different definitions of retirement. Some people working part-time consider themselves retired; others do not. In addition, we cannot generalize our findings beyond the group of workers included in our sample. Our findings do not necessarily apply to younger groups of workers, who may not behave in the same way or face the same constraints. As mentioned earlier, our sub-sample of workers from the

larger HRS sample cohort is not entirely representative of the larger US population. In addition, we were unable to observe the retirement behavior of those who retired before and after the study period. Finally, due to limitations in the data and the methods that we used, we did not include in our analysis some variables identified during our research that could potentially affect workers' retirement timing. For example, the RAND HRS includes information on a respondent's pension from a current job, but not prior jobs. Our analysis did not include measures of wealth or income other than earnings. Also, we did not analyze lump sum payments from pensions, which could influence retirement decisions. In addition, the RAND HRS data rely heavily on people's knowledge of their finances, work history, pension options, et cetera. Studies show that workers are sometimes misinformed about the details of their pension benefits or the age at which they are eligible for full Social Security benefits.[6]

[6] While the larger HRS data set does have links to restricted SSA earnings data and some pension information from employers, we were not able to utilize these sources of information.

Appendix II: Logistic Regression Analysis of Factors Associated with Workers' Retirement Timing

This appendix describes the results of two separate analyses we did to determine what factors were associated with whether or not men and women retired 1) before or after age 62, and 2) before or after age 65. We conducted both of these analyses separately for men and women due to sizable gender differences in labor force participation and because data published by the census suggested that the factors that affected retirement decisions may be different for the two groups.[1] The data we used in our analyses were from the HRS cohort of men and women who were born from 1931 to 1941 and thus were between the ages of 63 to 73 in 2004, which was the last year for which we had data. We restricted our attention to workers who had been in the labor force for at least 10 years prior to age 62. In our analysis of whether workers retired before age 62, we limited the analysis to those who had reached age 62 at some point in the study period. Similarly, in our analysis of whether workers retired before age 65, we limited the analysis to those who had reached age 65 at some point in the study period, and we eliminated workers who, based on their birth year, could not reach age 65 by 2004. In addition, we excluded those individuals who were not part of the labor force in the first wave of data collection (1992); see comparison of samples in appendix I.

The HRS dataset is a longitudinal dataset, meaning there are multiple observations per respondent. Respondents were interviewed every 2 years. Each observation is called a wave. In our data set there were seven waves of data (1992 to 2004). For our analysis we limited the data set to one observation per respondent. We selected the observation by taking the first wave the respondent was noted as retiring in the age specific analysis (62 and 65). If the respondent did not retire in that time frame, we selected the wave closest to when the participant was age 62 or 65. For each observation we calculated an age of retirement if the respondent noted that he or she retired. For example, if the respondent noted retiring in wave five and reported a retirement date that fell between waves four and five, we used the reported retirement date as the age of retirement and used wave 4 responses in our analysis. However, if the respondent did not report a retirement date or if the retirement date did not fall between two previous waves of data collection and the current wave, then we imputed the retirement date using the midpoint between the waves. For example, if a respondent noted retiring in wave six but did not report a retirement date and had data for wave five we imputed their age of retirement as the

[1] Wan He, Victoria Velkoff, and Kimberly DeBarros, *65+ in the U.S.: 2005* , *Current Population Reports*, *P23-209* (Washington, D.C.: U.S. Census Bureau, December 2005).

midpoint between wave five and six. For those respondents who did not retire by the specified age used in our analyses (by age 62 or by age 65), we used their age at the end of the interview to select the observation closest to that specified age.

These restrictions meant we had samples of 2,840 men and 2,519 women in our analyses of whether retirement occurred by age 62, and 1,978 men and 1,779 women in our analyses of whether retirement occurred by 65. It should be noted that the sample sizes represent unweighted samples. Our samples differed slightly from the overall HRS sample (see appendix 1 for comparison). The data are from a complex sample, and all analyses were performed using statistical weights and adjusting the standard errors for the sample design. Only respondents with statistical weights greater than zero were included in the analyses (based on HRS documentation for statistical weights). The (weighted) percentages reported in some of the tables of this appendix do not exactly match what would be derived from the (unweighted) numbers reported.

The factors or independent variables we considered in the two sets of analyses are shown in table 7, along with the unweighted numbers and weighted percentages of men and women in each category of those factors. These factors included selected demographic characteristics, including occupation, race/ethnicity, education, marital status, age difference with spouse, income (specifically earnings), work tenure, and birth year. Occupation was divided into three categories: white collar, services, and blue collar. White collar included managerial, professional, sales, clerical, and administrative support occupations. Services included cleaning business services, protection, food preparation, health services, and personal services. Blue collar included farming, forestry, fishing, mechanics and repair, construction and extraction, precision production, operators, and members of the armed forces. We based these categories on a previous GAO report that utilized the HRS data.[2] The income variable—the respondent's earned income—was adjusted for inflation using CPI values to make all dollars comparable to 2003 dollars.[3] The factors also included a general measure of health status, an indicator of whether health limited the ability to work, and measures indicating

[2] GAO-06-80, 41-43.

[3] This includes the respondent's earnings (including wages, salary, and bonuses from employment or self-employment), but not their spouse's income. It excludes other types of income such as interest, dividends, and rent.

whether the workers in our sample had any health insurance. In addition, we considered whether the spouse or respondent had retiree health insurance, a DB plan, and a DC plan. For many of our variables, we lagged them to the prior wave to capture workers' preretirement characteristics. For example, if the respondent is noted as retiring in wave 4, the income variable from wave 3 was used in the regression. If the prior wave was missing, that respondent was not included in the analysis. For all of the lagged variables the data collected from 2 years prior was used in the analysis (the HRS respondents were interviewed every two years). Table 7 also shows the numbers and percentages of men and women who had and had not retired by ages 62 and 65. An estimated 25 percent of the men and 28 percent of the women in our sample had retired by age 62, and of those who had reached age 65 by 2004, an estimated 48 percent of the men and 53 percent of the women had retired. The following results are based on our full retirement definition (see appendix I for definition of full retirement).

Table 7: Numbers and Percentages of Men and Women in Different Categories of the Variables Used in Analyses of Full Retirement Timing

	N (and weighted percentage)			
	For full retirement before age 62		For full retirement before age 65	
	Male (N=2840)	Female (N=2519)	Male (N=1978)	Female (N=1779)
Retirement decision				
Retired	700 (24.6)	726 (28.1)	990 (48.3)	967 (52.7)
Not retired	2140 (75.4)	1793 (72.0)	988 (51.7)	812 (47.3)
Demographic characteristics				
Previous wave occupation				
White collar	1283 (50.2)	1630 (70.3)	918 (51.5)	1129 (69.2)
Services	171 (5.8)	500 (17.6)	109 (5.1)	361 (18.0)
Blue collar	1277 (44.1)	334 (12.1)	882 (43.4)	250 (12.8)
Race/ ethnicity				
White/ non-Hispanic	2213 (84.5)	1844 (82.2)	1559 (85.3)	1321 (83.2)
Black/ non- Hispanic	349 (7.7)	466 (10.6)	241 (7.6)	316 (10.2)
Hispanic/ other	278 (7.8)	209 (7.2)	178 (7.1)	142 (6.6)

	N (and weighted percentage)			
	For full retirement before age 62		For full retirement before age 65	
	Male (N=2840)	Female (N=2519)	Male (N=1978)	Female (N=1779)
Education				
<HS	629 (19.4)	482 (16.5)	446 (19.4)	361 (17.0)
HS/GED	966 (33.5)	1034 (41.4)	680 (34.1)	739 (42.2)
Some college	573 (21.3)	554 (22.6)	373 (20.0)	372 (21.8)
College+	672 (25.9)	449 (19.5)	479 (26.6)	307 (19.0)
Previous wave marital status				
Married	2367 (82.0)	1542 (62.7)	1653 (82.6)	1085 (62.3)
Not married	472 (18.0)	975 (37.3)	321 (17.4)	691 (37.7)
Previous wave spousal age difference				
No spouse/ no diff up to 5 yr	2099 (72.7)	2137 (83.3)	1451 (72.2)	1506 (83.8)
Spouse <5 yr Resp	685 (24.8)	72 (3.3)	491 (25.3)	49 (3.1)
Spouse >5yr Resp	56 (2.5)	310 (13.4)	36 (2.5)	224 (13.1)
Previous wave income categories[a]				
0-<10,000	666 (23.3)	753 (29.5)	594 (30.0)	622 (34.3)
10,000-<25,000	418 (13.6)	752 (29.4)	301 (13.7)	511 (28.1)
25,000-<50,000	871 (29.4)	734 (29.0)	535 (26.4)	476 (27.0)
>=50,000	885 (33.7)	280 (12.1)	548 (30.0)	170 (10.6)
Tenure at current job in previous wave-categories				
0-<5	670 (25.7)	557 (25.7)	465 (26.0)	377 (24.4)
5-<15	690 (26.2)	761 (34.8)	463 (25.3)	530 (34.8)
15-<25	467 (16.9)	547 (24.0)	315 (17.0)	400 (24.3)
>=25	808 (31.2)	385 (15.5)	576 (31.8)	286 (16.5)

	N (and weighted percentage)			
	For full retirement before age 62		For full retirement before age 65	
	Male (N=2840)	Female (N=2519)	Male (N=1978)	Female (N=1779)
Birth year categories				
1931, 1932	481 (16.6)	395 (15.5)	443 (21.9)	363 (20.7)
1933, 1934	487 (16.1)	436 (16.8)	434 (21.0)	415 (22.8)
1935, 1936	524 (17.8)	446 (17.2)	474 (24.1)	411 (22.8)
1937	255 (9.2)	243 (9.8)	241 (12.7)	233 (13.6)
1938, 1939	549 (20.0)	481 (19.0)	386 (20.4)	357 (20.1)
1940, 1941	544 (20.3)	518 (21.8)	n/a	n/a
Health related				
Health status previous wave				
Excellent/ very good/ good	2343 (84.0)	2100 (85.3)	1634 (84.2)	1474 (84.6)
Fair/ poor	496 (16.0)	419 (14.7)	344 (15.8)	305 (15.4)
Previous wave: health limits work				
No	2437 (86.2)	2134 (85.7)	1697 (86.3)	1501 (85.2)
Yes	396 (13.8)	371 (14.3)	273 (13.7)	267 (14.8)
Previous wave: health insurance				
No	643 (21.7)	620 (23.1)	496 (23.8)	501 (26.5)
Yes	2197 (78.4)	1899 (76.9)	1482 (76.2)	1278 (73.5)
Previous wave: retiree health insurance R or S[b]				
No	1405 (49.6)	1343 (53.0)	964 (48.2)	993 (55.3)
Yes	1435 (50.5)	1176 (47.0)	1014 (51.8)	786 (44.7)

	N (and weighted percentage)			
	For full retirement before age 62		For full retirement before age 65	
	Male (N=2840)	Female (N=2519)	Male (N=1978)	Female (N=1779)
Pension related				
Prior wave DB pension type of R or S[b]				
No DB	960 (36.0)	771 (35.4)	657 (35.5)	554 (36.3)
DB pension	1646 (64.0)	1393 (64.6)	1174 (64.6)	967 (63.7)
Prior wave DC pension type of R or S[b]				
No DC	1012 (36.6)	837 (37.3)	700 (36.0)	587 (36.9)
DC pension	1624 (63.4)	1327 (62.7)	1131 (64.0)	934 (63.1)

Source: GAO analysis of RAND HRS data.

[a] Respondent's earned income adjusted for inflation

[b] R= respondent; S= Spouse. The RAND HRS data provided information about DC and DB pensions from current employment during the 1992 through 2004 study period. It did not provide data concerning any pensions from respondents' or spouses' previous employers.

We used bivariate (one variable) and multivariate (multiple variables) logistic regression models to estimate the likelihood of men and women being retired, first at age 62 and then at age 65. Logistic regression is a widely accepted method of analyzing dichotomous outcomes—variables with two values such as retired or not—when the interest is in determining the effects of multiple factors that may be related to one another. While it is somewhat more common to consider how different categories of workers differ in their likelihoods of being retired by calculating and comparing differences in the percentages of retired and non-retired workers across categories, the use of these models in our analysis requires us to express differences in the likelihoods of being retired using odds ratios. An "odds ratio" is generally defined as the ratio of the odds of an event occurring in one group compared to the odds of it occurring in another group—the reference group. While odds and odds ratios are somewhat less familiar than percentages and percentage differences, they have certain advantages, and can be readily derived from the underlying percentages or from the numbers from which those percentages were calculated. Moreover, odds ratios are amenable to a reasonably simple interpretation, as we show in Table 8. In addition, unadjusted and adjusted odds ratios are the parameters that underlie our logistic regression models.

Table 8 shows the numbers and percentages of men who were retired by age 62, first across marital status categories, and then across categories defined by race/ethnicity. Typically we would compare groups by contrasting the percentages of retired or not retired individuals in each group and noting, in this case for example, that the percentage of individuals retired by age 62 is greater among unmarried men (30.1 percent) than married men (23.3 percent), and lower for Hispanic men (17.4 percent) than for Black men (25.4 percent) and white men (25.1 percent). Alternatively, we can calculate the odds on retiring for each group by simply taking the percentage who retired in each group and dividing it by the percentage who had not retired. The odds on retiring were 30.1/69.9 = 0.43 for unmarried men, and 23.3/76.7 = 0.30 for married men. Making similar calculations, the odds were virtually identical for white men and Black men (0.34, apart from rounding) but lower for Hispanic men (0.21). We can compare groups directly by taking the ratios of these odds, given in the "Odds Ratios" column in table 8. As can be seen, the odds on retiring were higher for unmarried men than for married men, by a factor of 0.431/0.304 = 1.42. To compare race/ethnicity categories, we choose (arbitrarily) one group (white men in this case) as the reference category, make similar calculation by taking the ratios of the odds for the other two groups to the odds for white men, and find that Black men have odds on retiring that are only slightly different than white men (higher by a factor of 1.02), while Hispanic men are less likely than white men to retire, by a factor of 0.63.

Table 8: Full Retirement Status at Age 62, by Marital Status and Race/Ethnicity, among Men

		Full retirement status at age 62		Odds on retired	Odds ratios
		Fully retired	Not fully retired		
Married	N	561	1806		
	%	23.3	76.7	0.30	reference
Unmarried	N	138	334		
	%	30.1	69.9	0.43	1.42
Total	**N**	**699**	**2140**		
	%	**24.6**	**75.5**		
White	N	557	1656		
	%	25.1	74.9	0.34	reference
Black	N	95	254		
	%	25.4	74.6	0.34	1.02
Hispanic	N	48	230		
	%	17.4	82.6	0.21	0.63
Total	**N**	**700**	**2140**		
	%	**24.6**	**75.4**		

Source: GAO analysis of RAND HRS data.

Table 9 shows the gross effects of each of the factors we considered on the odds on men and women retiring before age 62 (in the first two columns) and before age 65 (in the last two columns). By gross effects, we mean the effects of each factor estimated from bivariate regressions, or regressions that ignore or fail to take account of the effects of other factors which may be related to retirement. Table 10, by contrast, shows the adjusted effects of the factors that we found to be significantly related to retiring at age 62 or age 65 after adjusting for other factors.

In developing our multivariate models, we controlled for income in the previous wave, birth year categories, DB, and DC pension plans in the previous wave, and retiree health insurance in the previous wave even if the overall p-value for these variables is not statistically significant. We adjusted for income in the previous wave because it is a very strong demographic characteristic, and we adjusted for birth year to account for any possible cohort effect in the HRS data. Similarly, we adjusted for pension type (both DB and DC) and retiree health insurance because we are interested in assessing the impact of these policy variables on a respondent's decision to retire.

In order to assess factors associated with the retirement decisions at specific ages in a multivariate setting, we wanted the most parsimonious model without adding additional noise by factors that were not statistically significant. To do this we iteratively fit a model by first adjusting for all of the variables of interest (see Table 9). After keeping in the five variables mentioned above (income, birth year, and DB and DC pension, and retiree health insurance) we then selected the variables that were statistically significant (p-value <0.05) one at a time. Then after the reduced model was fit we re-entered the variables that we excluded to see if any became statistically significant in the presence of the variables from the reduced model. The results from the multivariate models retain the statistically significant associations (p-value <0.05) and exclude those that reflected insignificant effects, or difference in the sample that could reasonably be assumed to be due to chance or random fluctuations. Some factors that were correlated with other variables and were statistically significant in the bivariate analysis were not statistically significant in the final multivariate model when we adjusted for these other factors. We assessed our final model for goodness of fit using the Hosmer Lemeshow goodness of fit statistic, which tests the hypothesis that the data fit the specified model. All our multivariate models fit the data appropriately (p-values for model fit >0.05). We provide the gross or unadjusted effects in table 9 in order to show what effect each factor has when other factors with which they are associated are ignored, or left uncontrolled. By gross effects, we mean the effects of each factor estimated from bivariate regressions, or regressions which ignore or fail to take account of the effects of other factors which may be related to retirement. We focus our discussion here however, as well as in the body of the report, on the adjusted odds ratios from the multivariate models, shown in table 10. The results in the table 10 only reflect the statistically significant adjusted odds ratios. However, all models include income, birth year, retiree health insurance, and DB and DC pension plans. In addition, some of the factors in the multivariate models have missing data; therefore, the overall sample size from the multivariate models differs from the sample size noted in table 9. We have assumed that the missing values are missing at random.

The HRS is based on a probability sample and therefore the estimates are subject to sampling error. The HRS sample is only one of a large number of samples that could have been drawn of this population. Since each sample could have provided different estimates, we express our confidence in the precision of the analysis results as 95 percent confidence intervals. These are intervals that would contain the actual population values for 95 percent of the samples that could have been drawn. As a

result, we are 95 percent confident that each of the confidence intervals in this report will include the true values in the study populations.

All multivariate models were run using an alternative definition that included partial and full retirement (see appendix I for definitions). Results from these multivariate models were similar to the results presented here. (Data not shown.)

Table 9: Odds Ratios and 95 Percent Confidence Intervals Indicating the Gross (Bivariate) Associations between Various Factors and Full Retirement before Age 62 and Age 65, for Men and Women

	Odds ratios (and 95 percent confidence intervals)			
	For full retirement before age 62		For full retirement before age 65	
	Male (N=2840)	Female (N=2519)	Male (N=1978)	Female (N=1779)
Demographic characteristics				
Previous wave occupation			*	
White collar	1(1-1)	1(1-1)	1(1-1)	1(1-1)
Services	1.47(0.98-2.21)	0.87(0.67-1.13)	1.27(0.81-1.99)	0.92(0.73-1.16)
Blue collar	1.11(0.92-1.33)	1.15(0.94-1.39)	1.76(1.43-2.16)	1.37(0.98-1.9)
Race/ ethnicity		*	*	
White/ non-Hispanic	1(1-1)	1(1-1)	1(1-1)	1(1-1)
Black/ non- Hispanic	1.02(0.75-1.39)	0.95(0.74-1.23)	1.22(0.87-1.71)	1.09(0.82-1.43)
Hispanic/ other	0.63(0.4-0.97)	0.58(0.4-0.85)	1.02(0.77-1.35)	0.95(0.68-1.34)
Education	*		*	
<HS	1(1-1)	1(1-1)	1(1-1)	1(1-1)
HS/GED	1.23(0.95-1.6)	0.93(0.7-1.24)	0.93(0.7-1.24)	0.86(0.67-1.09)
Some college	0.91(0.66-1.25)	0.82(0.63-1.07)	0.71(0.53-0.95)	0.72(0.51-1.02)
College+	0.98(0.73-1.32)	0.88(0.61-1.28)	0.48(0.35-0.64)	0.77(0.54-1.1)
Previous wave marital status	*	*	*	*
Married	1(1-1)	1(1-1)	1(1-1)	1(1-1)
Not married	1.42(1.14-1.76)	0.63(0.5-0.79)	1.36(1.08-1.72)	0.6(0.47-0.76)
Previous wave spousal age difference				*
No spouse/ no diff up to 5 yr	1(1-1)	1(1-1)	1(1-1)	1(1-1)
Spouse <5 yr Resp	0.89(0.71-1.12)	0.96(0.54-1.74)	0.82(0.67-1)	0.79(0.44-1.45)
Spouse >5yr Resp	0.5(0.22-1.14)	1.26(0.93-1.71)	1(0.37-2.72)	1.62(1.2-2.18)

	Odds ratios (and 95 percent confidence intervals)			
	For full retirement before age 62		For full retirement before age 65	
	Male (N=2840)	Female (N=2519)	Male (N=1978)	Female (N=1779)
Previous wave Income categories[b]	**	*	*	**
0-<10,000	1(1-1)	1(1-1)	1(1-1)	1(1-1)
10,000-<25,000	0.94(0.69-1.28)	0.65(0.48-0.87)	1.57(1.16-2.13)	1.05(0.83-1.32)
25,000-<50,000	0.88(0.69-1.12)	0.73(0.57-0.95)	1.96(1.57-2.46)	1.47(1.1-1.97)
>=50,000	1.2(0.92-1.58)	0.81(0.6-1.09)	2.08(1.68-2.57)	1.23(0.91-1.66)
Tenure at current job in previous wave-categories	*	*	*	**
0-<5	1(1-1)	1(1-1)	1(1-1)	1(1-1)
5-<15	0.63(0.46-0.86)	0.9(0.7-1.15)	0.98(0.76-1.28)	0.94(0.68-1.31)
15-<25	1.26(0.93-1.7)	1.2(0.9-1.61)	1.39(0.97-1.98)	1.36(1-1.86)
>=25	1.63(1.25-2.13)	1.51(1.11-2.06)	1.81(1.37-2.39)	1.35(0.96-1.89)
Birth year categories	*	*		
1931, 1932	1(1-1)	1(1-1)	1(1-1)	1(1-1)
1933, 1934	2.16(1.5-3.1)	2.05(1.31-3.21)	1.2(0.84-1.71)	1.18(0.84-1.67)
1935, 1936	2.88(1.91-4.34)	2.13(1.41-3.22)	0.99(0.68-1.45)	1.06(0.75-1.49)
1937	2.48(1.48-4.16)	2.75(1.53-4.94)	0.9(0.6-1.37)	1.18(0.73-1.91)
1938, 1939	4.47(3.15-6.35)	2.83(1.75-4.58)	1.39(0.99-1.94)	1.16(0.77-1.76)
1940, 1941	4.2(2.91-6.06)	3.19(2.1-4.85)	n/a[a]	n/a
Health related				
Health status previous wave	*	*	*	*
excellent/ very good/ good	1(1-1)	1(1-1)	1(1-1)	1(1-1)
fair/ poor	1.67(1.33-2.11)	1.76(1.44-2.15)	1.67(1.27-2.21)	1.65(1.27-2.13)
Previous wave: health limits work	*	*	*	*
no	1(1-1)	1(1-1)	1(1-1)	1(1-1)
yes	2.36(1.8-3.1)	2.13(1.67-2.72)	1.81(1.28-2.55)	1.68(1.3-2.18)

	Odds ratios (and 95 percent confidence intervals)			
	For full retirement before age 62		For full retirement before age 65	
	Male (N=2840)	Female (N=2519)	Male (N=1978)	Female (N=1779)
Previous wave: health insurance			*	**
No	1(1-1)	1(1-1)	1(1-1)	1(1-1)
Yes	1.14(0.86-1.5)	1.08(0.91-1.3)	1.36(1.05-1.75)	1.23(0.99-1.53)
Previous wave: retiree health insurance R or S[c]	*	*	*	*
No	1(1-1)	1(1-1)	1(1-1)	1(1-1)
Yes	1.8(1.49-2.18)	1.56(1.3-1.88)	1.77(1.47-2.14)	2.2(1.76-2.76)
Pension related				
Prior wave DB pension type of R or S[c]	*	*	*	**
No DB	1(1-1)	1(1-1)	1(1-1)	1(1-1)
DB pension	1.66(1.34-2.06)	1.24(1.04-1.49)	1.39(1.14-1.71)	1.19(0.97-1.47)
Prior wave DC pension type of R or S[c]			*	*
No DC	1(1-1)	1(1-1)	1(1-1)	1(1-1)
DC pension	0.87(0.72-1.05)	0.82(0.64-1.07)	0.8(0.65-0.99)	0.66(0.53-0.82)

* indicates an overall Satterthwaite adjusted p-value <0.05

** indicates an overall Satterthwaite adjusted p-value <0.10

Source: GAO analysis of RAND HRS data.

Note: The RAND HRS data provided information about DC and DB pensions from current employment during the 1992 through 2004 study period. It did not provide data concerning any pensions from respondents' or spouses' previous employers.

[a]Respondents born in 1940 and 1941 were excluded from the age 65 analysis because they would not have been 65 by the last wave of data collection in 2004.

[b] Respondent's earned income adjusted for inflation

[c]R= respondent; S= Spouse

Table 10 shows that the odds on men retiring before age 62 were affected by income, job tenure, birth year, health limitations, retiree health insurance, and having DB and DC plans. All of the results can be interpreted as adjusted odds ratios and the net effects of those factors on

early retirement for men can be described as follows, after adjusting for the other factors:

- Men in the highest income category (who made greater than or equal to $50,000 in the previous wave) were 1.76 times more likely than men making less than $10,000 to retire by age 62. Men earning between $10,000 and $25,000 and men earning between $25,000 and $50,000 were not significantly different from men earning less than $10,000 in their decisions to retire before 62.

- Men who had been working for 15 to less than 25 years were not significantly different from men working less than 5 years at their primary occupation (in the previous wave), but men who had worked 5 to less than 15 years were less likely to retire by age 62 by a factor of 0.61 than men working less than 5 years. However, men working 25 years or more were more likely than men working less than 5 years to be retired by age 62, by a factor of 1. 6.

- Men born after 1933 were more likely than those born 1931 to 1932 to be retired by age 62, by factors ranging (fairly linearly) from 2.2 (for those born 1933 to 1934) to 5.7 (for those born 1940 to 1941).

- The odds on retiring before age 62 were more than twice as high for men who reported health limitations as for men without such limitations, and were twice as high for men with retiree health insurance as for those without retiree health insurance.

- The odds on retiring before age 62 were higher for men with a DB plan than for those without, by a factor of 1.3, and lower for men with DC plans than for those without, by a factor of 0.5.

The odds on women retiring before age 62 were affected by marital status, job tenure, birth year, health status, health limitations, retiree health insurance, and having a DC plan. Although not statistically significant the final model also adjusted for income, an important demographic characteristic, and DB plan, to account for policy related variables. The net effects of those factors on early retirement for women can be described as follows, after adjusting for other factors:

- Unmarried women were only roughly half as likely as married women to retire before age 62; that is, the odds on retiring before that age were lower for unmarried women than for married women, by a factor of 0.57.

- Women who had been working for 5 to less than 15 years and 15 to less than 25 years were not significantly different from women working less than 5 years at their primary occupation (in the previous wave). However, women working 25 years or more were more likely than women working less than 5 years to be retired by age 62, by a factor of 1.7.

- As was the case with men, women born after 1933 were more likely than those born 1931 to 1932 to be retired by age 62, by factors ranging (again fairly linearly) from 2.9 (for women born 1933 to 1934) to 4.3 (for women born 1940 to 1941).

- The odds on retiring before age 62 were 1.5 times greater for women who said they were in fair or poor health as for women in good or excellent health, 2.0 times greater for women with health limitations than for women without, and nearly twice as high for women with retiree health insurance as for those without retiree health insurance.

- The odds on retiring before age 62 were lower for women with DC plans than for those without, by a factor of 0.6.

The odds on men retiring before age 65 were affected by categories of occupation, education, marital status, income, job tenure, health limitations, retiree health insurance, and having a DC plan. Although not statistically significant, we adjusted for birth year to control for any possible cohort effects and DB plan to account for policy related variables. The net effects of those factors on late retirement for men can be described as follows, after adjusting for other factors:

- Men in the blue collar occupation category were 1.5 times more likely to retire before age 65 than men in the white collar category. Men in the services category were not significantly different from men in white collar professions in their decision to retire prior to 65.

- Men with college or more education were 0.51 times less likely to retire before age 65 compared to men with less than a high school education. There were no statistically significant differences between men with high school/ GED education and men with some college compared to men with less than a high school education in their decision to retire before age 65.

- The odds that unmarried men would retire before age 65 were 1.5 times those of married men.

- Men with income greater than or equal to $10,000 were more likely to retire prior to age 65 than men earning less than $10,000, by factors ranging (fairly linearly) from 2.0 (for those earning between $25,000 to $50,000) to 3.1 (for those earning greater than or equal to $50,000).

- Men who had been working for 5 to 15 years and those who had been working 15 to 25 years were not significantly different from men working less than 5 years at their primary occupation. But men who had worked greater than or equal to 25 years were more likely than men working less than 5 years to be retired by age 65, by a factor of 1.4.

- The odds on retiring before age 65 were almost twice as high (1.7) for men who reported health limitations as for men without such limitations and were almost twice as high for men with retiree health insurance as for those without retiree health insurance.

- The odds on retiring before age 65 were lower for men with DC plans than for those without, by a factor of 0.7.

The odds on women retiring before age 65 were affected by marital status, spousal age difference, income, health status, health limitations, retiree health insurance, and having DC plans. Although not statistically significant, we adjusted for birth year to control for a possible cohort effect and DB plan to account for policy-related variables. The net effects of those factors on late retirement for women can be described as follows, after adjusting for other factors:

- Unmarried women were roughly half as likely as married women to retire before age 65; that is, the odds on retiring before that age were lower for unmarried women than for married women, by a factor of 0.6.

- Women who were at least 5 years younger than their spouse were more likely to retire before age 65 compared to women with no spouse or women who were within 5 years of their spouses' age, by a factor of 1.5. There were no statistically significant differences on the odds of retiring before age 65 for women who were more than 5 years older than their spouse compared to women with no spouse or women who were within 5 years.

- The odds on retiring before age 65 were higher for women earning $25,000 to $50,000 than for those earning less than $10,000, by a factor of 1.6. Women earning between $10,000 to $25,000 and more than $50,000 were not significantly different than the lowest earning women in terms of their odds on retiring before age 65.

- The odds on retiring before age 65 were 1.5 times greater for women who said they were in fair or poor health compared to women in good or excellent health, 1.7 times greater for women with health limitations than for women without, and nearly twice as high (2.4) for women with retiree health insurance as for those without retiree health insurance.

- The odds on retiring before age 65 were lower for women with DC plans than for those without, by a factor of 0.6.

Table 10: Adjusted Odds Ratios and 95 Percent Confidence Intervals Indicating the Net (Multivariate) Associations between Various Factors and Full Retirement before Age 62 and Age 65, for Men and Women

	Adjusted odds ratios (and 95 percent confidence intervals)			
	For full retirement before age 62		For full retirement before age 65	
	Male (N=2462)	Female (N=1954)	Male (N=1640)	Female (N=1511)
Demographic characteristics				
Occupation in previous wave				
White collar			1(1-1)	
Services			1.18(0.66-2.09)	
Blue collar			1.45(1.13-1.85)	
Education				
<HS			1(1-1)	
HS/GED			1.01(0.71-1.44)	
Some college			0.76(0.51-1.14)	
College+			0.51(0.34-0.78)	
Marital status in previous wave				
Married		1(1-1)	1(1-1)	1(1-1)
Not married		0.57(0.43-0.74)	1.52(1.02-2.25)	0.60(0.46-0.77)
Spousal age difference in previous wave				
No spouse/ no diff up to 5 yr				1(1-1)
spouse <5 yr Resp				0.61(0.31-1.17)
spouse >5yr resp				1.46(1.1-1.94)
Previous wave Income categories[a]				
0-<10,000	1(1-1)		1(1-1)	1(1-1)
10,000-<25,000	1.27(0.83-1.95)		1.97(1.28-3.04)	1.23(0.91-1.64)
25,000-<50,000	1.17(0.83-1.64)		2.14(1.59-2.89)	1.62(1.17-2.24)
>=50,000	1.76(1.23-2.5)		3.07(2.13-4.43)	1.27(0.86-1.87)

	Adjusted odds ratios (and 95 percent confidence intervals)			
	For full retirement before age 62		For full retirement before age 65	
	Male (N=2462)	Female (N=1954)	Male (N=1640)	Female (N=1511)
Tenure at current job in previous wave categories				
0-<5	1(1-1)	1(1-1)	1(1-1)	
5-<15	0.61(0.43-0.87)	1.06(0.8-1.39)	0.84(0.6-1.17)	
15-<25	1.18(0.86-1.63)	1.23(0.92-1.66)	1.07(0.75-1.52)	
>=25	1.56(1.16-2.09)	1.68(1.21-2.34)	1.44(1.01-2.06)	
Birth year categories				
1931, 1932	1(1-1)	1(1-1)		
1933, 1934	2.19(1.42-3.38)	2.85(1.65-4.91)		
1935, 1936	3.52(2.15-5.77)	2.9(1.76-4.78)		
1937	3.56(2.03-6.25)	3.64(1.78-7.45)		
1938, 1939	6.4(4.05-10.09)	3.73(2.17-6.41)		
1940, 1941	5.72(3.53-9.27)	4.3(2.67-6.94)		
Health related				
Health status previous wave				
Excellent/ very good/ good		1(1-1)		1(1-1)
Fair/ poor		1.45(1.04-2.03)		1.49(1.07-2.07)
Previous wave: health limits work				
No	1(1-1)	1(1-1)	1(1-1)	1(1-1)
Yes	2.25(1.58-3.21)	1.96(1.43-2.67)	1.71(1.18-2.48)	1.72(1.2-2.45)
Previous wave: retiree health insurance [b]				
No	1(1-1)	1(1-1)	1(1-1)	1(1-1)
Yes	2.09(1.66-2.64)	1.76(1.43-2.17)	1.86(1.49-2.34)	2.39(1.82-3.14)
Pension related				
Prior wave DB pension type of R or S [b]				
No DB	1(1-1)			
DB pension	1.28(1.02-1.61)			

	Adjusted odds ratios (and 95 percent confidence intervals)			
	For full retirement before age 62		For full retirement before age 65	
	Male (N=2462)	Female (N=1954)	Male (N=1640)	Female (N=1511)
Prior wave DC pension type of R or S[b]				
No DC	1(1-1)	1(1-1)	1(1-1)	1(1-1)
DC pension	0.53(0.43-0.67)	0.63(0.45-0.87)	0.65(0.52-0.81)	0.55(0.45-0.66)

Source: GAO analysis of RAND HRS data.

[a]Respondent's earned income adjusted for inflation

[b]R= respondent; S= Spouse

Notes: The model for male retirement before age 65 includes both education and income. We recognize that education and income have the potential for being highly correlated. However, that does not appear to be the case for this age group and the decision to retire before age 65. We compared the odds ratios in Table 9 to those in the adjusted model in Table 10 and noted that they are quite stable. In addition, both education and income are statistically significant in the multivariate model (p-values <0.01). Therefore, we decided to keep both education and income in the final model.

The RAND HRS data provided information about DC and DB pensions from current employment during the 1992 through 2004 study period. It did not provide data concerning any pensions from respondents' or spouses' previous employers.

All models were run adjusting for income in the previous wave, birth year, DB plan and DC plan. Only statistically significant results (overall p-value<0.05) are presented in the table above.

Appendix III: Prior Studies on the Social Security Earnings Test

This appendix summarizes the findings in selected studies concerning changes in labor force participation among older workers following the elimination of the Social Security earnings test for beneficiaries at or above their full retirement age, effective January 1, 2000.

Jae G. Song and Joyce Manchester, "New Evidence on Earnings and Benefit Claims Following Changes in the Retirement Earnings Test in 2000," *Journal of Public Economics*, vol. 91, nos. 3-4 (April 2007).

To examine the effect of the removal of the Social Security earnings test, the authors used SSA administrative data known as the Continuous Work History Sample.[1] The authors examined these data for the years 1996 to 2003 and restricted their sample to those who are fully insured under Social Security. One of the limitations of these data is that they lack information on wages, hours worked, health status, education, and family characteristics for workers. The authors ran two sets of regression models on the following dependent variables: claiming Social Security benefits, work participation, and earnings. They used a "difference in difference" approach for which they compared treatment groups who were affected by this policy change (those turning 65 and those aged 65 to 69) with control groups that were not affected (those aged 62 to 64 and 70 to 72). One of the key assumptions the authors make in running these models is that there was no shock other than the earnings test removal in 2000 that affected treatment groups relative to the control groups. After running these models, the authors concluded that: 1) earnings increased among higher income workers; 2) workforce participation increased among those aged 65 to 69; 3) applications for Social Security benefits among those aged 65 to 69 increased following the test's removal.

Leora Friedberg and Anthony Webb, "Persistence in Labor Supply and the Response to the Social Security Earnings Test," *Working Paper 2006-27* (Boston, Mass.: Center for Retirement Research at Boston College, December 2006).

The authors used data from the HRS and Current Population Survey (CPS) to examine the impact on labor supply of changes made to the earnings test in 1996 and 2000.[2] They examine everyone in the CPS aged 55 to 74

[1] This data set is a 1 percent sample of SSA beneficiaries that has information on earnings and the claiming of Social Security benefits.

[2] In 1996, legislation was passed which raised the earnings test threshold.

between the years 1992 and 2005, and they use several different birth cohorts from the HRS in their analysis. The authors ran regressions on several dependent variables—employment, full-time employment, and earnings. In their regression analysis, the authors focus on those aged 62 to 74 to capture any effect that the earnings test might have on younger workers. Two key assumptions the authors make are that people view the earnings test as a tax instead of a deferral of benefits and that people can choose the number of hours they work. The authors conclude that the earnings test changes in both 1996 and 2000 increased labor force participation for those both aged 65 to 69 along with younger workers who are anticipating its removal. They also found that earnings increased, particularly for higher-income workers, following the 2000 change.

Steven J. Haider and David S. Loughran, "The Effect of the Social Security Earnings Test on Male Labor Supply: New Evidence from Survey and Administrative Data" (Forthcoming, Journal of Human Resources*:* 2007).

The authors use data from the CPS, New Beneficiary Data System (NBDS), and the Social Security Benefit and Earnings Public Use File (BEPUF).[3] The authors restrict their analyses to men. Using all three data sources, they conducted a "bunching analysis" to determine the extent to which workers adjust their earnings so that they remain just under the earnings test threshold. They found that the age at which workers adjust their earnings has risen as the earnings test threshold has risen. In addition, they found that the extent of bunching is higher with the administrative data from NBDS and BEPUF. Turning next to labor force responses from the elimination of the earnings test, the authors use CPS and BEPUF data to run a "difference in differences" model. They found that earnings increased among 66 to 69 year-olds along with hours worked per week.

[3] The NBDS is a sample of Social Security beneficiaries who first received Old Age, Survivors, and Disability Insurance benefits between mid-1980 and mid-1981, who were interviewed by SSA in 1982 and 1991. The BEPUF is nationally representative of Social Security beneficiaries who were entitled to these benefits in 2004.

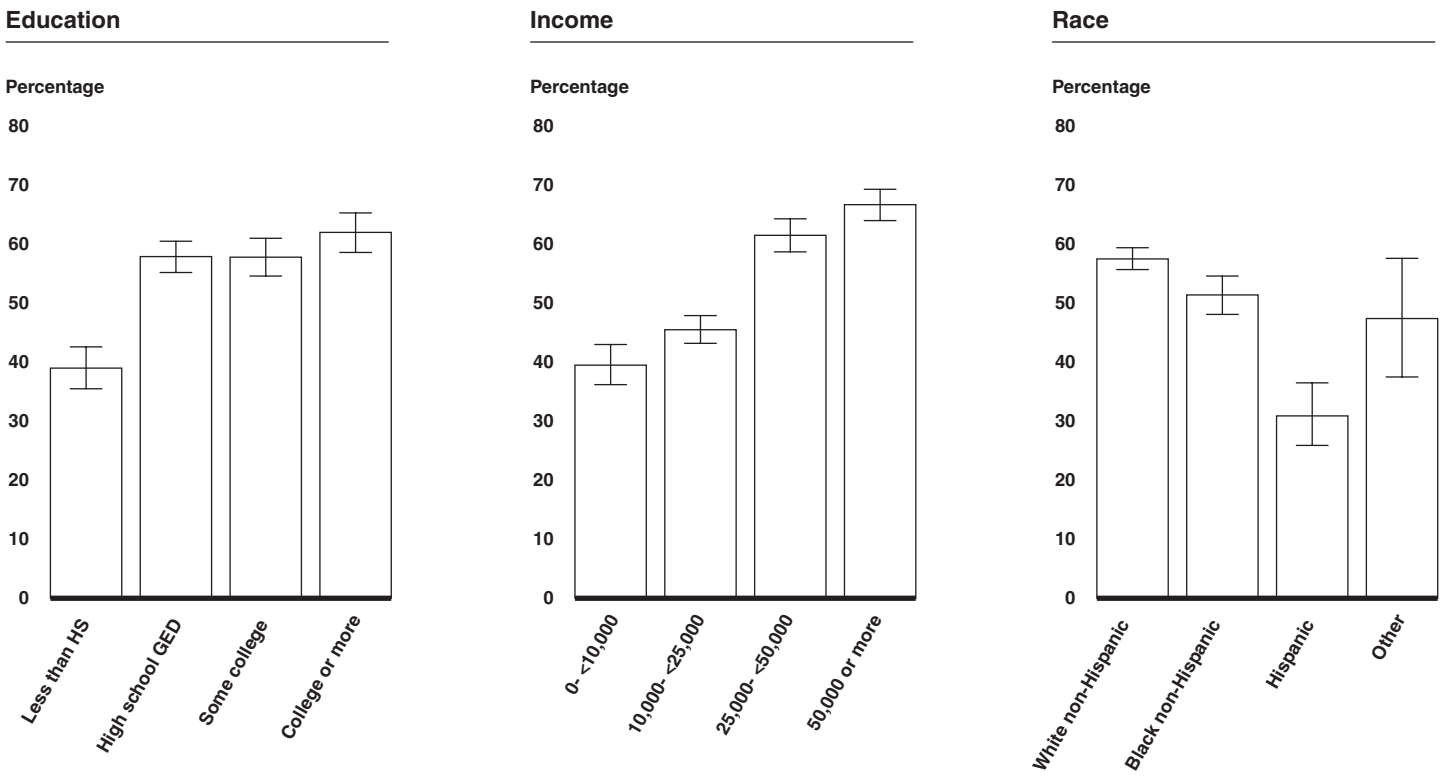
Appendix IV: Demographic Characteristics of Workers with Access to Retiree Health Insurance and DB and DC Pensions

This appendix provides supplementary descriptive statistics concerning the prevalence of retiree health insurance, DB, and DC pensions by demographic group among HRS respondents or their spouses included in our full retirement analysis sample. These respondents were born between 1931 and 1941, had 10 years of work experience by the time they reached age 62 and were in the labor force (working part-time or full-time, unemployed, or partially retired) in 1992—the beginning of the study period.

Of those in our sample with less than $10,000 in household earnings at the beginning of the study, about 40 percent had employer-based retiree health insurance from either their employer or their spouse's employer. By contrast, two thirds of people in our sample whose households earned $50,000 or more per year had access to employer-based retiree health insurance. Similarly, we found that a greater proportion of those with higher levels of education were eligible for employer-based retiree health benefits. (See fig. 7.) Others have found similar relationships, with a 2005 study finding declines in the availability of retiree health insurance affecting those with lower levels of education, relative to those with higher levels.[1] Specifically, the authors found that retirees without a college degree have experienced a 34 percent decline between 1997 and 2002 in the likelihood of having retiree health benefits, while those with a college degree experienced a 28 percent decline. On the other hand, those with a post-college degree did not experience any decline in coverage. Finally, we also found that as of the beginning of the study period a lower proportion of Hispanics had retiree health insurance when compared to their White or African-American counterparts.

[1] Paul Fronstin, "The Impact of the Erosion of Retiree Health Benefits on Workers and Retirees," *Issue Brief No. 279* (Washington, D.C.: Employee Benefit Research Institute, March 2005).

Figure 7: Estimated Percent of Respondents with Retiree Health Insurance by Education, Income Groups, and Race/Ethnicity



Source: GAO analysis of RAND HRS data.

Notes: The 95 percent confidence intervals for these estimates are shown with "I" symbols at the top of each bar.

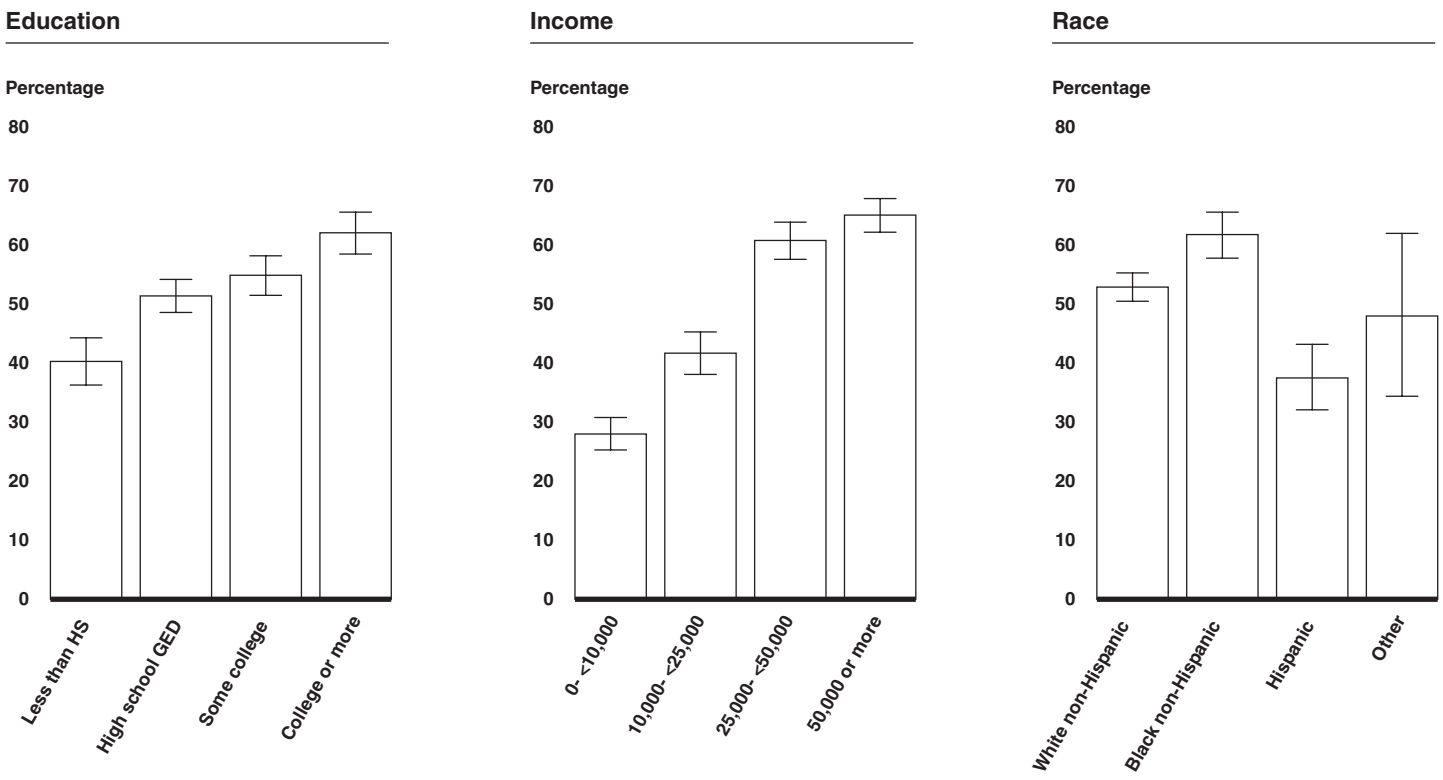
Overall, an estimated 55 percent of workers in our regression study group had access to retiree health insurance in 1992 either through their current or former employer or their spouse's current or former employer. As we mentioned earlier, a 2006 study found that only about one-quarter of private sector employees worked for companies that offered retiree health insurance.

As with our analysis of retiree health insurance, we found that as of the beginning of the study period, access to particular types of pensions varied by respondents' income and education level.[2] (See fig.8 and fig. 9.) We found that at the beginning of the study period 28 percent of those making less than $10,000 had a DB plan while 65 percent of those making $50,000 or more had them. We also found that 40 percent of those with less than a

[2] Our analysis of income was limited to a respondent's earned income, including wages, salaries, and bonuses from employment or self-employment. It excluded their spouse's income and unearned income such as interest, dividends, and rent.

high school degree had a DB pension while 62 percent of those with a college degree or more advanced degree had a DB pension. We found similar results for DC plans with a larger proportion of those with higher income and more education having a DC plan compared to those who did not.

Figure 8: Estimated Percent of Respondents with DB Pensions by Education Level, Income Groups, and Race/Ethnicity

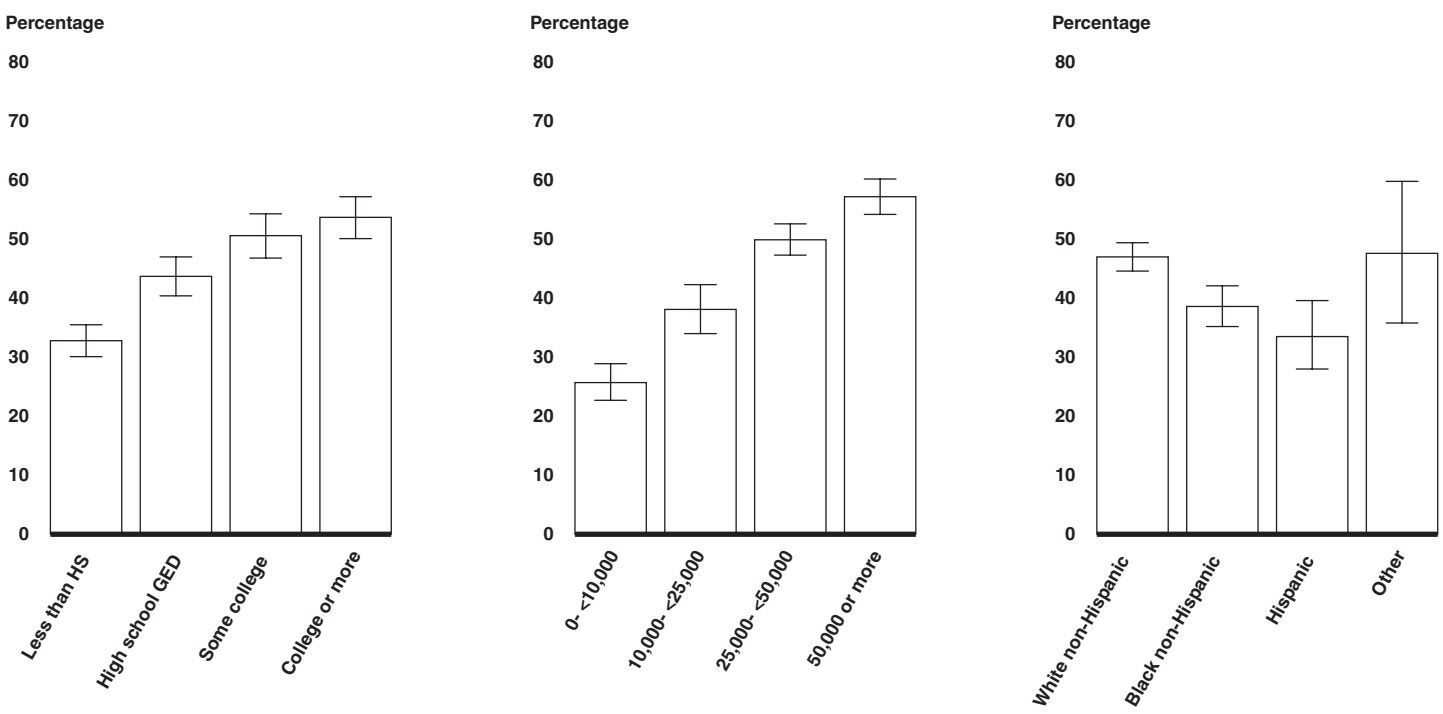


Source: GAO analysis of RAND HRS data.

Notes: The 95 percent confidence intervals for these estimates are with "I" symbols at the top of each bar.

Overall, an estimated 53 percent of respondents or their spouses had a DB plan from an employer during the study period. As we noted earlier, from 1992 to 2004, the proportion of household heads with a DB plan decreased from about 29 percent to 20 percent, respectively.

Figure 9: Estimated Percent of Respondents with DC Pensions by Education Level, Income Groups, and Race/Ethnicity



Source: GAO analysis of RAND HRS data.

Notes: The 95 percent confidence intervals for these estimates are shown as "I" lines at the top of each bar.

Overall, an estimated 46 percent of respondents or their spouses had a DC plan from current employment as of 1992. As noted earlier, from 1992 to 2004, the proportion of household heads with a DC plan increased from about 28 percent to 34 percent, respectively.

Appendix V: Comments from Department of Health and Human Services

DEPARTMENT OF HEALTH & HUMAN SERVICES

Office of the Assistant Secretary for Legislation

Washington, D.C. 20201

JUN 20 2007

Barbara D. Bovbjerg, Director
Education, Workforce, and
Income Security Issues
U.S. Government Accountability Office
Washington, D.C. 20548

Dear Ms. Bovjerg:

Enclosed are the Department's comments on the U.S. Government Accountability Office's (GAO) draft report entitled, "Retirement Decisions: Federal Policies Offer Mixed Signals About When to Retire" (GAO 07-753).

The department appreciates the opportunity to comment on this draft before its publication.

Sincerely,

Rebecca Hennard

for Vincent J. Ventimiglia
Assistant Secretary for Legislation

GENERAL COMMENT ON THE U.S. GOVERNMENT ACCOUNTABILITY OFFICE DRAFT REPORT ENTITLED: RETIREMENT DECISIONS: FEDERAL POLICIES OFFER MIXED SIGNALS ABOUT WHEN TO RETIRE (GAO-07-753).

HHS Comment:

In this draft report, the GAO assessed (1) the incentives federal policies provide about when to retire, (2) recent retirement patterns and whether there is evidence that changes in Social Security requirements have resulted in later retirements, and (3) whether tax-favored private retiree health insurance and pension benefits influence when people retire.

HHS agrees with the study finding the Medicare eligibility age provides a strong incentive for those without health insurance to remain in the labor force until they become eligible for Medicare, as well as the finding that the availability of employment-based retiree health coverage strongly influences when people retire. We note that as a Improvement, and Modernization Act of 2003 (MMA), with its incentives for employer and union plan sponsors to continue offering retiree drug and health coverage, employment-based retiree health coverage is likely to continue exerting a strong influence on retirement decisions for the foreseeable future.

Appendix VI: GAO Contact and Staff Acknowledgments

GAO Contact

Barbara D. Bovbjerg (202) 512-7215 or bovbjergb@gao.gov

Acknowledgments

In addition to the contact named above, Alicia Puente Cackley, Assistant Director; Benjamin P. Pfeiffer; Scott R. Heacock; Mary E. Robison; Joseph Applebaum; Cynthia L. Grant; Lisa B. Mirel; Daniel A. Schwimer; Douglas M. Sloane; Walter K. Vance; and Seyda G. Wentworth made key contributions to this report.

Related GAO Products

Employer-Sponsored Health and Retirement Benefits: Efforts to Control Employer Costs and Implications for Workers. GAO-07-355. Washington, D.C.: March 30, 2007.

Baby Boom Generation: Retirement of Baby Boomers Is Unlikely to Precipitate Dramatic Decline in Market Returns, but Broader Risks Threaten Retirement Security. GAO-06-718. Washington, D.C.: July 28, 2006.

Older Workers: Labor Can Help Employers and Employees Plan Better for the Future. GAO-06-80. Washington, D.C.: December 5, 2005.

Redefining Retirement: Options for Older Americans. GAO-05-620T. Washington, D.C.: April 27, 2005.

Highlights of a GAO Forum: The Federal Government's Role in Improving Financial Literacy. GAO-05-93SP. Washington, D.C.: November 15, 2004.

Private Pensions: Participants Need Information on Risks They Face in Managing Pension Assets at and during Retirement. GAO-03-810. Washington, D.C.: July 29, 2003.

Retiree Health Insurance: Gaps in Coverage and Availability. Washington, D.C.: GAO-02-178T. November 1, 2001.

Pension Plans: Characteristics of Persons in the Labor Force Without Pension Coverage. GAO/HEHS-00-131. Washington, D.C.: August 22, 2000.

Social Security Reform: Implications of Raising the Retirement Age. GAO/HEHS-99-112. Washington, D.C.: August 27, 1999.

Social Security Reform: Raising Retirement Ages Improves Program Solvency but May Cause Hardship for Some. GAO/T-HEHS-98-207. Washington, D.C.: July 15, 1998.

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