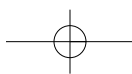
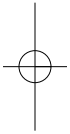


PART I

Employment Patterns
and Demographics



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CHAPTER ONE

Institutional and Individual Responses to Structural Lag

The Changing Patterns of Work at Older Ages

RICHARD V. BURKHAUSER, PH.D.,
AND LUDMILA ROVBA, PH.D.

Matilda White Riley and her collaborators conceptualize structural lag as a way of considering the speed and manner by which societies adjust to exogenous change (Kahn, 1981; Riley, 1988; Riley, Kahn, and Foner, 1994).¹ They use this model both to explain why institutional structures change and how individuals effect these changes and are affected by them. But their overarching message, for those interested in how public policies evolve, is that considerable lags occur between the exogenous changes that influence individual wants in a society and the responses of social institutions established to satisfy them. Over her long career, Riley used this general model to focus on aging issues from a life-course perspective. In the spirit of that work, we consider the long-term social responses to the demographic forces affecting the social institutions established in the middle half of the twentieth century to provide retirement and health insurance to future generations of Americans.

This chapter reviews the current controversy over the long-term financial stability of the “Social Security system”—Old-Age, Survivors, Disability, and Health Insurance (OASDHI)—as part of the necessary process for reducing structural lag; that is, the process that will close the gap between the needs of increasingly healthier, longer living, and more productive cohorts of the U.S. population and the inertial tendency of public and private retirement and health insurance systems, which are only belatedly responding to their changing desires. We will discuss changes in both the public and the private retirement insurance systems that began in the 1980s in response to these demographic forces and will show

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that they have already begun to change individual retirement decisions. These changes will in turn mitigate, to some degree, the looming OASDHI financial crises. But additional structural changes will be necessary before these systems have completely adapted to the needs of twenty-first-century America.

DEMOGRAPHIC CHANGE

The U.S. age distribution at the start of the twentieth century could be described as a pyramid, its youngest members forming a broad base on which rested increasingly narrower older age groups, with the oldest and narrowest at the top. But beginning in the second half of the twentieth century, a dramatic transformation began to take place.² By 2030, this familiar age pyramid will be fully transformed into an age structure better described as a column, as the share of the population at older ages grows at the expense of younger age groups (Himes 2001).

The U.S. older population, those aged 65 or older, grew more than tenfold over the twentieth century, from just over 3 million in 1900 to nearly 35 million in 2000, and is projected to continue to grow as a share of the total population well into the twenty-first century. This is in part because of the aging of the baby boom generation (those born 1946–64). But it is also because of increasing life expectancy at all ages together with an overall decline in U.S. fertility rates. Hence, while the emergence of the baby boom generation caused a bulge in the age structure at ages 5 to 24 in 1970, at ages 35 to 54 in 2000, and is projected to do so at ages 65 to 84 in 2030, its demise will not lead to a return of the traditional age pyramid after 2030. Rather, the projected rise in life expectancy, together with the projected continuation of low fertility rates, will result in a permanent change in both the age distribution and the collective needs of what will be a very different U.S. population over the twenty-first century. This in turn will have major long-term implications for our retirement and health insurance systems.³

The major federal retirement/disability program, Old-Age, Survivors and Disability Insurance (OASDI), and health program, Medicare and to a lesser extent Medicaid, are funded by a pay-as-you-go system in which current payments by a large population of workers are used to fund current benefits for a much smaller older population of retirees. The transformation of our society to one in which the population is evenly spread across the age distribution is bringing increasing financial pressure on our shrinking share of younger workers to fund the retirement and health care of our growing older nonworking population.

Current projections by the Social Security actuaries (Board of Trustees, 2007) show that, while there were approximately four workers per beneficiary in 1965,

RESPONSES TO STRUCTURAL LAG II

this will fall to approximately three workers per beneficiary in 2010 and to approximately two workers per beneficiary by 2030. Current projections also show that, while OASDI revenues exceed benefits and will continue to do so until 2027, OASDI payroll taxes will be less than benefits by 2017 and interest from U.S. Treasury bonds held in the Social Security Trust Fund will have to be used to make up the difference. Beginning in 2027, the Social Security Trust Fund will be required to begin to cash in these bonds to make up the growing difference between payroll tax revenues and benefits paid. By 2041, all funds in the Social Security Trust Fund will be exhausted, and projected taxes will fund only about 75 percent of projected benefits (Board of Trustees, 2007).⁴

Numerous proposals have been made to bring the OASDI system into actuarial balance by lowering future benefits, raising future taxes, or a combination of both.⁵ Rather than discuss the relative merits of tax increases or benefit decreases and the generational cohorts who would be required to bear their burden to return the system to actuarial balance, we will focus on how these efforts relate to fundamental system changes and their impact on individual behavior. But before doing so, it is important to put the OASDI financial crises in perspective.

Currently, 4.3 percent of the gross domestic product (GDP), the sum of all goods and services produced in the United States, is committed to OASDI payments. Another 4.2 percent is committed to the medical side of Social Security. Medicare Hospital Insurance payments amount to 1.5 percent of GDP. Medicare Supplemental Medical Insurance, which is in part paid by retirees but is heavily subsidized (about 75%) by general federal tax revenues, claims another 1.2 percent of GDP. And the means-tested program Medicaid, funded by general federal tax revenues, claims 1.5 percent of GDP. In total, these social insurance and social welfare payments, primarily targeted on the current nonworking older population and paid for by the current younger working population, amounted to nearly \$1 trillion in 2004, or 8.5 percent of GDP (see Palmer, 2006).

The dramatic shift in the age structure will have serious consequences for the future costs of these programs. Figure 1.1 shows that the costs of OASDI, Medicare, and Medicaid will increase dramatically over the next 70 years as a share of GDP. Most discussion of the future crises in government funding of programs for older persons have focused on projected OASDI increases from current levels to 6 percent of GDP by 2030. But as can be seen in figure 1.1, after 2030 OASDI expenses are then projected to increase at about the same rate as GDP and hence to grow only to about 6.2 percent by 2075. In stark contrast, while Medicare and Medicaid expenses are projected to increase from their current level to 10 percent by 2030, they are projected to grow much faster than GDP, ris-

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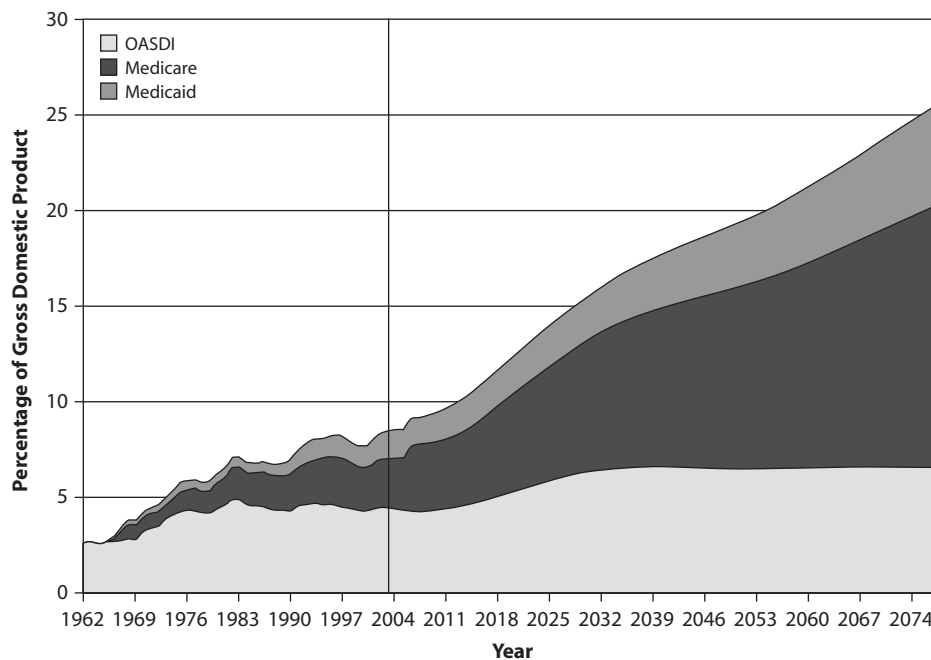


Figure 1.1. Outlays for Old-Age, Survivors, and Disability Insurance (OASDI), Medicare, and Medicaid (federal only) as a proportion of GDP. *Source:* Palmer, 2006, based on Congressional Budget Office and Social Security projections. Reprinted by permission of Sage Publications.

ing to nearly 20 percent of GDP by 2075. Together, these programs (OASDI, Medicare, and Medicaid) are projected to consume more than twice as much of GDP in 2030 as they did in 2004 and more than 25 percent of GDP by 2075.

These sobering projections are based on current demographic assumptions about the future age structure and on assumptions about long-term economic growth. Economic growth has primarily been responsible for the increased living standard of the typical American. That growth has also been the engine that has funded the increased economic well-being of older Americans, even as their retirement ages fell and their years in retirement grew over most of the twentieth century.

But economic growth depends on two underlying forces. The first is the individual productivity of workers, which is in turn affected by increases in the capital stock, the quantity of machines and infrastructure available for each worker, and technological improvement in both the capital stock and the quality of the workforce—that is, in each worker's human capital (e.g., education, work skills,

health, etc.). Historically, investments in both physical and human capital, together with technological innovation, have transformed agriculture in the United States from a labor-intensive industry dominated by small farms to a highly capital-intensive industry dominated by large farms primarily operated by highly skilled workers. Whereas a century ago it took the majority of the U.S. workforce to feed its people, we are now able to do so with a small fraction of our workforce. Hence, over generations of the nineteenth and twentieth centuries, this infusion of labor-saving capital in agriculture allowed the movement of workers out of agriculture and into manufacturing. A similar but subsequent transformation process in the twentieth and twenty-first centuries is leading to the movement of workers out of manufacturing and into the service sector. The net result is an overall labor market that increasingly puts a premium on highly skilled workers but in which physical strength and endurance are less important. Social Security projections continue to predict improvements of this sort in the capital stock over the twenty-first century.

A willing and able labor force is still required to effectively use this larger and improved capital stock. It is here that current demographic projections suggest a problem. The second part of economic growth is the growth in workers. The projected decline in the growth of workers over the twenty-first century is the primary concern with respect to future economic growth. Social Security projections (Board of Trustees, Federal Old-Age and Survivors Insurance and Disability Trust Funds, 2004) show that increases in the labor force after 1970, fueled primarily by the baby-boom generation, reached a peak of more than 2.5 percent in 1980 but then steadily declined through 2000. While labor force growth is expected to hold steady until 2010, it is then expected to decline once again as the baby-boom generation exits the workforce. Thus, by 2030 and beyond, the labor force is expected to increase at only about 0.3 percent.

If these projected declines in labor force growth actually occur, we will not have the workers necessary to maintain past levels of economic growth. Painful decisions will be required to balance the gap between the retirement and health benefits promised to a growing nonworking older population and the taxes available to pay for them from a relatively smaller working younger population. But such projections are based on the assumption that the aging baby-boom generation—and their children—will exit the labor force much like their parents' generations did. This need not happen.

Retirement age has been and will continue to be importantly affected by social institutions. The decline in the age of retirement, despite substantial improvements in health over the twentieth century, was in large part a response to a pub-

lic and private retirement system that encouraged workers to retire at age 65 or earlier. Those incentives have begun to change. The long-term decline in the labor force participation rates of older men ended in the mid-1980s. Pro-work changes in the OASI system in the 1990s—reductions in the earnings test tax on work as well as an increase in the earnings test exempt amount at ages 65–69—when added to the gradual increase to actuarially fair levels of adjustment for postponing acceptance of OASI retirement benefits past age 65 that began in the 1980s, and the profound shift from defined benefit to defined contribution employer pension plans in the private sector, substantially increased work at older ages in the 1990s. Furthermore, the complete ending of the earnings test for those ages 65–69 in 2000 probably further increased work at older ages thereafter.

Such findings suggest that, given appropriate incentives, workers are not only capable of work at older ages but will choose to do so. For this reason, such structural changes, which increase the work of future older persons, offer a real alternative to current proposals for solving the OASDHI fiscal crises and do so in a way that is more consistent with the improved health and productivity of this and future generations of older workers.

IMPROVEMENTS IN THE HEALTH OF OLDER AMERICANS

Improvements in the life expectancy of succeeding generations of Americans over the twentieth century are well documented. For the total population, life expectancy at birth rose from 47.7 years in 1900 to 76.6 years in 2000, a 60 percent increase. However, most of this change occurred over the first half of the century (Technical Panel on Assumptions and Methods, 2003). These declines in the rate of improved age-specific mortality lead the Social Security actuaries (Board of Trustees, Federal Old-Age and Survivors Insurance and Disability Trust Funds, 2003) to predict that improvements in life expectancy will continue to decline over the next 75 years. But in fact, improvements in life expectancy at older ages grew more in the second half of the twentieth century than in the first half. At age 65, for example, life expectancy rose from 11.7 years in 1900 to 21.2 years in 2000, with most of this change occurring after 1950. The 2003 Report to the Social Security Advisory Board (Technical Panel on Assumptions and Methods, 2003) argues that, if anything, the projected improvements in life expectancy used by the Social Security actuaries *understates* likely life expectancy increases over the next 75 years. While, if accurate, this will increase OASI expenditures because, given no change in retirement ages, it will lead to greater liabilities for the

system, it also suggests the possibility of greater work effort over the lives of these longer living generations if these added years of life are healthy.

Manton, Gu, and Lamb (2006) find that the percentage of older Americans (those aged 65 or older) with any kind of disability has been falling by age since 1984, using consistently collected data from the National Long-Term Care Survey (NLTCS).⁶ This suggests that, given the appropriate incentives to do so, older Americans are increasingly able to work. Unfortunately, the detailed data in the NLTCS on the activity limitations of older Americans since 1984 have not been collected for younger populations. Figure 1.2 uses a measure of disability based on a single work limitation question asked of those ages 15 to 64 since 1981. This one-period work limitation-based measure, like the NLTCS measure, does not take into account the duration of the disability. One advantage of the Current Population Survey (CPS) is that a subset of its households interviewed in March

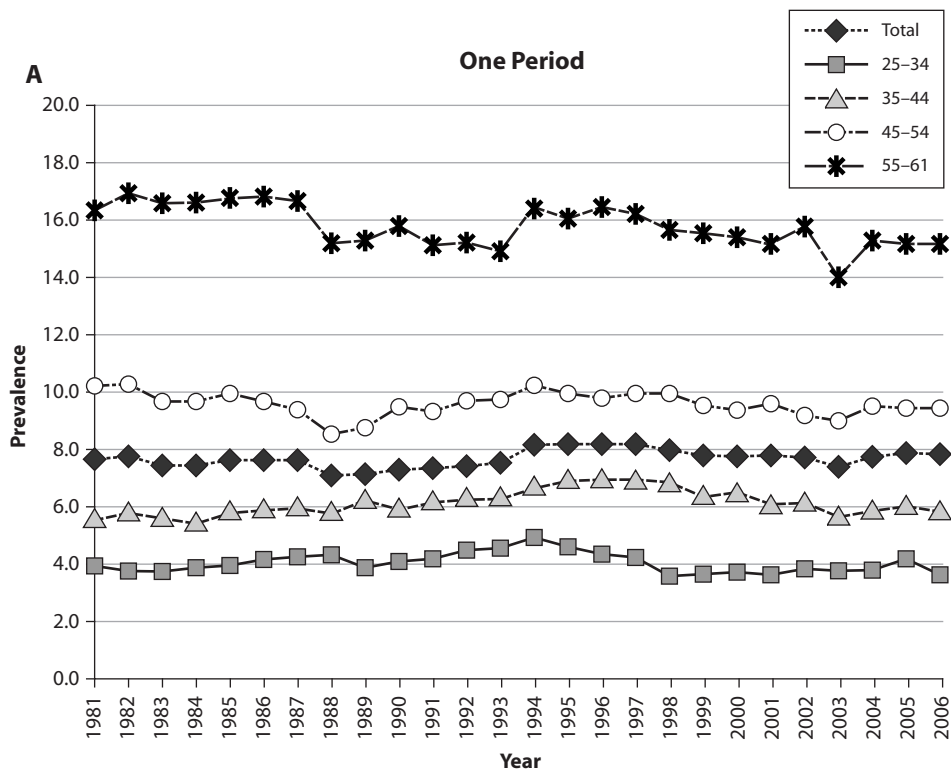


Figure 1.2. One-period (A) and two-period (B) prevalence of work limitation among working-age, noninstitutionalized civilians. Source: Author's calculations based on various years of the March CPS and matched March CPS

are re-interviewed the following March, so it is possible to measure the percentage of respondents who report a work limitation-based disability at two points one year apart. Assuming that this is the same work limitation, this two-period work-limited population excludes those with temporary disabilities lasting less than one year.

Not surprisingly, the prevalence of disability rises with age in both populations, and at any given age the prevalence of two-period work limitations is less than those reporting a current work limitation (one-period). But unlike the decline in disability reported by Manton et al. (2006) for those over the age of 65, there is little change in the prevalence of work limitations in the older working-age population (ages 55–64) in figure 1.2, using either our one- or two-period work limitation definition. Nonetheless, even among older workers, only around 16 percent report a current (one-period) work limitation-based disability and only around 10 percent report a longer term (two-period) work limitation-based disability. Thus, the vast majority of older workers on the verge of early retirement age do not report having a work limitation-based disability.⁷

LABOR FORCE PARTICIPATION RATES OF OLDER AMERICANS

The two greatest changes in the U.S. labor force over the second half of the twentieth century were the decline in the labor force participation rate of older men, primarily as the result of their increasingly younger age at exit, and the rise in the labor force participation rate of women.⁸

The top part of table 1.1 reports age-specific labor force participation rates for U.S. men from 1950 to 2005, using cross-sectional data from the Decennial Censuses of 1950 and 1960 and from the March CPS thereafter.⁹ The labor force participation rates of men aged 50 and above have fallen at all ages, but especially at ages 62 and above, the ages of first eligibility for Old-Age Insurance (OAI) benefits. For instance, the labor force participation rate for men at 62 was approximately 80 percent in both 1950 and 1960—before 1961, the first year that men were permitted to take OAI early retirement benefits. But by 1985, only about half of 62-year-old men were in the labor force. At age 70, male labor force participation rates fell from 49.8 percent in 1950 to 20.5 percent in 1985.¹⁰

There is some evidence, however, that the long-running trends toward ever earlier retirement ages ended in the mid-1980s (Burkhauser and Quinn, 1990; Burtless and Quinn, 2001; Quinn, 2002). Table 1.1 suggests that while the labor force participation rates of men aged 50 through 61 continued to fall between

TABLE I.I.
Labor force participation rates of men and women, by age, United States, 1950 to 2005

Year	Age						
	50	55	60	62	65	68	70
<i>Men</i>							
1950 ^a	—	90.6	84.7	81.2	71.7	57.7	49.8
1960 ^a	—	92.8	85.9	79.8	56.8	42.0	37.2
1970	93.4	88.0	81.7	73.1	47.4	31.4	30.5
1980	92.0	83.5	74.5	60.7	35.3	27.2	24.8
1985	92.2	84.3	70.8	50.6	32.2	20.7	20.5
1990	90.9	84.9	71.5	51.8	37.2	21.5	20.3
1995	88.6	81.8	71.6	47.9	33.6	22.4	20.0
2000	88.7	78.9	69.3	53.6	38.8	25.9	20.8
2005	89.3	80.6	70.2	59.5	36.9	33.1	24.4
<i>Women</i>							
1970	49.4	47.7	40.3	34.0	20.2	12.5	9.8
1980	59.1	52.8	40.4	31.2	19.7	12.8	10.2
1985	63.3	59.7	41.5	32.7	16.1	13.5	8.3
1990	68.3	61.0	44.6	34.2	22.3	14.4	14.0
1995	75.1	62.5	47.2	38.4	22.3	14.7	10.5
2000	78.0	67.9	48.9	39.4	24.6	17.1	10.0
2005	77.1	70.7	55.9	43.8	27.4	21.6	19.3

Source: Labor force participation figures for 1970–2005 are author's calculations based on the CPS Annual Demographic files

^aBased on adjusted U.S. Bureau of the Census labor force participation data. The adjustment is based on the ratio of CPS figures and census figures in 1970.

1985 and 2000, the participation rates of men at most ages 62 and above has leveled off and perhaps even reversed since 1985.¹¹

Older women's labor force participation patterns are different. In each succeeding year of the post–World War II era, a larger share of women has come into the labor force. As their work histories have become more like those of men, they have increasingly faced the same social structures—private pension and OASDI—and taken on similar age-specific labor force participation patterns.

As can be seen by comparing the bottom part of table I.I with its top part, in 1970 the labor force participation rates of women who were less than age 62 were substantially below those of men the same ages. For instance, only 49.4 percent of women aged 50 were in the labor force compared with 93.4 percent of men. But since then, the rates of women this age in the labor force have increased dramatically. Thus, by 2000 more than three-quarters of women aged 50 were in the labor force, only about 10 percentage points below men of the same age. This

same relative increase in the labor force participation rates of women can be found at all the other ages shown in table 1.1.

Like men, women's exits from the labor force increase at older ages, but the increasing percentage of women working as they approached more typical retirement ages offsets this kind of decline in labor force participation with age for the most part for those aged 62 or older (the earliest age for OAI benefits) through 1985. Thus, cross-sectional comparisons of age-specific labor force participation rates of women aged 62 or older, like the ones in table 1.1, show that these rates remained about the same through 1985, and they show that the age-specific cross-sectional labor force participation rates of women aged 62 or older have been increasing since then.¹²

The reasons for these substantial changes in the labor force participation rates of men since the mid-1980s and the changes in employment that are primarily driving them are not fully understood. The reversal of the long-run decline in labor force participation of older men beginning in 1985 is the subject of considerable debate. One possibility is that long-overdue changes in our social structures affecting retirement beginning in the 1980s—the ending of mandatory retirement, changes in Social Security OAI rules that increased the earnings allowed while receiving benefits or reduced the penalties for postponing benefits, and the longer-term shift away from defined benefit to defined contribution pension plans—permanently ended this trend and have begun to increase the labor force participation rates of older workers.¹³

Others have argued that the leveling off of labor force participation rates after 1985 might simply be an effect of a temporary business cycle, with the strong economy after 1992 explaining most of the gains in the employment and labor force participation of older men and women over that period (Costa, 1999).

But with available additional data, we are better able to see how age-specific employment rates changed over this period by comparing the behavior of two cohorts of workers age 50, one approaching retirement age at the start of the 1980s business cycle (1979–1989) and the other doing so at the start of the 1990s business cycles (1989–2000), and simulating their labor market exits.

While the initial employment rate of men age 50 in 1989 was less than that of men age 50 in 1979 and there was not much difference in their employment survival rates (the age-specific employment rates of men who were working at age 50 at subsequent ages) up to age 64, these rates are higher for the 1990s cohort at all subsequent ages. In contrast, initial employment rates of women age 50 in 1989 were much higher than those of women age 50 in 1979. But the employ-

ment survival rates of these two cohorts of working women were not much different. Hence, based on our simulations, we will argue that the employment rates of men aged 50 in 1989 will be greater at age 65 and above relative to their counterparts who were aged 50 in 1979, primarily because of their increased survival rates after age 64. The employment rates of women aged 50 in 1989 will be greater at age 65 and above relative to their female counterparts who were aged 50 in 1979, primarily because more women were working at age 50.

Finally, changes in the level and pattern of age-specific employment exit risk driving these employment survival rate differences is consistent with the argument that changes in social structures initiated in the 1980s have begun to change the retirement behavior of men.

MEASURING THE EMPLOYMENT SURVIVAL AND EXIT RATES OF RECENT COHORTS OF OLDER WORKERS

Data and Methodology

The March demographic supplement to the CPS surveys a nationally representative sample of households each year and includes information on between 17,000 and 33,000 individuals ages 50 or older. The survey asks individuals about their basic demographic characteristics and their labor force participation in the preceding year.

The March CPS provides a representative cross-section of the U.S. population, and about half of the sample is re-interviewed the next year, so one can match information on the employment and economic well-being of this subsample over two consecutive years.¹⁴ Our empirical analysis is based on the matched consecutive March CPS data files from 1980 to 2001.¹⁵ Short panel data sets constructed by matching individuals across monthly files of the CPS have been used to study a wide range of questions in labor economics.

Our matching technique enables us to follow the employment of the same people over two years for each age. However, small yearly sample sizes require us to pool our yearly samples. In doing so, we try to control for differences in outcomes that result from differences in the business cycle by creating our cohorts out of all years of the 1980s business cycle (1979–1989) and all years of the 1990s business cycle (1989–2000).¹⁶

To do so, we realign our calendar-year data into an event-history framework, where the event begins in the last year of employment (t). We then assign the age at survey interview year as the age of exit in year t . This allows us to estimate age-

specific employment exit rates for men aged 50–70 during these two business cycles. We define a person to be employed if he or she performs at least 1,000 hours of non-self-employed paid work in year t . We define that person to have exited that employment if she or he does no more than 100 hours of such work in year $t+1$.

Estimation of Employment Survival and Exit Rates

Table 1.2 reports the simulated age-specific cumulative employment survival probabilities as well as predicted employment of men and women at each age for our 1980s and 1990s cohorts, assuming that those who exit employment do not return. The cumulative survival rates are estimated by following men and women who were employed at age 50 for the period of interest and then assuming that

TABLE 1.2.
Estimated employment survival function and predicted employment rate, by gender

Age	Men				Women			
	1979–1989 Cohort employment		1989–2000 Cohort employment		1979–1989 Cohort employment		1989–2000 Cohort employment	
	Survival function	Rate	Survival function	Rate	Survival function	Rate	Survival function	Rate
50	1.00	88.50	1.00	86.19	1.00	54.33	1.00	67.57
51	0.97	86.28	0.98	84.59	0.97	52.90	0.97	65.38
52	0.95	84.38	0.96	83.15	0.93	50.68	0.93	62.70
53	0.93	85.03	0.95	81.52	0.90	48.88	0.90	60.76
54	0.91	80.32	0.93	79.75	0.86	46.65	0.87	58.58
55	0.87	77.13	0.89	76.38	0.81	43.75	0.82	55.74
56	0.84	74.62	0.84	72.71	0.77	41.85	0.78	52.74
57	0.81	72.11	0.81	69.94	0.73	39.60	0.74	50.15
58	0.78	69.24	0.77	66.76	0.69	37.50	0.70	47.20
59	0.74	65.84	0.73	62.78	0.65	35.21	0.65	44.01
60	0.69	60.71	0.68	58.92	0.60	32.81	0.61	40.89
61	0.62	55.10	0.62	53.51	0.56	30.17	0.55	37.11
62	0.53	46.70	0.51	43.63	0.48	25.81	0.47	31.94
63	0.47	41.45	0.44	37.89	0.41	22.24	0.41	27.93
64	0.39	34.51	0.38	32.52	0.35	19.27	0.36	24.32
65	0.29	25.43	0.31	26.78	0.28	15.27	0.28	19.19
66	0.23	20.57	0.26	22.42	0.24	12.99	0.24	16.29
67	0.20	17.41	0.23	19.48	0.21	11.14	0.20	13.85
68	0.15	13.66	0.18	15.94	0.17	9.45	0.18	11.95
69	0.13	11.41	0.17	14.39	0.14	7.54	0.15	10.12
70	0.11	9.78	0.14	11.87	0.11	6.16	0.12	8.16

Source: Author's calculations based on the CPS Annual Demographic files

their probability of leaving employment at each age is the average exit rate for all members of their cohort.¹⁷

As can be seen in column 2 of table 1.2, of the men who were employed for over 1,000 hours at age 50 in our 1980s cohort, 87 percent are still employed for at least 100 hours per year at age 55. This falls to 62 percent at age 61 and to 53 percent at age 62. High employment exit rates thereafter cut the cumulative employment survival rate (employment probability) to 29 percent at age 65 and 11 percent at age 70. The survival functions for both cohorts of working men are about the same up through age 64 but are higher thereafter for men in the 1990s, reflecting their lower exit rates at older ages over the period. But because the employment rates (column 3) of men age 50 were higher in 1979 than in 1989, age-specific employment rates are actually lower in our 1980s cohort than in our 1990s cohort until age 65.

In contrast, the employment rates of women age 50 in the 1990s cohort are much higher than women in the 1980s cohort, but there is little change in the employment survival rates of women at older ages in these two cohorts.¹⁸

Figure 1.3 more clearly shows what is behind the differences we report in the cumulative employment survival rates of our two cohorts of men. There is a substantial difference in both the level and shape of their age-specific employment exit rates. While there is little difference between the level of risk of an employment exit for men in the 1990s and 1980s cohorts at ages before age 62, exit rates are higher at age 62 but lower in all subsequent years for the 1990s cohort. Thus, given that a man in the 1990s cohort continued to work past age 62, he was less likely to exit employment at any age thereafter until age 70 than was the case for men in the 1980s cohort.

Most important with respect to changes in the age pattern of employment exit, while the highest spike in the 1980s cohort was at age 65, with a smaller spike at age 62, in the 1990s cohort the exit rate at age 65 is much reduced and is now at about the same level as exit rates at ages 62 and 68.

This change in the pattern of age-specific employment exits is suggestive evidence that policy changes are a plausible cause of this increase in exit rates after age 64 for men. A series of changes in Social Security policy over this period first reduced the earnings test tax for those aged 65–69 in 1990 and then raised the exempt amount gradually to \$30,000 in 1996. In addition, the actuarial payment to workers who postponed Social Security benefits past their 65th birthday, which before 1990 increased yearly benefits by 3 percent per year, was slowly increased by one-half of 1 percent every other year over this period. By 2000 it was at 5.5 percent and will continue to increase until it reaches 8 percent in 2010—the ac-

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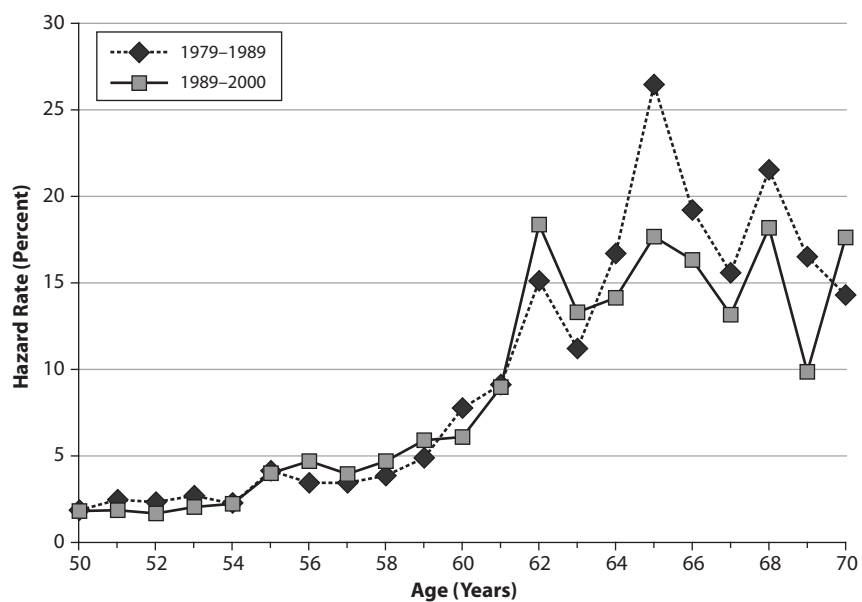


Figure 1.3. Estimated age-specific employment exit rates for men who were working at age 50, by cohort. *Source:* Author's calculations based on the CPS Annual Demographic files

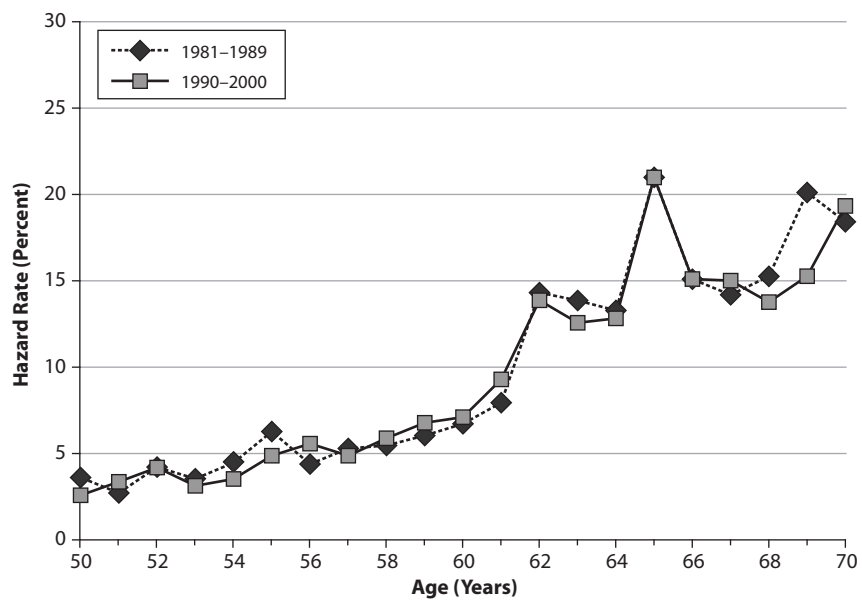


Figure 1.4. Estimated age-specific employment exit rates for women who were working at age 50, by cohort. *Source:* Author's calculations based on the CPS Annual Demographic files

tuarily fair amount. Finally, in 2000, the earnings test tax was ended for all workers aged 65 to 69.

Our simulation suggests that these OAI policy changes, together with the longer-term movement from defined benefit to defined contribution pensions in the private sector, no longer makes 65 the age with the highest risk of employment exit for men. Age 62 has become the highest employment exit risk age. Once past age 62, the risk of exiting is no longer centered on age 65 but is spread more evenly across post-62 ages, and in all cases is lower than was the case at these ages in the 1980s cohort.

In contrast to the substantial changes in men's employment exit patterns between the 1980s and 1990s cohorts, as seen in figure 1.4, little has changed for women in these cohorts. The highest risk employment exit age continues to be age 65. What has changed is that dramatically more women are working at age 50 in 1989 than was the case in 1979. It is this change in the number of women working at younger ages that is responsible for the rise in the employment of women at older ages rather than any change in their survival function after age 50 or pattern of age-specific employment exit risks at older ages.

Differences in Male Employment Survival and Exit Rates by Race and Education

Table 1.3 disaggregates our simulated cohorts of employed men age 50 in 1979 and in 1989 to compare differences in their estimated employment survival function by race and education. Figure 1.5 does the same to show the age-specific employment exit rates of these subgroups of men.

TABLE 1.3.
Estimated employment survival functions of men, by race and education

Age	White		Nonwhite		College degree		No college degree	
	1979– 1989 Cohort	1989– 2000 Cohort	1979– 1989 Cohort	1989– 2000 Cohort	1979– 1989 Cohort	1989– 2000 Cohort	1979– 1989 Cohort	1989– 2000 Cohort
50	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
55	0.88	0.91	0.83	0.78	0.94	0.92	0.85	0.87
60	0.70	0.71	0.60	0.55	0.78	0.75	0.66	0.66
62	0.54	0.54	0.42	0.36	0.69	0.63	0.49	0.47
65	0.29	0.34	0.25	0.20	0.41	0.48	0.26	0.26
68	0.16	0.21	0.10	0.11	0.25	0.32	0.14	0.15
70	0.12	0.15	0.05	0.07	0.16	0.26	0.10	0.11

Source: Author's calculations based on the CPS Annual Demographic files

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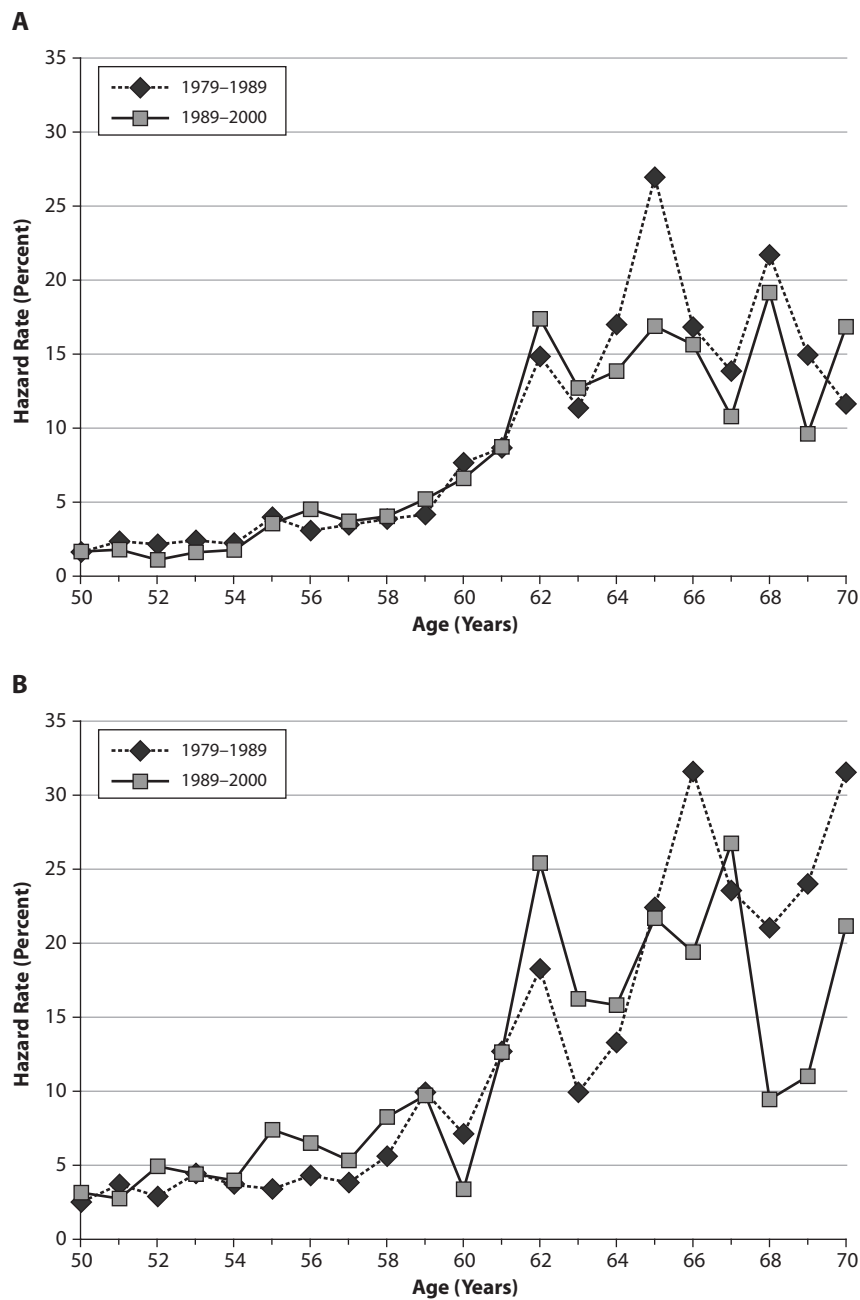
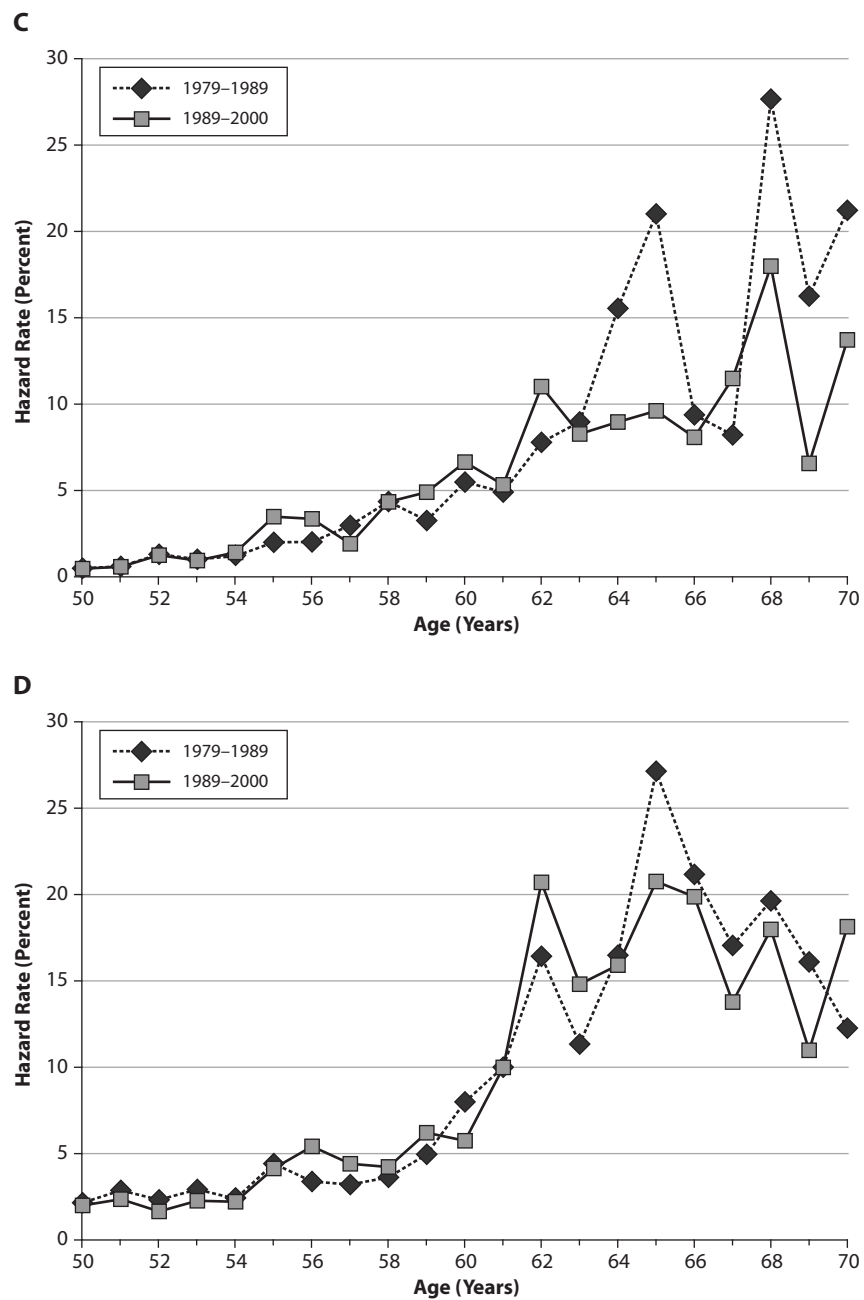


Figure 1.5. Estimated age-specific employment exit rates for men who were working at age 50, by cohort, race, and education. A, white men; B, nonwhite men; C, men with

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at least a college degree; *D*, men with less than a college degree. *Source*: Author's calculations based on the CPS Annual Demographic files

We find substantial differences in the level of the age-specific employment survival rates of white and nonwhite males in the 1980s cohort but not much difference in their shape. When we compare them with their counterparts in the 1990s cohort, we find that the difference in the employment survival rates of these two cohorts of white men mirror the differences we found previously in the aggregated cohorts discussed above, with little change before age 65 and increases thereafter. Ages 62 and 68 replace age 65 as the highest risk employment exit ages.

There is a similar change in the shape of the age-specific employment exit rate curve between the 1980s and 1990s nonwhite cohorts with 62 and 67 becoming the highest risk employment exit ages in the 1990s cohort. The major difference in how white and nonwhite cohorts changed in the 1990s is that the nonwhite cohorts' employment survival function decreased substantially before age 65 and only modestly increased thereafter. How much of this difference is caused by past and current discrimination in the job market and how much is the result of poorer health and job skills is uncertain. But the result is that whites in the 1990s cohort are now even more likely to be employed at all older ages when compared with their nonwhite counterparts.

College graduates have experienced the greatest change in their work patterns at older ages between our two cohorts. The employment survival rates of our 1990s cohort of college graduates is somewhat lower than our 1980s cohort from age 50 to age 62, with a noticeable rise in their exit rate at age 62. But there is a substantial increase in their survival rate thereafter, with major declines in their two former peak exit ages of 65 and 68. While 68 remains the highest employment risk of exit age for college graduates, 65 is now a lower risk age than 62. In contrast, there is little difference between the employment survival functions of our 1980s and 1990s cohort of less than college graduates. There is the now-familiar increase in employment risk at age 62 and a decline in that risk at age 65.

CONCLUSION

Changes in the age distribution of the U.S. population in the twenty-first century caused by substantial declines in fertility rates and increases in age-specific mortality rates, together with the aging of the baby-boom generation, require substantial changes in the social structures created in the middle years of the twentieth century to provide retirement and health insurance in old age. Thus far, most discussions of the long-term financial stability of these structures have focused on how to preserve them either by increases in the taxes needed to finance current promises or by reducing promised benefits to future generations without

raising taxes. Improvements in both the age-specific mortality and morbidity of succeeding cohorts of Americans have resulted in a structural lag between the work capacity of Americans over their increasingly healthier lives and a retirement system that still discourages work at older ages.

The decline in the employment of older men that marked most of the twentieth century ended around 1985, and changes in Social Security rules that reduced disincentives to work after age 65 are a plausible explanation for this change. Using cohorts of men and women aged 50–70 in the periods 1979–1989 and 1989–2000, we simulate and then compare the employment survival rates of men who were working at age 50 in 1979 and in 1989, using the actual age-specific employment exit experiences of all the persons in their cohort. We show:

- The estimated employment rate of men aged 65 and above in our 1989 cohort was higher than in our 1979 cohort, primarily because of reductions in their age-specific employment exit rates after age 62.
- The estimated employment rate of women aged 65 and above in our 1989 cohort was higher than in our 1979 cohort, primarily because of increases in their employment rates at age 50 and below.
- Our estimated changes in the employment exit rates of men after age 62 are consistent with those found by Friedberg (2000), who argues that relaxation of the earnings test in the 1990s increased the labor earnings of workers aged 65–69.
- Age 65, once the most likely age for men to exit the labor force, was no more likely to be the age of exit than other ages past age 62 in our 1989 cohort. For men, age 62 is now the most likely age of employment exit. This dramatic change is consistent both with Friedberg's (2000) arguments and the growing actuarial fairness of Social Security benefit increases for those who postpone benefits past age 65. It is also consistent with Engelhardt and Kumar's (2007) finding that the passage of the Senior Citizens Freedom to Work Act of 2000, which abolished the OAI retirement earnings test for men aged 65–69, has significantly increased the labor force participation of men this age. This, plus the fact that additional payments for those who delay accepting Social Security benefits will become fully actuarially fair by 2010, means that age 65 should become even more irrelevant as a retirement-specific age for men.
- Age 65 remains the most likely age of employment exit for women. We found no change in the employment survival function of women who were employed at age 50 between our two cohorts.

- There is a considerable difference in the employment patterns of white and nonwhite men and of male college graduates and nongraduates within our cohorts and in the changes in their employment exit patterns between the two cohorts we simulated.
- While the risk of an employment exit at age 62 increased for both white and nonwhite men, the increase was much larger for nonwhites. Employment exit risks rose for nonwhites at all pre-65 ages, while they remained about the same for whites before age 62 and fell thereafter. The result is an even greater gap between employment rates of white and nonwhite men at older ages. How much of this gap is due to differences in the relative health and job skills of these two populations and how much is due to past and current discrimination is unclear.
- Male college graduates in the 1990s cohort had slightly higher risks of employment exit at age 62 but dramatic reductions in their employment exit rates at ages 65 and 68, the peak exit ages for the 1980s cohort, than did male college graduates in the 1980s cohort. Males who were not college graduates in the 1990s cohorts had substantial increases in their risk of exit at age 62 and declines in those risks at ages 65 to 69 as compared with our 1980s cohort. The result is an even greater gap between labor force participation rates of college graduates and nongraduates at older ages.

Our findings are consistent with the view that older men are willing and able to work at older ages when the social structures they face encourage them to do so. But this is much more so for college-educated and white men, who on average can command greater wages at these ages. Burkhauser and Quinn (1983) and more fully Quinn, Burkhauser, and Myers (1990) argued that changes in mandatory retirement rules in the 1970s and 1980s would not greatly affect the employment of workers at older ages until the disincentives to work beyond early retirement ages in defined benefit pensions plans and in Social Security were changed.

Friedberg (2000) provides such evidence with respect to OAI changes in the 1990s and Engelhardt and Kumar (2007) add to the evidence with respect to OAI changes in 2000. Friedberg and Webb (2005) provide evidence that the shift from defined benefit to defined contribution plans, which are more likely to be age neutral with respect to their pension accrual patterns, has also increased work at older ages. Our findings of survival rates past age 65 are also consistent with all of these findings.¹⁹

Hence, there is much to be optimistic about. Pro-work structural changes have ended the long decline in the labor force participation of older men that has been

found as far back as the 1880s. Technological change, which has long enhanced the capacity of machines to replace low-skilled physical labor but increased the productivity and hence the demand for high-skilled labor, is likely to continue to make it possible for highly skilled older workers to compete for jobs even as their physical abilities decline. And a majority of older workers, based on recent AARP surveys, expect to work beyond age 65. But much remains to be done.

While mandatory retirement is no longer an issue in most occupations, mandatory retirement rules still prevail in some private and public-sector occupations: state and local police (aged 55–60) and firefighters (aged 55–60); federal firefighters (aged 57); federal law enforcement and corrections officers (aged 57); and air traffic controllers (aged 56 if hired after 1972); and commercial airline pilots (aged 60). It is long past time that these restrictions on employment at older ages are reconsidered.

However, given past experience (Burkhauser and Quinn, 1983), it is unlikely that simply lifting mandatory retirement ages on these workers, most of whom have defined pension plans, will greatly effect the age of exit from their jobs. But such changes, together with a transition from a defined benefit to a defined contribution pension plan, are likely to increase the age of exit from such a job, especially given the changes already in place for OAI.

More generally, however, an increase in the early OAI retirement age is the structural change most likely to increase employment at older ages. It is troubling that initial employment rates for men at age 50 declined between 1979 and 1989, the two peaks of the 1980s business cycle, and that age 62 is now the highest risk age of exit for men. Given the improvements in both age-specific mortality and morbidity, it is not clear why our social structures should continue to encourage retirement as early as age 62.

Raising the early-retirement age for Social Security is relatively neutral with respect to OASI program liabilities because benefits are now close to actuarially fair at all ages. But it is likely to reduce employment exits at this age, hence increasing the overall employment rate, total GDP, and overall tax revenues. Therefore, supporters of the current OAI early-retirement age should be required to justify why it still makes policy sense to offer all Americans the option to retire as early as age 62, given the dramatic improvements in both age-specific mortality and morbidity since this early OAI option was first introduced for men in 1961.

It is certainly not the case that this option is being taken primarily by those who are unable to work or who have no other sources of pension income. Burkhauser, Couch, and Phillips (1996) were the first to show that the vast majority of persons who first took OAI benefits at age 62 had neither a work limitation nor

relied on OAI benefits as their sole source of retirement income. Subsequent work by Smith (1999) using a different data set confirmed this finding.

Longer-living, healthier, and more-productive Americans in the twenty-first century can work longer. Changes already put into place in the OAI system have made age 65 irrelevant with respect to employment exit. But as we struggle to further change our social structures to accommodate demographic changes in our society, it will become increasingly important to raise the earliest retirement age for OAI benefits in recognition of our collective need to increase our years of work to support our longer years of life.

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NOTES

1. "By structural lag, we mean the tendency of social structures and norms to lag behind people's rapidly changing lives. . . . The inertial tendency of social structures to persist rather than respond to the changing needs and characteristics of individuals, creates a continuing tension between people and the structures in which their lives are embedded" (Riley et al., 1994, vii).
2. See National Research Council (2001) for a review of projected demographic changes throughout the world and the research necessary to inform policy makers about its consequences.
3. See Technical Panel on Assumptions and Methods (2003) for a discussion of the assumptions specified by the Board of Trustees of the Old-Age and Survivors Insurance Trust Fund and the Disability Trust Fund and the methods used by the Social Security actuaries to project the future financial status of these funds.
4. These numbers are based on the intermediate assumption of the Trustees of the Social Security Trust Funds and are the ones most commonly referred to in discussions of the long-term financing of OASDI.
5. See, for instance, Cogan and Mitchell (2003) for a discussion of the President's Commission to Strengthen Social Security Report, which does so primarily by reducing benefits, and Diamond and Orszag (2005), which does so primarily by raising revenues.
6. A special working panel of demographers concluded that the weight of the evidence supported the view that age-specific morbidity rates at older ages (65 or older) have fallen over the last 20 years (Freedman et al., 2004).

7. One possible longer-term concern is that disability prevalence rates, both one- and two-period, in the total working age population (those aged 25–61) have been rising since around 1989, fueled by increases in work-limitation-based disabilities reported at younger ages.

8. Costa (1998), using data from the U.S. Decennial Census, shows that the long-term decline in the age of retirement of older men began as early as 1880.

9. The labor force participation rate at any age is defined as the number of people of that age who are either employed or are not employed but looking for work (i.e., the unemployed), divided by the total population of that age. At older ages most people who are not employed are not looking for work and hence are considered to be out of the labor force. There has not been much systematic change in the unemployment rate of older persons over the period of this analysis, so it is changes in the employment rate of older persons that have been primarily driving the changes in their labor force participation rates discussed here.

10. The causes of this dramatic decline are controversial in the economics literature. The dominant view is that the rise in the importance of defined benefit employer pension plans as well as the expansion of the OAI retirement system substantially reduced the net compensation for workers at older ages by effectively reducing the actuarial value of their retirement benefits if they continued working. See Quinn et al. (1990) and more recently Gruber and Wise (1999). Costa (1998), however, argues that the increase in wealth of American workers provides a better historical explanation of the very long-term decline in the labor force participation of older men that began as early as 1880.

11. Quinn (2002) shows that if the trend in early retirement for men aged 60–64 over the period 1964 through 1985 had continued at that same rate until 2001, their labor force participation rates would have been dramatically below their actual levels, which are in fact higher than they were in 1985.

12. Quinn (2002) uses these data to show that, as was the case for men, labor force participation trend lines based on data before 1985 dramatically underestimates the actual labor force participation rates of older women between 1985 and 2001.

13. For early evidence, see Burkhauser and Quinn (1983) and Quinn and Burkhauser (1983). For more recent evidence, see Friedberg (2000), Friedberg and Webb (2005), and Engelhardt and Kumar (2007).

14. For detailed information on matching CPS files, see Unicon Research Corporation (1999) and Welch (1993).

15. The March 1984 and March 1985 as well as the March 1994 and March 1995 CPS data cannot be merged because of revisions in the household identifiers implemented in those paired years to protect the confidentiality of survey respondents.

16. We define a business cycle peak as the year in which real household median income hit its highest absolute level over the cycle. Our method of choosing comparison years only approximates the official measure of business cycle peaks and troughs by the National Bureau of Economic Research (NBER) using overall economic growth. Our results do not change substantively if we choose other alternatively defined comparison years of the business cycle.

17. We use a Kaplan-Meier nonparametric estimator of the employment survival curve

to look at the percentage of men and women in each cohort who worked for at least 1,000 hours for someone else in year (t) and who worked for no more than 100 hours in the next year ($t+1$) to estimate age-specific employment exit rates. Our survival curve shows the probability that a person survives (remains employed) at the specified age. Our hazard rate of employment exit is defined as the number of persons who exit employment at the specified age, relative to the size of the employed labor force a year earlier.

18. At older ages the difference between labor force participation outcomes discussed in the earlier tables and employment outcomes used in our analysis are small because the unemployment rate of older workers is low and relatively stable over the period of our analysis. Most older workers who face significant periods of unemployment are likely to leave the labor force. Hence, our definition of employment exit—not working for at least 100 hours in a given year—is likely to be close to a definition of complete exit from the labor force.

19. Our view is consistent with recent surveys of older workers by AARP. Brown (2006) found that of the 1,052 workers she interviewed in 2006, 52% of those who reported an expected retirement age expect to retire past age 65. Of those ages 50 or older at the time of the survey, 64% expected to retire past age 65. In an earlier survey of 2,167 workers 50 or older in 2005, Brown (2005) found that 38% of those who expected to retire from their job wanted to do so gradually. And of this group, 78% reported that they would work beyond their expected retirement age if given the option of phased retirement.

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