
The Puzzle of Later Male Retirement

By Richard Johnson

For decades until 1985, the share of older American men who worked for pay trended downward. Since 1985, though, that share has been stable or rising. By 2001, the new trend in male retirement behavior had added 2 million workers to the U.S. labor force.¹ Since the number of older men in the United States will increase dramatically as the baby-boom generation ages, the new trend could become even more significant for the U.S. economy in the future.

Understanding male retirement behavior is important to both monetary and fiscal policymakers. Later retirement affects monetary policy by increasing potential output. It also affects fiscal balances by boosting tax revenues and reducing the cost of earnings-tested benefits such as disability insurance and Medicaid.

Economists have put forth several theories to explain why American men are retiring later. One theory is that Social Security reforms have encouraged older men to work more. Another is that the decline in the number of workers with defined-benefit pensions has enabled men to continue working longer. A third theory is that the slower growth of the overall U.S. labor force has increased older men's employment opportunities.

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This article tests whether these theories explain the changed male retirement trend. The first section reviews trends in the labor supply of older American men. The second section examines the effects of Social Security reforms. The third section tests the defined-benefit pension plan theory, and the fourth section considers the slower labor-force-growth theory. The fifth section discusses other possible explanations of the change in the male retirement trend. The article concludes that Social Security reforms have increased the labor supply of men aged 65 and older, but that the abrupt change in the trend of male retirement ages in 1985 remains a puzzle.

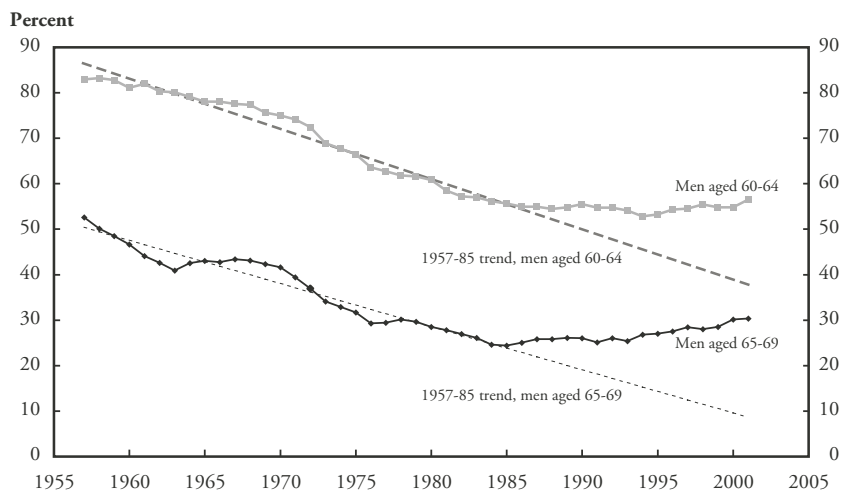
I. TRENDS IN OLDER MEN'S LABOR SUPPLY

This section examines the trends in older men's labor supply in the United States since the 1950s. Older men's labor supply fell steadily until around 1985. Since then, it has been roughly stable, with increases at higher ages. While older men's labor supply could not have declined at its pre-1985 rate forever, it could have declined far below its 1985 levels.

A useful measure of older people's labor supply is the labor-force participation rate in older age groups. This is the proportion, within each age group, of people either employed or unemployed and looking for work. Falling rates of labor-force participation among older men imply that men are retiring earlier on average.²

Labor-force participation rates for narrow age groups reveal more about retirement behavior than those for broad age groups. The participation rate in a broad age group can change purely because its composition is changing over time. For example, the age group "men aged 65 and above" now contains far more men aged 80 to 90 than it did in 1950. These older men are unlikely to work. Thus, even if labor-force participation rates at each age remain constant, lengthening life spans tend to make the labor-force participation rate of men aged 65 and above fall steadily over time. For this reason this article examines participation rates of men at single years of age and in five-year-wide age groups, such as ages 60-64.

Chart 1
LABOR-FORCE PARTICIPATION RATES OF MEN AGED 60-64 AND 65-69



Source: Current Population Survey

The male labor-force participation rate in both the 60-64 and 65-69 age groups fell steadily from the 1950s to around 1985 (Chart 1).³ The participation rate at ages 60-64 stabilized after 1985 and rose slightly in the 1990s. The participation rate at ages 65-69 abruptly reversed course in 1985, and has risen steadily since then. By 2001, male participation rates in both the 60-64 and 65-69 age groups were around 20 percentage points higher than they would have been had the trends of 1957-85 continued to 2001. The appendix presents the results of an empirical analysis that confirms a break in 1985 in the trends of the participation rates of both age groups, and tests the main explanations of it advanced later in this article.

The labor-force participation declines of 1957-85 could not have continued forever, since negative participation rates are impossible. The participation rate of men aged 60-64 could, however, have fallen below the 56 percent it reached in 1985. Similarly, the participation rate at ages 65-69 could have fallen or remained stable after 1985, rather than rising. Thus, there is a genuine puzzle as to why older American men's labor-force participation trends changed around 1985.

Economists have suggested several explanations of this change in the male retirement trend but have not tested all of them. Social Security and employer pensions are often argued to affect retirement ages, so changes to each type of pension could have caused the male retirement trend to change after 1985. The changing growth rate of the overall labor force may also have led to earlier male retirement in the 1970s and later male retirement afterward.

II. THE EFFECTS OF SOCIAL SECURITY REFORMS

Social Security has affected the retirement choices of many American workers since its creation in 1935. Since 1980, reforms to Social Security have reduced benefits, provoked fears of future benefit reductions, and removed the system's penalty for working beyond age 65. Any of these factors could have led men to retire later than they otherwise would have.

Reductions in Social Security benefits

The inclusion of some Social Security benefits in taxable income has reduced their value to beneficiaries. Congress first taxed Social Security benefits in 1983, and it increased the tax rate on them in 1993. By reducing men's disposable incomes, these legislative changes may have led them to retire later.⁴

The Social Security recipients whose benefits are taxed are those with higher incomes when they claim benefits. The 1983 amendments made up to half of Social Security benefits taxable for people with incomes above certain thresholds. For example, in 1983 a married couple filing taxes jointly had to pay income tax on up to half their Social Security benefits if their gross income, defined as their adjusted gross income plus half their benefits, exceeded \$32,000. The 1993 amendments further reduced the benefits of the highest-income recipients, making up to 85 percent of their benefits taxable. Thus, since 1993 a married couple filing taxes jointly have had to pay income tax on up to half their benefits if their gross income is between \$32,000 and \$44,000, and on up to 85 percent of their benefits if their gross income exceeds \$44,000.

Table 1

INCOME TAX ON SOCIAL SECURITY BENEFITS FOR MARRIED COUPLES IN 2001

Annual Dollars

	27,000	28,000	39,000	44,000
Adjusted Gross Income				
Tax on Social Security Benefit	0	75	750	2,337.5

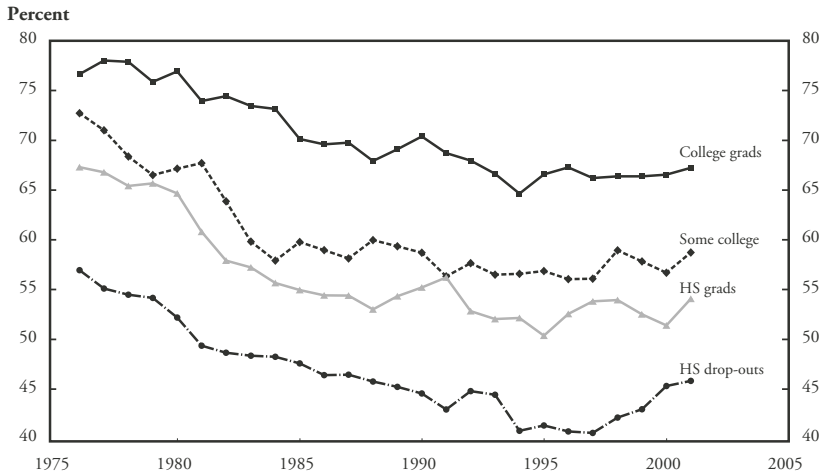
Notes: Each couple is assumed to receive \$10,000 in Social Security benefits annually before tax, and to file income taxes jointly. Social Security benefit-tax rules are from table 2.A32 of Social Security Administration (2000). Income tax rates are from the IRS website.

The fraction of beneficiaries affected by these amendments was originally small. In 1984, only 10 percent of Social Security recipients were expected to have high enough incomes to pay income tax on their benefits. To date, the income thresholds in the amendments have been fixed in nominal terms, so growth in nominal incomes has made the fraction of beneficiaries paying tax on their benefits grow. By 1993, 18 percent of beneficiaries paid income tax on their benefits.⁵

The loss of benefits is significant for people with higher incomes. Table 1 shows the benefit that married couples at four different income levels and with annual Social Security benefits of \$10,000 would have lost in 2001 to the combined effect of the 1983 and 1993 amendments. The lowest-income couple lost none of their benefits to income tax, while the highest-income couple lost \$2,337.50 or more of their benefits.⁶ The magnitude of these losses makes plausible the idea that taxation of Social Security benefits induced higher income men to retire later.

Testing whether taxation of benefits has made men retire later requires comparing participation trends among men who have lost different amounts of benefits to tax. Separating the effect of reduced benefits from other causes of retirement requires grouping men by an indicator of their benefit loss that is not affected by retirement age. Grouping men by income would not achieve this since later retirement by itself pushes men into higher income groups than they would otherwise have been in. Men's education level and race are better indicators of how much their benefits are taxed, since later retirement does not

Chart 2
LABOR-FORCE PARTICIPATION RATES OF MEN AGED 60-64, BY EDUCATION LEVEL



Source: Current Population Survey

change either of these. Highly educated men are likely on average to have higher incomes than men with little education, and therefore to pay more tax on their benefits. White men were also likely on average to have higher incomes than black men, and thus to have lose more benefits to taxation.

Comparisons based on education and race show no difference across groups in participation trends since the 1970s. Participation rates among men aged 60-64 with different levels of education (Chart 2) all declined before 1985 but rose after 1995, and to a similar extent.⁷ The same pattern in participation rates exists for men aged 65-69 at all levels of education. It also exists for both black and white men aged 60-64.

To conclude, data show that the trend of declining male labor-force participation ended around 1985 even for men who were less likely to pay income tax on their Social Security benefits. Thus taxation of benefits cannot explain why the trend toward earlier retirement ended.

Fears of future reductions in benefits

The reforms of 1983 and 1993, in addition to reducing the value of benefits, may have provoked fears among workers that future legislation would further reduce their Social Security benefits. Such expectations of lower benefits may have prompted some men to delay retirement.

One way to test whether fears of future reforms were important is to compare the participation trends among older and younger men. Older men at the time of the reforms would have been more likely to die before any further reductions in Social Security benefits occurred. Indeed, survey data show that older Americans are much more confident of receiving Social Security benefits than are younger Americans (Dominitz, Manski, and Heinz). Therefore fears of future reforms would have been more likely to increase the labor supply of men aged 55-59 than that of men aged 70-74.

A comparison of the labor supply of these two groups does not support the idea that fears of future benefit cuts affected retirement ages. The labor-force participation rate of men aged 70-74 decreased steadily from 1963 to the late 1980s, but has risen steadily since then.⁸ By contrast, the participation rate of men aged 55-59 continued to decline gradually after 1985. Since increases in men's participation rates since 1985 are strongest among those aged 65 and older—men who are least likely to live to see further reductions to Social Security benefits—fears of such reforms do not appear to have driven the change in the trend of older men's participation rates.

Social Security's penalty for working at age 65 and above

From its creation until 2000, Social Security penalized work at age 65 and above. This penalty was reduced in the 1980s and 1990s, and then removed entirely in 2000. These changes were expected to increase labor supply at ages 65 and above, and data show that men at these ages did indeed retire later as a result.

Specifics of the work penalty. Before 2000, Social Security's earnings test removed benefits from workers aged 65 to 69 who claimed benefits and had earnings above a given limit.⁹ In different periods, the earnings test withdrew 33 or 50 cents or even a dollar of benefits for each additional dollar earned. This created a strong disincentive for men aged 65 to 69 to work and claim benefits at the same time. Workers at these ages would thus have wished to defer their Social Security benefits until after they had retired.

Social Security's deferred-retirement credit determines the cost of deferring benefits. Historically this credit was low, so deferring benefits was costly to workers. For example, when the credit was 3 percent, a single 65-year-old man who deferred an annual benefit of \$10,000 until age 66 lost \$10,000 but gained additional benefits of \$300, adjusted for changes in the cost of living, every year from age 66 until his death. The value of these payments of \$300 can be found in annuity markets, since Social Security benefits are annuities, ceasing when the beneficiary dies.¹⁰ Using the current real market rate of return on a single-life annuity for a 65-year-old man, about 6.5 percent, as a guide to past rates of return, a 65-year-old man could buy an annuity paying an inflation-adjusted \$300 per year from age 66 to his death for about \$4,600.¹¹ So when the deferred-retirement credit was only 3 percent, a 65-year-old man who deferred benefits of \$10,000 for one year lost about \$5,400 of their value.

The penalty on working at ages 65 to 69 resulted from the fact that it was costly for workers at these ages either to claim or defer benefits. The effective penalty was the minimum of these two costs, so if either cost fell to zero, the penalty on working disappeared.

Changes to the work penalty. Congress has reduced Social Security's penalty to working in two ways. First, it reduced the earnings test's rate of benefit withdrawal at ages 65 to 69 from 50 to 33 cents per dollar of additional earnings in 1990, and finally to zero in 2000. No earnings test now applies to workers at or above full-retirement age, the age at which workers are eligible for 100 percent of their benefits, which is slowly rising from 65 to 67.¹²

Second, Congress has increased the deferred-retirement credit. From 1982 to 1990 this credit was 3 percent. Since 1990 it has been rising steadily and is scheduled to reach a maximum of 8 percent in

2009.¹³ Deferring benefits is costly if the deferred-retirement credit is lower than the rate of return on private annuities, or in the example above, about 6.5 percent. Therefore, deferring benefits was costly for a single 65-year-old man roughly until the deferred-retirement credit reached 6.5 percent in 2002.

To summarize, Social Security historically penalized working at ages 65 and above. Facing the earnings test and deferring benefits were both costly to workers. From 1990 to 2000 this penalty fell steadily due to changes in the earnings test and increases in the deferred-retirement credit. This penalty was removed altogether by the ending of the earnings test at ages 65 to 69 in 2000.

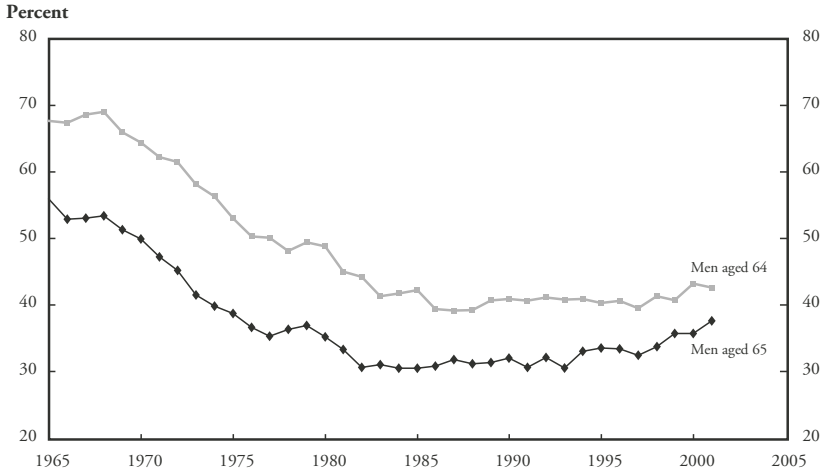
The effect of reductions in the work penalty. The effect of these reforms on retirement decisions can be tested by comparing labor-force participation rates at ages 64 and 65. There has been little change over time to Social Security's earnings test and deferral credits at ages 62 to 64. Therefore, if the removal of penalties to work reduced the male retirement rate at age 65, male participation rates at age 65 would move closer to those at age 64.

This comparison of labor-force participation rates at 64 and 65 shows that the tendency for men to retire at age 65 has fallen over time. In 1980 the participation rate at age 65 was only 72 percent as high as that at age 64, showing that many men retired at exactly age 65 (Chart 3). By 2001, however, the participation rate at age 65 was 88 percent as high as that at age 64. This declining tendency for men working at age 64 to retire at age 65 also likely increased rates of male labor supply at ages above 65.

The most plausible cause of lower retirement rates at age 65 is the decline in Social Security's work penalty. This is difficult to prove statistically, however, since the retirement rate at age 65 declined gradually, rather than suddenly after a reform. Indeed, one study found that changes in the earnings test did not affect male labor-force participation at ages above 65 (Gruber and Orszag). However, of all possible causes of a lower retirement rate at age 65, only Social Security reforms seem likely to have affected a large number of men at precisely age 65.

The size of the response to lower penalties for working appears small compared to the general change in the trend of older men's labor-force participation. A general change in male participation trends occurred in

Chart 3
**LABOR-FORCE PARTICIPATION RATES OF MEN AGED
 64 AND 65**



Source: Current Population Survey

1985 at ages 62 and above. The change in the participation trend is only about 6 percent stronger at age 65 than at age 64 (appendix). Therefore the reduction of penalties to work at ages 65 through 69 can only explain around 6 percent of the change in the trend of men's labor supply at these ages.

III. THE EFFECT OF CHANGES IN PRIVATE PENSIONS

Defined-benefit pensions are thought to encourage early retirement, while defined-contribution pensions are not, because it is often costly to defer a defined-benefit pension, while it is rarely costly to defer a defined-contribution pension. Over the past 25 years, defined-benefit employer pensions have become less common, and defined-contribution pensions more common. The decline of defined-benefit pensions could have contributed to the end of the trend toward early retirement.

Retirement incentives in employer pensions

Defined-benefit employer pensions pay benefits determined by a formula created by each employer. These formulas imply an accrual factor by which pensions are multiplied in value if they are deferred. Most defined-benefit pensions pay benefits in the form of annuities, so pension accrual is generally equivalent to acquiring additional annuities. Thus, as in the case of Social Security, the employer's pension formula makes deferring a pension costly to workers if the reward for deferral, the accrual factor, is less than the rate of return on private annuities.

In practice, the accrual factor is often lower than the rate of return on private annuities. Data from the Surveys of Consumer Finances of 1983 and 1988 reveal that the accrual factor in employers' defined-benefit plans typically fell below the rate of return on private annuities at age 62 (Gustman and Steinmeier). Therefore, at least in these years, it was typically costly for workers to defer claiming these pensions beyond age 62.

A cost of deferring a current employer's pension creates an incentive to quit that employer if doing so is necessary to claim the pension. Restrictions on claiming pensions arise both from employers' rules and from the tax code. Most defined-benefit pensions have an early-retirement age at which pensions can first be claimed, and a higher normal retirement age. The Internal Revenue Code removes corporate pension funds' privileged tax status if pensions are paid to workers who are younger than their plan's normal retirement age and who still work for their employer. Therefore, firms require that employees quit before receiving their pensions. Employers typically also bar workers older than their plan's normal retirement age from working and drawing a pension concurrently.¹⁴

While defined-contribution pensions also typically require that workers leave their employers before claiming their pensions, they generally do not create incentives for workers to quit. This is because the cost of deferring a defined-contribution pension is low. These pensions increase in value as they are deferred according to the rate of new contributions and the market's rate of return to assets held within the pension. Workers would not be able significantly to improve on this rate of return on existing assets outside of their pension accounts.¹⁵

Thus employees with defined-contribution pensions have little incentive to quit their employers to be able to withdraw funds from their pensions earlier.

Due to this difference in incentives, moving from defined-benefit to defined-contribution pensions may reduce older workers' rates of quitting long-term employers. Reforming the tax code to allow claiming an employer's pension while continuing to work for that employer would have the same effect.¹⁶ Workers who quit their long-term employers are free to take other jobs, and thus need not retire. However, since it may be difficult for older workers to adapt to new jobs, a lower rate of separations from long-term employers is likely to lead to lower retirement rates.

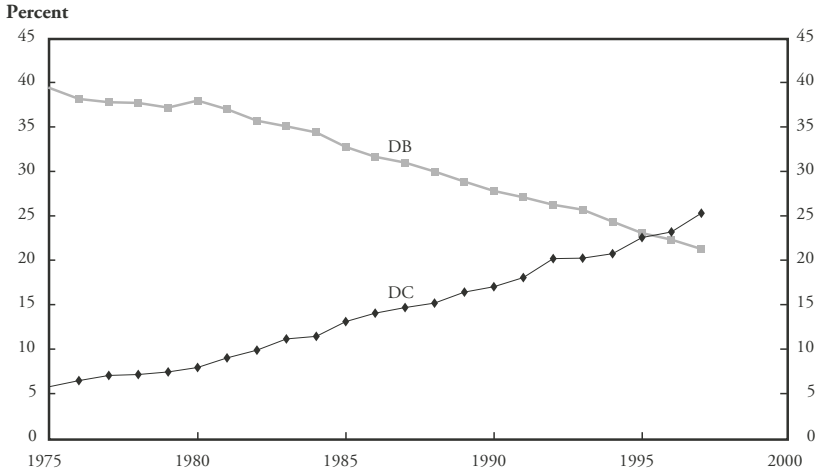
Evidence on the retirement effect of declining defined-benefit pension coverage

Studies of micro data have found that workers in pension plans with higher penalties for deferral tend to retire earlier (Samwick; Friedberg and Webb). Since penalties for deferral are often higher in defined-benefit than defined-contribution pensions, the declining coverage of defined-benefit pensions since 1980 may have contributed to the changed trend of older men's labor supply since then.

Whether the declining membership of defined-benefit pensions explains the changed trend of older men's labor supply can be tested by comparing the two variables' time paths. The membership of defined-benefit pensions would have to have fallen dramatically around 1985 to explain the end of the trend toward earlier male retirement.

This test does not support an effect of the changing type of employer pensions on male labor supply. The proportion of workers with defined-benefit employer pensions fell steadily from 1980 to 1997, while the proportion with defined-contribution employer pensions increased steadily (Chart 4). There was no change in either trend around 1985. Therefore the decline in the membership of defined-benefit pensions began too early to have been the main cause of the changed trend in older men's labor supply.

Chart 4
PROPORTION OF LABOR FORCE WITH DEFINED-BENEFIT AND DEFINED-CONTRIBUTION PENSIONS



Notes: Each worker appears on only one curve. Some workers with one type of main pension also had supplementary pensions of the other type.

Sources: Department of Labor (1996, 2001)

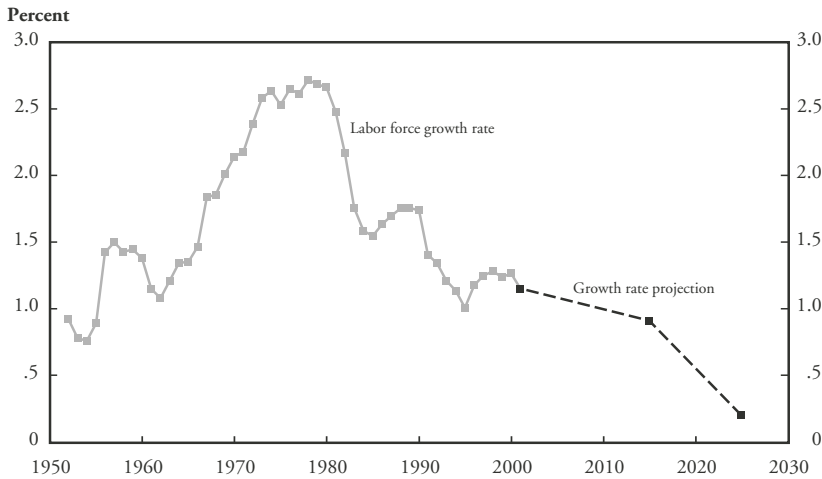
IV. THE EFFECT OF SLOWER GROWTH IN THE U.S. LABOR FORCE

The growth rate of the U.S. labor force has slowed dramatically since the 1970s. Slower labor-force growth means all workers can command higher wages. In the short run, higher wages will lead older men to supply more labor and retire later.

Growth in the U.S. labor force averaged 2.7 percent per year in the 1970s, but slowed to an average of 1.6 percent in the 1980s and 1.1 percent in the 1990s (Chart 5). The entry into the labor market of large numbers of women and of the baby-boom birth cohort caused rapid labor force growth in the 1970s. Slower growth of the female labor force and smaller birth cohorts after the baby boom led to slower labor-force growth in the 1980s and 1990s.

In the short run, slower labor-force growth will likely lead to later retirement. Slower labor-force growth will tend to raise wages, as each worker has more capital to work with and is thus more productive.¹⁷

Chart 5
U.S. LABOR-FORCE GROWTH



Notes: Annual growth rates are average annual growth rates over the preceding five years. Projections are average annual growth rates over the projection period.

Source: Census Bureau, projection from Fullerton (1999)

Higher wages will lead men to decrease their leisure hours in favor of more consumption. As a result, they will supply more labor, in part by delaying retirement.

In the longer run, however, slower labor-force growth is likely to have little or no effect on retirement ages. If slower labor-force growth increases wages for a long period, each generation of older men will have enjoyed high wages their entire lives and will therefore be relatively wealthy. Higher wages are less likely to tempt wealthier workers to retire later. This wealth effect explains why men retire much earlier today than they did in 1950, even though wages are much higher today than they were then.¹⁸

Theory thus suggests that slowing labor-force growth may raise older men's labor-force participation only in the short term. Although older men's labor-force participation may trend down for other reasons, there should be a negative correlation between the growth rate of the overall labor force and the rate at which older men's labor-force participation rates fall.

U.S. data give weak support to this theory. As the theory predicts, older men's labor-force participation fell rapidly in the 1970s (as already shown in Chart 1). At the same time, the labor force grew rapidly (Chart 5). Older men's participation stabilized in the 1980s and 1990s, when the labor force grew more slowly. However, older men's participation rates fell in the 1950s and 1960s, despite slow labor-force growth. There was also no change in the labor-force growth rate in 1985 that would explain why the participation trend changed precisely then, as regression analysis confirms (appendix).

Thus, as with changes to Social Security and private pensions, slower labor-force growth may have contributed to greater labor supply by older men. But the trend of labor-force growth does not appear to have caused the change in the male retirement trend in 1985.

V. OTHER THEORIES OF WHY THE MALE RETIREMENT TREND CHANGED

Of the theories discussed so far, only reforms to Social Security appear to have altered male retirement behavior, and these only at ages 65 and above. Since much of the change in the male retirement trend remains a puzzle, this section considers some other suggested explanations. These explanations relate to the business cycle, changes in longevity and the physical demands of work, and an increased taste for work among older men.

Economic booms and thus expanded employment opportunities may induce later retirement. From 1964 to 1998, lower unemployment rates were associated with higher participation rates among older men. However, there was also a significant break in participation trends in 1985 even controlling for the unemployment rate (Quinn). Thus the business cycle does not explain this change in trends.

Greater longevity and lower physical requirements of work have also been suggested as causes of later retirement since 1985 (Quinn).¹⁹ Yet male life expectancy at birth has increased in every decade since at least 1900, and the physical demands of work have also likely declined steadily over a long period.²⁰ Therefore these variables do not appear to explain the change in the male retirement trend around 1985.

A final explanation for later male retirement is that older men's taste for work has increased since the early 1980s. It does not appear possible to test whether this is true. Neither is it clear why men's taste for work should have increased around 1985 rather than at any other time.

Survey data suggest, however, that older people are motivated to work more by the enjoyment work brings than by pecuniary considerations. Of respondents to the 2002 Retirement Confidence Survey who said they had worked for pay since retirement, 56 percent said they did so because they "enjoy working and want to stay involved." Only 11 percent said they were "wanting money to make ends meet."²¹ Similarly, work at higher ages is concentrated among the wealthy, who have less need for extra earnings (Haider and Loughram). These findings are consistent with the idea that trends in work at higher ages could be driven more by tastes than by economic incentives.

VI. CONCLUSION

Older American men supplied more labor after 1985 than was expected from previous trends. Reductions in penalties for working created by Social Security have decreased retirement rates at age 65. However, data show little effect of reductions in Social Security benefits, changes to private pensions, or the decreased rate of labor-force growth on male retirement trends. Recent cohorts of older men may have had a greater taste for work than previous cohorts, but it is not clear why tastes would change in precisely 1985. Therefore much of the reversal of the trend of reduced labor supply by older men remains a puzzle.

The future trend of male retirement ages will substantially affect the size of the U.S. labor force, and thus the capacity of its economy. Some economists argue that the participation trend since 1985 is merely a hiatus in the long-run decline of male retirement ages, which will resume soon (Costa). But the longer the trend in male retirement ages is stable or rising, the more puzzling it will be. Because little of the change in the trend has, to date, been explained, policymakers should be careful about basing policy on the assumption that male retirement ages will continue to increase.

APPENDIX: REGRESSION ANALYSIS OF U.S. MALE LABOR-FORCE PARTICIPATION RATES

This appendix describes an empirical method for testing theories of the break in the male retirement trend. It also tests some of the theories the article discusses. It then analyzes how much of the change in the trend of male labor-force participation at age 65 reflects reductions in Social Security's penalty for working at that age.

Empirical method

The empirical method used here and by Quinn (1999) is to regress male labor-force participation rates on a time trend, a trend-break term, which is another time trend starting in 1985, and other explanatory variables. The coefficient on the trend-break term shows how much the trend of male participation rates changed in 1985. The other explanatory variables would explain the change in the participation trend if their inclusion in the model made the trend-break coefficient statistically insignificant.

Regressions of participation rates on the rates of unemployment and labor-force growth may suffer endogeneity bias, since unemployment and labor-force growth are endogenous to older men's labor-force participation rates. To minimize endogeneity bias, the dependent variables used here are labor-force participation rates of men at single years of age. Because men at a single year of age account for a small share of total labor supply, their participation should have minimal effects on overall unemployment and labor-force growth rates.

Regressions to test the theories

The table shows tests of the effects of unemployment rates, labor-force growth rates, the proportion of workers with defined-benefit pensions, and Social Security's penalty on working at age 65 on male labor-force participation trends. In column 1, the year coefficient shows the participation rate of men aged 62 fell by 1.4 percentage points per year until 1985. The significant coefficient on the trend-break term shows behavior changed around 1985. The trend after 1985 is the sum

DEPENDENT VARIABLE: PERCENT LABOR-FORCE
PARTICIPATION RATE OF US MEN BY AGE

<u>Dependent variable</u>	1	2	3	4
	<u>Age 62</u>	<u>Age 62</u>	<u>Age 65</u>	<u>Age 65</u>
Year	-1.4** (.1)	-1.5** (.3)	-1.2** (.1)	-.7** (.2)
Trend break: Years after 1984	1.4** (.1)	0.9** (.3)	1.2** (.2)	1.2** (.2)
Unemployment rate	-.4* (.2)	-.2 (.3)	-.8** (.2)	-.7** (.2)
Average annual growth rate of labor force over last five years, percent	-.5 (.6)	.4 (1.9)	-2.3** (.6)	-1.3 (1.3)
Percent of workers with DB pensions		-.5 (.6)		.5 (.4)
Social Security's penalty on work at age 65, percent of wage			-.1 (.1)	
R ²	.98	.94	.98	.91
N	37	23	37	23
Sample period	1965-2001	1975-97	1965-2001	1975-97

Notes: All regressions include a constant. Standard errors are in parentheses. The sample period is shorter for regressions including the percentage of men with DB pensions, since data for this variable are only available for 1975-97.

**Denotes coefficients significant at the 5 percent level, * at the 10 percent level.

of the coefficients on the year and trend-break terms, so participation was roughly constant after 1985. Neither the unemployment rate nor the growth rate of the labor force affected participation significantly. Column 2 shows that the proportion of the labor force with defined-benefit pensions did not affect participation at age 62 significantly. Thus, these explanatory variables do not explain the change in participation trends at age 62.

Column 3 regresses participation of men aged 65 on unemployment and labor-force growth rates, and on Social Security's penalty for work at age 65. This penalty is calculated from the history of Social Security's earnings test and deferred-retirement credit as a percentage of the wage

of a man with average male wages and Social Security benefits. Higher unemployment reduces participation at age 65, consistent with Quinn's findings. Higher labor-force growth appears to reduce participation at age 65, though this effect is not consistent across specifications. Social Security's penalty on work has no statistically significant effect because participation rates did not respond quickly to changes in it. In column 4, the percentage of the population with defined-benefit pensions has no significant effect on participation rates at age 65. Since the trend break in 1985 remains strongly significant when unemployment, labor-force growth rates, Social Security's work penalty, and trends in private pensions are included in the model, none of these variables fully explains the changed trend of participation rates at age 65.

The effect of reductions in Social Security's work penalty at age 65

Chart 3 suggests reductions in Social Security's implicit tax at age 65 have reduced retirement rates at 65. This effect was small compared to the general change in trends, however. Regressions of participation at ages 64 and 65 on the year and a trend break in 1985 give trend-break terms of 1.7 and 1.8, respectively. Assuming there was a general trend change of 1.7 percentage points per year, only $(1.8-1.7)/1.8$, or 6 percent, of the trend change at age 65 is due to lower implicit Social Security taxes at age 65. Thus the fall in retirement rates at age 65 is a small change compared to the general change in the trend of male labor-force participation rates at ages 60 and above.

ENDNOTES

¹ This is the number of men in the age groups 55-59, 60-64 and 65-69 who would not have worked in 2001 had participation rates in each age group declined after 1985 at their average rates of decline from 1957 to 1985.

² This article defines retirement as leaving the labor force. In contrast, some literature defines it as quitting a long-term employer, perhaps to join another employer. The article also treats rising labor-force participation rates at higher ages as being synonymous with rising retirement ages. Gendell constructs an “average age of retirement” which can fall as participation rates rise, but Johnson shows this construct has a variety of problems.

³ Labor-force participation rates of older American women have risen fairly steadily over time, though the rate of increase of older women’s labor-force participation increased around 1985 (Quinn). Since there is less of a puzzle in the behavior of older women’s labor supply, this article concentrates on men’s behavior.

⁴ Since people with higher incomes pay more income tax on their Social Security benefits, the inclusion of benefits in taxable income may have created a disincentive to work for some people. However, since interest income is also part of adjusted gross income, even beneficiaries who no longer work could lose benefits to income tax.

⁵ The Social Security Historian’s Office’s Research Note No. 12 quotes these percentages of beneficiaries paying tax on their benefits (www.ssa.gov/history/taxationofbenefits.html).

⁶ Table 1 shows incomes in the 0 percent, 15 percent and 27.5 percent income tax brackets in 2001. Social Security beneficiaries in higher income tax brackets pay higher tax rates on their benefits.

⁷ It has been suggested that the increasing level of education among men entering the 60-64 age group explains their changed retirement trend. Data do not support this hypothesis; as Chart 2 shows, the participation-rate trends have changed at each education level.

⁸ Labor-force participation rates of men aged 70-74 are not widely published but are available from the Bureau of Labor Statistics on request.

⁹ Workers aged 70 or more were exempt from the earnings test from 1983 on.

¹⁰ Social Security also pays benefits to surviving spouses and dependent children.

¹¹ The website www.immediateannuity.com quotes an average rate of return for a nominal single-life immediate-payout annuity for a 65-year-old American man of 9.3 percent in 2002. If inflation is expected to average 2.5-3 percent over the annuitant’s remaining life, this implies a real rate of return of 6.3-6.8 percent.

¹² The increase in the full-retirement age cannot explain the change in participation trends at ages 60 and above around 1985. It reduces the benefits of all people born in or after 1938, so the first men to be affected did not turn 60 until 1998.

¹³ The deferred-retirement credit applies from full-retirement age upward. The credit reaches 8 percent for people born in and after 1943. People born in 1943 will reach full-retirement age in 2009.

¹⁴ Department of Labor (2000) notes that employers rarely allow employees who are older than their plan’s normal retirement age to claim pensions without first quitting their jobs.

¹⁵ Most defined-contribution pensions restrict workers' choice of assets somewhat. These restrictions are not thought to depress returns within defined-contribution accounts much below those available elsewhere.

¹⁶ The Phased Retirement Liberalization Act, H.R. 4837, introduced on July 12, 2000, by Senator Charles Grassley and Representative Earl Pomeroy, would reform the Internal Revenue Code to permit employers to allow workers to draw pensions while remaining employed starting at age 59 1/2, after 30 years of service, or at the firm's normal retirement age, whichever came first. This act did not pass in 2000, but is expected to be reintroduced.

¹⁷ For example, comparing steady states of the Solow growth model, the real wage is higher if the rate of population (and hence labor-force) growth is lower.

¹⁸ This implies that the slow growth of the U.S. labor force predicted to 2025 (Chart 5) and indeed for the indefinite future is unlikely to increase older Americans' labor supply.

¹⁹ Quinn also suggests that the banning of mandatory retirement rules contributed to the changed trend of male retirement. However, the minimum age of mandatory retirement was raised from 65 to 70 in 1978, too early to explain a change in behavior in 1985.

²⁰ Estimated life expectancies at birth in the U.S. from 1900 to 1997 are given by the National Vital Statistics Report, Vol. 47, No.28 (1999), at www.cdc.gov/nchs/data/nvs47_28.pdf.

²¹ The Retirement Confidence Survey is a conducted by the Employee Benefit Research Institute, and was started in 1991. Answers to this question of the 2002 RCS are at www.asec.org/research/rcs/2002/riafs.pdf.

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