When most people retire, they leave a full time job and stop working entirely. But for a substantial minority, retirement is not a simple transition from working full-time to not working at all. It is a complex process. Those who have been working for an extended period for a particular employer may leave that job. They may continue to work for someone else, on a job that is less demanding. In some less common circumstances, the long term employer will allow the individual to phase into full retirement, by reducing the demands on the job, or hours of work. Some even leave the labor market and then return. This article will further describe the complex patterns that comprise retirement, and discuss the leading explanations for retirement outcomes.

Given this diverse set of outcomes, various researchers and government agencies define retirement differently. Because of the complexity of the retirement process, each definition of retirement oversimplifies the story. According to one definition, retirement occurs when a person stops work completely. Among the problems with this definition, many who continue to work are already in the process of retiring. Thus this definition classifies many as not retired, even though they have left a long term job, are
working in an easier job than they held for most of their work life, are employed on a part time basis despite having normally worked full time, are receiving a lower rate of pay than they were paid before they changed their job or work conditions, and even though they may be receiving pension or social security benefits. Another definition pertains to leaving long term employment. This definition classifies a person as retired when the older individual leaves a job held for ten or twenty years. A problem with this definition is that it classifies as retired people who have left a long term job but are still at work. Not only does this definition classify as retired those who are continuing to work, but are phasing into retirement gradually, but according to this definition, people who are working full time but lost or left a job in their forties or fifties are retired, even though they are not yet in the process of leaving the labor market. From the perspective of government agencies such as the Social Security Administration, or a firm’s pension plan, a person may be considered retired when benefits are accepted. But many people work after having applied for a received benefits. To be sure, none of these definitions of retirement is correct or incorrect. Each definition attempts to reduce a complex process to one or another two dimensional outcome. Consequently, a definition of retirement that is quite useful for one purpose may be not very helpful for another.

1. Data Describing Retirement Outcomes

To understand how retirement varies with age, it is useful to consider data from the
Health and Retirement Study. The Health and Retirement Study is the leading source of data on retirement in the United States. It also is a model for retirement surveys that are now being adopted in other countries. Funded by the National Institute on Aging, every other year since 1992 this survey interviews 12,650 respondents who were born from 1931 and 1941, extensively tracking their retirement and other behavior. In a forthcoming article we present some of the basic findings on retirement outcomes from the Health and Retirement Study (Gustman and Steinmeier, 2000b). It is useful to summarize these findings here. One way to measure retirement is with self reported status, a measure that incorporates the influence of a number of factors in determining whether an individual is retired, and consider three states, not retired, partially retired and fully retired. At age 53, about 85 percent of men and 76 percent of women consider themselves to be not retired. Starting at age 54, the fraction not retired begins to decline, falling three or four percentage points for each year of age until age 61. At age 62 the share not retired falls precipitously, with a fifth of men and a seventh of women leaving nonretirement in that one year. At age 65, there is another large decline, with the fraction of men who are not retired falling 11 percentage points, and the fraction of women falling by five percentage points, leaving a little under a fifth of men and women reporting they are not retired at age 65. Thus from the perspective of many of the definitions of retirement noted above, most people are retired after age 65. At the same time, from age 53 to age 65, the share of men reporting they are partially retired increases from 6 percent to over 22 percent, with the increase for women from four
percent to 15 percent. **About 8 percent of full-time men and 6 percent of full-time women are still working after having left a long-time job, that is a job they held at age 45 that lasted more than ten years.** Although less than a fifth of the men and women are working full time after reaching age 65, roughly another fifth classify themselves as partially retired. The percentages at each age of men and women who report they are completely retired are similar, but women are around 15 percentage points more likely to report that the retirement question is not relevant, presumably because they have not worked in a number of years.

Retirement status is not static. The number who are not retired in any year is determined in part by how many of those who reported they were not retired in the previous year remain not retired. It also is determined by how many who were not retired in the previous year leave that state for partial or full retirement. Lastly, some people may classify themselves as not retired in a particular year, having previously been retired or partially retired. The same is true for the number who are partially retired or fully retired in any given year: those numbers depend on how many continue in the particular state from the previous year, how many leave the state from the previous year, and how many enter that state. Thus to understand the number reporting a given retirement status by age, we need to understand the flows into and out of various retirement states over time.
The Health and Retirement Study (HRS) is a panel data set that resurveys each respondent every other year. It records changes in retirement status over time as respondents age. In the HRS panel, 77 percent of the time respondents continue in the same retirement state between waves of the survey -- retired, partially retired and not retired. In 17 percent of the cases there is a transition from greater to lesser work, and more difficult to model, 6 percent of transitions are from lesser to greater work. These transitions cumulate over the course of the survey. Altogether, 17 percent of the sample experienced a reversal in the course of the survey, moving from a state of less work to a state of more work.

Also of interest to students of retirement are trends in retirement outcomes. The aging of the baby boomers and decline in mortality have increased the financial pressure on social security and other retirement programs. One solution would be to postpone retirement. If people worked longer, the retirement period would be shorter and less costly. Instead, despite improving health, throughout the post world war two period and until very recently, there has been a continuing trend to earlier retirement. Indeed, the trend to lower labor force participation by older males is one of the strongest labor market trends witnessed in recent years. (The trends in labor force participation and retirement for older women are not nearly as sharp. They are difficult to discern as increased participation of women in the labor market offsets a tendency to leave earlier.) According to data from the U.S. Current Population Survey cited in
Anderson, Gustman and Steinmeier (1999), continuing an earlier trend, from 1947 to 1985, the fraction of married men over 65 in the labor force fell from 55 percent to less than 20 percent. For those age 55 to 64, the trend to lower labor force participation started later. From 1957 to 1985, the share of married men in the labor force fell from 90 percent to less than two-thirds. Similar trends are found in other countries. Indeed, the decline in the labor force participation rate of males in the U.S. from 1960 is actually relatively modest compared to other countries, with Japan and Sweden experiencing milder trends, while the United Kingdom, Germany, Belgium, Japan, Spain, the Netherlands, France and Italy have experienced even greater withdrawal (Gruber and Wise, 1999).

There is evidence, though, of a leveling off in the middle 1980's in the trend toward reduced labor force participation of older men. For example, in 1985 in the U.S., men who were 55 years old in the Current Population Survey had a labor force participation rate of 79 percent; in 1991 the participation rate of 55 year olds had increased to 81 percent. Similarly, between 1985 and 1991, the participation rate for 60 year olds increased by a percentage point, from 66 percent to 67 percent, and for those 65 years old, participation remained the same at 26 percent.

Participation rates have not resumed their downward trend in the 1990's.

The trend to earlier retirement for men is apparent when retirement outcomes from the
Health and Retirement Study, collected from 1992 to 1998 in the U.S., are compared with retirement outcomes from the Retirement History Study, collected from 1969 to 1979. Using figures from Gustman and Steinmeier (2000b), between these two surveys, the fraction of 60 year olds who considered themselves to be not retired fell from four fifths to two thirds. The fraction of 62 year olds not retired fell from almost two thirds in the 1970s to a little more than a third in the 1990's. Only at age 65 are the fractions not retired similar in the 1970s and 1990s. A very large number of people retired in the 1970's RHS at age 65, with almost one fifth of the sample leaving nonretirement. In the 1990's HRS, the comparable number leaving at 65 is a little more than half as large -- many more have already left earlier. These trends can be seen in the number who retire at any given age. In the 1990's HRS sample, one fifth of the men leave nonretirement at age 62. Although there is evidence that the trend to earlier retirement abated in the past few years, there is a continuing debate about whether the trend will reassert itself.

Researchers have also focused on other aspects of retirement. The family is the center of decision making. Thus there is a question about whether couples coordinate their retirement decisions. It seems they do. Researchers have documented the coincidence of retirement dates for husbands and wives, despite age differences and differences in incentives to retire (Hurd, 1990; Gustman and Steinmeier, 2000a).

2. Explaining Retirement Outcomes
Students of retirement behavior would like to explain what determines these patterns of retirement by age. Of special interest is the onset of substantial flows into retirement beginning at age 53 or so, the sharp increases in retirement that are observed at ages 62 and 65, and the transition for most out of nonretirement by age 65. Also of interest is the question of why a majority of people proceed directly from full time work to complete retirement, while a substantial minority partially retire; what determines how long a person stays partially retired; why most people reduce their work effort as they age while others sometimes increase work effort after having reduced it; and why different people choose different ages to enter and leave full time work, partial retirement and full retirement. Similarly, researchers would like to know what has caused the trends to earlier retirement over time, why the number retiring at age 62 has increased, while the large spike in the number retiring at age 65 has been halved, and more generally what caused the changes in retirement outcomes at each age. They also would like to understand other key patterns in the data, such as the coincidence of retirement by husbands and wives, and how the new patterns of increased participation by women are affecting retirement outcomes.

To understand what determines the wide variety of retirement patterns, economists rely on a model in which forward looking decision makers weigh the benefits and costs of alternative retirement dates. Older people decide when to retire by taking into account
not only current work and leisure opportunities, but future opportunities as well. These opportunities include the pay that would be offered for work on the current job, now and into the future and pay on alternative jobs. Involuntary layoffs affect these opportunities, reducing the offer for continuing full time work. Incentives created by pension plans and social security play important roles, especially in shaping the future consequences of a decision to retire. These programs have features that may sharply change the incentive to work at different ages, first encouraging workers to stay in the labor market, then at a later age, sharply reducing the reward to continued work.

Against the monetary rewards to continued work the older individuals weigh the difficulty of the work. Whether these demands are physical or mental, they are likely to increase with age at different rates, depending on the job held. The opportunity cost of working is the value of leisure time. Health problems may increase the difficulty of work, and lower the reward to continued work if the individual becomes less efficient at certain tasks. Retirement decisions of spouses, demands from dependent children and elderly parents also help to shape the retirement decision.

It is differences in the rewards to continued work, the effects of social security and their differing pension plans on these rewards, differences in health status, job conditions, as well as different evaluations of the same set of benefits and rewards, that create wide differences in decisions of when to retire. There also is an interaction with the decision to save, and accumulated assets, leaving some more able to afford retirement at a given
age than others with the same earnings history. Similarly, changes over time in wages, pensions, social security and other factors determining the reward structure to continued work, as well as changes in the valuation of leisure, may affect the trends observed in retirement outcomes.

2.1 Key Explanatory Factors Affecting Retirement Outcomes:

Consider now in more detail some of the leading factors shaping retirement outcomes and how they influence retirement behavior.

Wage Offers For Full Time Work: Theory does not tell us what relationship to expect between the wage a person makes and retirement age. On the one hand, a higher wage implies greater foregone earnings when one leaves work. On the other, a higher wage implies a higher lifetime income, which should lead the high wage worker to prefer more leisure, just as more of other luxury goods are preferred by those with higher incomes. To date, the evidence suggests these effects are roughly offsetting, so that higher wages on long term jobs do not have a strong relation to retirement outcomes. There are other possible explanations that might allow the wage to account for an increase in retirement with age; for example, if wage offers declined with age, that might reduce the reward to continued work for older individuals. But they do not. Sometimes researchers record the wage rate received by workers at different ages and find that the observed wage declines with age. This effect is illusory. As workers age,
some of the older workers have left their main jobs and are holding lower paying full or part time job as they transit to retirement. To be sure, some older workers experience layoffs, and once laid off older individuals certainly have greater difficulty locating new jobs, but that is not a dominating factor in shaping retirement.

Minimum Hours Constraints and Lower wages when partially retired: There is evidence that many jobs do not permit older workers to gradually phase into retirement. Rather, at the job they have held for many years minimum hours constraints allow the worker to choose only whether to work full time, or not at all. Work is available on a part time basis, but only at a much reduced wage. These minimum hours constraints, together with a lower wage offer when one works part time, account for the decision by many to move directly from full time work to full retirement.

Pensions: Pensions and their provisions may account for some of the diversity in retirement ages. There are two basic types of pensions. One plan, called a defined benefit plan, provides a periodic payment after retirement that is based on a formula. The amount of the benefit is typically determined by years of service, age and pay. So is the age of eligibility for receiving a full, unreduced, benefit (normal retirement age) and the age of eligibility for a reduced benefit (early retirement age). Defined contribution plans, which today are most often in the form of 401(k) plans, are essentially tax favored retirement saving plans. Both the covered worker and the employer may contribute to an account, often with the employer matching the worker’s
defined contribution plans do not create sharp incentives that affect the reward to remaining on the job, but defined benefit plans do. Those who leave a defined benefit plan before qualifying for early retirement benefits may be heavily penalized. Conversely, an individual who stays until qualifying for early retirement benefits may be heavily rewarded. Studies of workers employed at firms offering defined benefit plans indicate that workers respond to these incentives. Among studies that pioneered in investigating the relation of pension plan incentives to retirement outcomes, see Burkhauser (1979), Fields and Mitchell (1984) and Stock and Wise (1987). According to pension data for respondents to the Health and Retirement Study (Gustman and Steinmeier, forthcoming), defined benefit pensions on average had an early retirement age of 54, and an average normal retirement age of 61. Only 6 percent have an early retirement age above 60. Forty percent face a normal retirement age of 65, with 14 percent having normal retirement at age 62, over 20 percent with normal retirement at age 60, and over a fifth having a normal retirement age below 60. A man who has a defined benefit (DB) pension plan and works the year before qualifying for early retirement, on average, will find benefits increased by an amount equal to about sixty percent of one year’s of pay. For a woman the increase amounts to about a third of a year’s pay.
In addition to contributing to the explanation for the diversity of retirement dates, changes in pensions account for some of the trend to earlier retirement. For the 1970s and 1980s, it has been estimated that about ten percent of the trend to earlier retirement is due to the decline in ages of early retirement in defined benefit pensions and to other changes in pensions (Anderson, Gustman and Steinmeier, 1999).

*Social Security*: Analyses of retirement behavior suggest that social security has had a modest effect in influencing retirement, and that effect will decline for those now approaching retirement. Social security benefits are determined from past covered earnings history, where past earnings are indexed to age 60 and are averaged to a summary statistic called the Average Indexed Monthly Earnings (AIME). For those reaching age 62 after 1991, AIME is calculated using the highest 35 years of indexed earnings. If an individual has covered earnings for fewer than 35 years, then zeros are entered into the AIME calculation for the remaining years. From the AIME, the basic benefit, called the primary insurance amount (PIA), is computed. A progressive benefit formula is applied so that those who have low computed lifetime earnings have higher benefits, relative to earnings, than do those with high earnings. The earnings measure is typically expressed as a monthly amount, but when annualized, the formula for the year 2000 specifies benefits that are 90 percent of the first $6372 of annual earnings, 32 percent of the next $32 052, and 15 percent of remaining earnings. Benefits to spouses and survivors affect the relationship between benefits and earnings, both at the level of
the individual and at the level of the family. Spouses are entitled to roughly half of their partner’s benefits, and survivors are entitled to an amount roughly equal to the benefits that would have been payable to the deceased spouse. The social security benefit is subject to an earnings test for those between the ages of 62 and 65. But any benefits that are lost to the earnings test are restored at age 65. Indeed, for married couples, the additional benefits from waiting until age 65 to claim benefits are worth slightly more than the benefits that were lost.

This was not always the case, however. In the past, the earnings test applied to earnings of respondents through the age of 72. However, the age at which the earnings test no longer applies has slowly been reduced, until today it only applies to those between the early and normal retirement age. Moreover, in the past, the adjustment for lost benefits was not nearly as generous as it is today. Initially, the social security benefit structure discouraged work after the age of 65. With recent changes, the program is roughly neutral in its effects on the incentive to retire. Thus social security in the past may have created incentives that accounted for some of the retirements, perhaps both before and after age 65. For example, it is estimated that changes in the benefit formula in the 1970s and 1980s may have increased early retirement by about an eighth. But social security should not have any effect on retirements after the age of 65 in future years.

International evidence reenforces the view that pensions and social security have
important effects on retirement behavior. With the aging of the baby boom, the worry in many countries is that pensions and social security discourage still productive individuals who would otherwise work to leave the labor force.

Different countries have very different pension and social security systems than the United States. Differences in design among countries create incentives to retire at different ages. The different retirement incentives created by the diverse retirement systems among countries provide another test of the influences of social security and pensions in shaping retirement behavior. Gruber and Wise (1999) have brought together researchers from a number of countries both to describe retirement outcomes, and to see how their pension plans and social security systems affect retirement behavior. They find a close correspondence between the early retirement dates and other features of the programs and the ages at which older workers tend to leave the labor force. Moreover, they find that when these dates of early retirement and normal retirement specified in the social security systems of these countries change, retirement behavior changes correspondingly. Compared to many other countries, the U.S. has a low relative tax rate on work after the early retirement age specified in the social security system, which is one reason for the higher labor force participation of older men in the U.S.. Countries with very high tax rates, which include Belgium, Italy, France and the Netherlands, have lower participation rates by older workers than the U.S...
Many researchers believe that social security has substituted for other forms of retirement saving. Many people enter retirement with no assets and social security benefits as their sole support. Low income families may have half or more of their earnings replaced by social security. Those who rely entirely on social security cannot retire before the age of 62. They do not have savings to draw on to support their consumption until they became eligible for social security benefits at 62. As a result, if the social security early retirement age were raised from 62 to 65, there would be a large increase in the number delaying their retirement.

Health Status: Health changes are perhaps the most important of all the uncertain events affecting older workers' labor force participation. Data on the course of HRS respondent’s health events from 1992-1998, suggest a wide variety of health problems among workers, including limitations in activity, difficulties in carrying out mental and physical tasks, and medical problems such as high blood pressure. Both the level of health status and changes in health status are associated with different patterns of labor force participation in the HRS (Bound et al, 1998).

Retirement Decisions in the Family: Current findings suggest that many spouses retire together, even though wives typically are younger than their husbands. Available estimates suggest that each spouse, and husbands in particular, values retirement more
once their spouse has retired (Gustman and Steinmeier, 2000a). It does not appear that husbands and wives time their retirements to coincide simply because their pensions or social security have that effect. Other family related considerations may help to shape retirement. Some families married or remarried late, have young children, had a spouse who never returned to the labor market once having had children, or faced great demands on time to care for older parents, or a spouse. These and other differences among families may help to account for differences in retirement.

**Other Factors Affecting the Retirement Decision:** There is also evidence supporting the influence on retirement of many other factors that differ among individuals and their jobs. Labor market demands for older workers have been investigated. It is clear from this work that many firms are reluctant to hire older workers, because they will not work over a long enough period for their hiring and training investments to be repaid, and for other reasons (Hutchens, 1986). The business cycle also influences the demand for older workers. On the one hand, in times of tight labor markets, firms will have difficulty replacing older workers and will encourage them to postpone retirement. On the other hand, in times of slack demand, firms adopt policies such as one time windows that are designed to encourage earlier retirement. Those who invested more in training for the labor market by staying in school longer may work longer to justify their investments. Unions may shape retirement conditions both to accommodate the preferences of their older workers, and to share work with younger union members. Government policies might have had profound effects, but they have been pushing
against the trend. Thus the government in the past two decades has outlawed mandatory retirement, forced firms to make pensions more actuarially fair so as not to penalize work after the normal retirement age, and has eliminated the penalty to work after age 65 under social security. Perhaps these policies have had some small effect in mitigating the trend to earlier retirement in the 1990s. There is no firm evidence to support that view, however.

*Imperfect Information and Nonmaximizing Behavior:* Of course, the choices we see are determined by more than the maximizing choices made by people who fully understand all their opportunities. Many people do not fully understand the incentives from their retirement programs. Some plan well, some plan not at all. In addition, some who are well aware of the importance of preparing for retirement do not have the discipline to follow through. Most people are well prepared for retirement. But if they have not prepared, they will either have to consume less when retired, or to work longer. Economic models are now being expanded to better understand the behavior of those who may not fully understand all the incentives or for other reasons may not be choosing their retirement date according to a model of strict maximization. Certainly this work will modify our perception of how each of the factors discussed above influences retirement choices. Nevertheless, we expect the modifications to be modest, and that the major influences on retirement are the forces outlined here.
3. Conclusions.

Most of the information we have on how pensions, social security, health status and other factors affect retirement outcomes comes from analyses that were based on 1970s data (e.g., see Gustman and Steinmeier, 1986 and Rust and Phelan, 1997). The data from the new Health and Retirement Study are just being used to estimate comprehensive models of retirement. With these newly available data, researchers are in a position to quantify how the factor noted above influence retirement outcomes for those who are just a little older than the baby boomers. The wave of research now in process should also leave us in a good position to understand what will determine the retirement behavior of the baby boomers, and how changes in government social security and pension policies will affect their retirement outcomes.
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