Retirement and the Labor Force Behavior of the Elderly

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INTRODUCTION

The transition from work to retirement has long been a major concern of public policy analysts and practitioners. All modern industrialized countries and many developing countries have created policies to mitigate the risk of income loss due to retirement. But in so doing, they have fundamentally altered the reward structure of work and retirement across the life cycle. The resulting changes in the labor force behavior of older people have been dramatic. In this paper, we review recent economic research on these issues and outline the areas we think need additional research. We do so from the perspective of the United States, while recognizing that the labor force trends found here are not unique and that cross-national comparisons of public policy and its consequences are useful inputs for understanding and developing domestic policy.

Cross-national comparisons are appropriate since most industrialized countries have instituted retirement policies that discourage work at older ages. In the last decade, these policies have begun to change. In the United States, for instance, recent legislation has outlawed mandatory retirement, banned the cessation at of service year credits in pension calculations after a particular age and increased the Social Security credit for delayed retirement after the age of 65. One intent of these changes is to make the retirement system age-neutral with respect to work; that is, to end the age-specific penalties for work beyond specific ages that are imbedded in our current retirement system so that the lifetime value of retirement benefits will not depend on the age at which they are claimed.

But a more fundamental force is likely to affect retirement policy in the future -- the aging of post-war baby-boomers. The United States and

Germany have already enacted changes in their primary retirement insurance systems that will raise the age of normal retirement early next century. A review of past policies will be useful as we lay the groundwork for retirement policy in the 21st century.

Our discussion of retirement policy extends beyond the Social Security retirement program. In most countries, and certainly in the U. S., Social Security disability programs provide a bridge to retirement for some of those too young to qualify for retirement benefits. This protection raises the same economic incentive issues that are the focus of much of the retirement research. Hence, in looking at labor force participation at older ages, we must look at the full impact of the social welfare system on work decisions.

Retirement policy extends well beyond government transfer programs. Private contracts between employers and employees can also alter the incentives to work at older ages even when explicit wage rates do not change. Employer pension plans and health benefits also influence the retirement patterns of older workers. Government attempts to alter these contracts provide another topic for public policy analysis.

Below, we first document some worldwide trends in labor force participation at older ages and review the literature that has attempted to explain them. We find that while most workers have a choice with respect to retirement age, the choice is constrained by personal health factors, government retirement and disability policies and employer pension plans. The major debates in the literature are not about the presence of such constraints but rather about the magnitude of their impacts. We end by suggesting how labor force behavior may change as new cohorts of older workers emerge in the next century and outlining the research and data that will be needed to track this behavior.

THE LABOR SUPPLY OF THE ELDERLY

Labor force Participation

The United States

The retirement trend of older Americans over the last several decades is dramatic. A simple measure is the labor force participation rate - the ratio of those employed (full-time or part-time) or actively searching for work to the civilian non-institutionalized population. Figure 1 shows U.S. participation rates from 1964 through 1991, for cohorts of men aged 45-49 through 70+. For men aged 60-64, which includes the earliest age of eligibility for Social Security retirement benefits (62), participation has dropped nearly a third, from 80 to 56 percent. For men aged 65-69, the decrease is about 40 percent, and for those 70 and over, the participation rate has dropped in half. The trends are less striking for the younger groups, but even those aged 55-59 have dropped 10 percentage points, with more modest declines for those aged 45-54.

For women, the trends are less precipitous, because two offsetting phenomena are at work. People are retiring earlier, but women, especially married women, are more likely to work than previously. For the oldest female cohorts (aged 60 and older), the resultant trends are flat (see figure 2); for the younger groups, the latter dominates, and participation rates are on the rise.

The Department of Labor gathers some labor force data by individual ages. Figure 3 shows participation rates for men aged 60 through 65, which include key ages for Social Security (62 and 65) and for many employer pensions (age 60). The long-run trend can be seen in two ways - the decline for each age over time and the change in the most prominent single-year

gap. In 1968, the largest behavioral change occurred between ages 64 and 65. Now, the biggest change is between ages 61 and 62. A gap at age 65 remains, but much of the labor force departure has already occurred.

The most recent data suggest that the trend towards earlier retirement in the U.S. may have stopped or even reversed. For all of the age categories of men above age 50 in Figure 1, participation rates over the past 5 years are virtually unchanged. For 11 of the 16 individual ages between 55 and 70 (and for 8 of 10 ages over 60), male participation rates were actually higher in 1990 than in 1985.

In summary, men are leaving the labor force much earlier than they were even two decades ago, but there has been little change in the past few years. (As we will see below, however, the trends may be continuing still, but in another guise - reduced hours of those employed.) Women's retirement trends are being offset by a rising tide of females labor force participation in general.

Other OECD nations

The early retirement trend can be seen in other industrialized nations as well. The participation rates differ by country, as do the magnitudes of the declines, but the general pattern is the same - people are retiring earlier than they used to.

Table 1 shows the employment to population ratio for 16 OECD countries, from 1966 to 1990, for men aged 55 and over.[1] The current figures range from 11 percent in Italy to 60 percent in Japan, with most countries in the 30-40 percent range. But every one of these countries except Japan has seen a significant fall. The U.S. decline (about 30 percent over these 24 years) is typical.

Figure 4 shows employment to population ratios by age (55-59, 60-64 and 65+) for men in 8 selected OECD countries in 1975, 1980, 1985 and 1989 (1987 for West Germany). For the youngest group, these ratios in 1989 ranged from about two-thirds in the Netherlands to over 90 percent in Japan. Over the past 15 years, the declines ranged from 13 to 15 points (Australia, France, the Netherlands and the U.K.) down to less than 1 point in Germany and Japan.

Employment rates are substantially lower for the cohort of men aged 60-64 -- from around 20 (Japan and Sweden) to 25 (Australia, Sweden, U.K. and U.S.) to over 40 points lower (France, Germany and the Netherlands) -- than they are for men aged 55-59. The rates range from a low of about a quarter (France and the Netherlands) to over 70 percent in Japan. The declines since 1975 have also varied greatly, from about 10 percent in Japan, Sweden and the U.S. to over 40 percent in the Netherlands.

With the exception of the Japanese, market work is now rare among men aged 65 and over. In Japan, more than a third of these men still work, and in Sweden and the U.S., 1 in 6 or 1 in 7 do. But in the other countries shown, fewer than 10 percent employed. In France, Germany and the Netherlands, it is closer to 5 percent. Compared to men aged 60-64, several of the cohort drops are precipitous - over 40 percentage points in Australia, Sweden and the U.K.

Several summary points emerge. In all of these countries, male employment rates drop dramatically between the ages of 55-59, when the vast majority of men are still working, and 65 plus, when work is the exception, not the rule. The age at which the decline occurs varies. Some countries have huge participation declines at ages 60-64 (France, Germany and the Netherlands - all over 40 point drops), and the others have a large

decline at ages 65 and over (Australia, Japan, Sweden the U.K. and the U.S. - all over 35 point drops). Second, the trend toward earlier retirement is observed everywhere, but in many countries, like the U.S., it has tapered off in recent years. Third, U.S. participation rates are typical for men aged 55-59 and 60-64, but relatively high for men 65 and over. Finally, Japan stands out as an exception on work at older ages, with the highest rates for all three age cohorts, and is the only one of these countries where a third of men over 65 continue to work.

The trends for women are more varied. Table 2 shows employment to population ratios for women aged 55 and over in the same 16 OECD countries. In some (such as Canada, Australia, Italy, Japan, and the U.S.), there is little change over the past 20 years. Others (Finland, France, West Germany, Spain and the U.K.) have had the same declines we saw with men. Only in Sweden has older women's employment increased steadily.

Women also show significant labor force withdrawal as they age, although less so in the United States than in most of these other countries. Only in Canada, Japan, Norway, Sweden and the United States are more than a third of the women still working at ages 60-64 (not shown); for women aged 65 and over, participation rates are in the single digits for all these 16 countries except Norway and Japan.

Part-time Work

The United States

Not only do fewer older Americans work than previously, but those who do are more likely to work part-time. In the U.S., the importance of part-time work rises dramatically with age. Although only 7 percent of employed nonagricultural men aged 25-60 work part-time (fewer than 35

hours per week), 16 percent of those aged 60-64 and nearly half of the men aged 65 and over do (U.S. B.L.S.,1992, table 33). For women, part-time work is more prevalent at all ages, and shows a similar age differential. While only about 20 percent of the employed women aged 25-54 work part-time, a quarter of those 55-59, over a third of those 60-64 and 60 percent of the women 65 and over do (ibid.). The vast majority of the older Americans working part-time say they are doing so voluntarily (ibid.).

Among older Americans, the proportion working part-time has been growing over time; for men aged 65 and over, from 38 percent in 1970 to 49 percent today, and for women, from 50 to 60 percent.[2] In this sense, the early retirement trend may still be under way, but through hours rather than labor force participation.[3]

Other OECD Counties

Part-time employment also appears to be on the rise in other developed nations. The OECD (1983, p. 44; 1991, p. 46) has estimated the extent of part-time employment in member nations in 1973, 1979, 1981, 1983 and 1990. In every case, the proportion was higher in 1990 than in 1973. In most cases, the rise was steady over this time period.

There is great variation in the extent of part-time work in the OECD countries. Among all employed men, the proportion part-time ranges from 2 percent or less in Austria, Belgium, Germany, Luxembourg and Spain to nearly 16 percent in the Netherlands (ibid.). Among employed women, the proportions are always much higher, ranging from about 10 percent in Finland, Greece, Italy and Portugal to nearly 50 percent in Norway and over 60 percent in the Netherlands.[4]

Most of the part-time work in these countries appears to be voluntary. The OECD (1990, p. 182) estimates that about 2 of 3 male and 4 of 5 female part-timers want to work less than full-time. If the United States is any guide, the percentage voluntary would even higher for the older part-time workers.

Figure 5 shows the percentage of the elderly population who worked part-time in 8 OECD countries in 1989 or 1990. This ratio combines two factors: the percentage of the population who work and the percentage of those working who work part-time. Several interesting conclusions emerge. Among older men, part-time work is inconsequential in Germany and France. In both countries, the vast majority of men are out of the labor force altogether by age 60 and, especially in Germany, very few of those who remain work part-time. Only 3 percent of older Frenchmen (55-64) and 1-2 percent of older Germans are part-time employees. In contrast, part-time work among the elderly seems to be very common in the Netherlands (at ages 55-59) and in Japan and Sweden (after age 60), where 13 and 19 percent of all men aged 60-64 work part-time. The U.S. is in the middle, because neither our retirement experience nor our part-time employment experience among the elderly is extreme.

For women, the relative U.S. experience depends on the age group under discussion. For those aged 55-64, we are at the low end of the spectrum, not because our labor force participation rates are particularly low, but because relatively few of those employed work part-time. By age 60-64, however, the U.S., with 12 percent of the population working part-time, is much more typical. We have moved to the middle of the spectrum because of the much more abrupt retirement patterns among women in other countries. In Germany, France and the Netherlands, fewer than 7

percent of the women aged 60-64 are employed part-time. In contrast, 16 percent of British and Japanese women are, and nearly a third of those in Sweden.

What emerges is that part-time employment is an important part of the labor force withdrawal process in many developed nations. The United States experience is in the middle of the spectrum; some countries have a lot less elderly part-time employment, and others a lot more. Since more older Americans say they want to work part-time than actually do, we may have much to learn from other nations who have been more successful in permitting workers to withdraw gradually from the labor force.[5]

DETERMINANTS OF THE RETIREMENT DECISION

The Early Survey Literature On Retirement

The early literature described retirement transitions that were largely thought to be involuntary.[6] It emphasized the importance of poor health, layoffs and mandatory retirement policies in the withdrawal process, and was largely based on surveys and analyses done by the U.S. Social Security Administration.[7]

For example, Wentworth (1945) analyzed a survey of nearly 2,400 male Social Security beneficiaries who were asked why they quit working. Well over half said they had been laid off, and another third claimed they retired for reasons of health. Fewer than 5 percent of the respondents seemed to have retired voluntarily while in good health. A few years later, Stecker (1951) summarized the Wentworth study and three other surveys from the 1940s. She found that the overwhelming majority of Social Security beneficiaries left their last covered employment because they had lost their

jobs or had quit for health reasons. Only about 5 percent left because they "wanted to retire." Stecker (1951:15) concluded that "most old people work as long as they can and retire only because they are forced to do so."

In 1951, SSA surveyed over 15,000 retired beneficiaries aged 65 and over. Nearly 85 percent had either lost their last job or quit because they were unable to work. Stecker (1955:12) concluded that "voluntary quitting to enjoy a life of leisure is rare among old age beneficiaries. Relatively few who are able to work choose retirement."

In 1963, SSA surveyed both beneficiaries and non-beneficiaries as young as age 62 and a trend toward more voluntary retirements was first noticed. About 28 percent of the wage and salary workers had retired for voluntary reasons, about twice the percentage in the 1951 survey. Palmore (1964:3) stated that "although most men retire involuntarily - because of poor health...or because they have reached a compulsory retirement age - voluntary retirements are increasing." Epstein and Murray (1967:105) agreed that "(t)here seem to be more and more aged men who are well enough to work and who might get some kind of job if they were interested, but who prefer the leisure of retirement."

In 1971, Reno reported on a new survey of recent Social Security recipients, in which those not working were asked why they left their last jobs. Nearly half said health, another quarter gave job-related reasons and 17 percent said they wanted to retire. But in another part of the survey, nearly a third said that they left their last job because they wanted to start getting Social Security or a pension, suggesting that financial considerations might be important.

Reno also found that the proportion who wanted to retire increased directly with the size of their retirement benefits. She concluded that

"...financial considerations often underlie the willingness with which men retire early" and that "the level of retirement benefit income had an important influence on the men's willingness to accept or initiate early retirement (Reno, 1971:12-13)."

More recently, Reno and Packard (1989) reported on a 1982 survey of new Social Security beneficiaries, in which answers suggested that more retirements were voluntary than involuntary. The proportion voluntary rose with the age of retirement (up to age 65), and was much higher for those with pensions. Overall, about a third said that they wanted to retire, more than the quarter who named health as the primary reason.

The Early Econometric Literature

Economists are interested in the role of incentives. Survey responses and circumstantial evidence suggested that financial incentives might be important in the retirement decision. Retirement and early retirement rates rose dramatically in the U.S. as Social Security and employer pension systems expanded. Noticeable changes in labor force behavior occurred at ages important in pension and Social Security rules - 60, 62 and 65. Workers' wage earnings were found to cluster around the levels at which the Social Security earnings test went into effect.[8]

The early econometric literature hypothesized that many retirements are labor supply choices - individuals doing what they judge best given the options they face. The early studies were, in retrospect, unsophisticated in a number of ways. They were one-period labor-leisure models that ignored the essential multi-period nature of pension and Social Security promises, and they utilized very simple measures of the financial incentives facing those contemplating retirement. Nonetheless, they yielded reasonable

results that began to change the accepted wisdom on the process of retirement, and they encouraged a flood of more sophisticated research.

Quinn (1977) published one of the earliest econometric studies using the Social Security Administration's Retirement History Study (RHS). Using only the first cross-sectional wave of about 11,000 men and (non-married) women aged 58-63 in 1969, he found that current labor force status (in or out) depended on health, the presence of dependents, asset income, local labor market conditions, certain job characteristics and, most important for our purposes, eligibility for Social Security and/or employer pension benefits. Those currently eligible for benefits were much more likely to be out of the labor force. But the study ignored the size of the benefits, and how these benefits might change were the individual to work for another year.

Boskin (1977) studied a small sample of older men from the Panel Study of Income Dynamics, and estimated the maximum Social Security benefit for which each household would be eligible. The results suggested very strong Social Security effects - the larger the potential benefit, the more likely the person was to retire. Unfortunately, he had no information on pension eligibility or benefits, and also ignored the fact that the benefits would rise were retirement delayed.

Burkhauser (1979, 1980) was the first to emphasize the multiperiod nature of Social Security and pension rights, and argued that the theoretically appropriate and empirically important concept was not a dichotomous eligibility variable (as in Quinn, 1977) or the size of the annual benefit (as in Boskin, 1977), but rather the present discounted value (PDV) of the entire benefit stream. He showed that this PDV (or changes in it, called pension accrual - see below) was an important determinant in the

decision of autoworkers contemplating an early pension and of other workers considering early Social Security benefits at age 62.

The key insight here was to view retirement income rights as an asset, a stock of wealth, which could rise or fall depending on when the benefit was claimed. When the receipt of a retirement benefit is delayed (for example, by working another year), two things happen. The bad news is that current pension income is foregone; say, $10,000. The good news is that future annual benefits will be higher. For Social Security, they will increase because average monthly earnings (on which benefits are based) will rise and because Social Security adds a delayed retirement credit to all future checks. For defined benefit pension plans, benefits are usually based on some combination of last or highest earnings and years of service, both of which are likely to rise with continued work.

The choice, then, is not simply between a pension check and no pension check in that hypothetical year; rather, it is between two streams of income, one starting immediately, with smaller annual amounts, and another commencing later, but with higher benefits each year. Which is more valuable - more small checks or fewer large ones?

The answer depends on whether the future annual increments are sufficient to compensate for the pension income initially foregone. If the increments just compensate, the pension is called actuarially fair. If the future additions are more than sufficient, then one gains twice by working that additional year, both through the paycheck and through the increase in pension or Social Security wealth. But if the future increments are worth less than the benefits foregone, then pension wealth declines with additional work. In this case, true compensation is less than the paycheck by the amount of the wealth loss. This simple concept and the existence of

several outstanding datasets spawned the voluminous literature discussed below.

The Modern Econometric Literature

Economists have adopted two strategies to study retirement incentives. Most have used one of the large micro-economic datasets on older workers (such as the RHS or the Labor Department's National Longitudinal Survey (NLS)) to ask who retired, who did not and under what circumstances. The advantage of this approach is extensive demographic and economic information on a large sample of potential retirees and access to their Social Security earnings records. The disadvantage is scanty data on their employer pensions. The second approach involves analysis of actual pension plans, with all their detail; the price paid is limited information on the people in the plans. Fortunately, these two strategies yield similar conclusions.

Recent research has established that Social Security and many defined benefit pension plans contain strong retirement incentives (work disincentives) at specific ages. They do so with benefit calculation rules under which the future annual pension increments following an additional year of work are inadequate to compensate for the benefits initially foregone; in other words, the asset value of one's Social Security or pension declines with additional years on the job. By working, one earns a paycheck and simultaneously loses retirement income wealth. This is a decrease in net compensation - a pay cut - not via the paycheck, which would be illegal, but through the benefit calculation rules of Social Security and many employees' pension plans.

Accrual Patterns

Burkhauser and Quinn (1983a) and Quinn and Burkhauser (1983) used the RHS to estimate the size of the Social Security and employer pension incentives in the mid-1970s. We found that Social Security wealth rose slightly with continued work for the median full time worker at age 63 and 64 - future increments slightly outweighed the initial benefits foregone. But at age 65, because of the drop in the delayed retirement credit from about 7 to only 1 percent per year of delay (it is now 4 percent), Social Security wealth decreased sharply for those who continued to work to age 66. The median wealth loss was about a third of annual pay - a significant pay cut indeed. The pension story was similar, although the estimates were less reliable because the RHS pension data were much more limited.[9]

Fields and Mitchell (1984c) examined the details of 14 specific pension plans and estimated the incentives facing workers at each age between 60 and 68. They found that the asset value of pension rights tended to rise and then fall, peaking between the ages of 60 and 65. With samples of men from one of their pension plans and from the RHS, they calculated total lifetime income (from age 60 on) for hypothetical retirement ages between 60 to 68 - the sum of the present values of earnings, Social Security and pension benefits. This total rises with each year of additional work because earnings exceed retirement benefits. But the increase in the total (the true compensation for the additional year of work) falls monotonically, and at age 68 is less than 40 percent of what it was at age 60. This is the declining compensation profile facing older Americans.

Finally, Kotlikoff and Wise (1989) studied nearly 1200 American plans and found that pension accruals for the typical plan were negative for those

who worked past the normal retirement age in the plan. In many pension, accruals were negative after the earliest age of pension eligibility. They found that it was not unusual for the annual loss in pension wealth to equal 30 percent of annual wage earnings.

Because of this research, it is now generally agreed that retirement income rights are best viewed as assets whose values depend on when they are first claimed. Changes in these asset values with continued work (pension accruals) are part of compensation and wealth losses are equivalent to pay cuts. At some age - certainly by 65 but often much earlier - accruals become negative and therefore net pay begins to decline, providing strong incentives to retire.

The Impact of Retirement Incentives on Behavior

Considerable research indicates that many workers respond to these incentives by leaving career jobs and often the labor force as well when these pay cuts occur. Burkhauser (1979) showed that auto workers were more likely to leave the firm the larger the pension wealth loss associated with continued work. Shirley Rhine (1984) found that employees in companies with attractive early-retirement benefits were more likely to retire earlier than those in companies without such inducements. With a large sample of older workers from the RHS, Burkhauser and Quinn (1983b) found the same for both Social Security and pension wealth changes. We concluded that at least half of what looked like a mandatory retirement effect at age 65 was really due to the financial incentives that occurred at the same time.

Burtless and Moffitt (1984, 1985, 1986) confirmed that the Social Security system influences labor supply behavior. They found a dramatic

clustering of retirement around the ages of 62 and 65, and showed that retirees who continued to work reported earnings clustered around the amount that Social Security permits without loss of benefits. Sickles and Taubman (1986), also using the RHS, combined earnings and the change in Social Security wealth into one variable and found that it was the most significant of the income variables in explaining retirement behavior.

As mentioned above, Fields and Mitchell (1984b) used a very different methodology and a different data set, choosing to delve more deeply into the actual details of a small number of pension plans. When the incentives and individual behavior were compared, they concluded that those with the most to gain by postponing retirement tended to retire later. Similarly, Kotlikoff and Wise (1989) studied the employees of one particular firm for which they knew exact pension details, and showed that departure rates at specific ages coincided precisely with the discontinuities in worker compensation that resulted from Social Security and pension plan accruals.

Because the two main microeconomic data sources for much of the retirement research focused on men, there is much less literature on the retirement decisions of women.[10] In very recent work, Reimers and Honig (1993) and Honig and Reimers (1992) suggest that (white nonmarried) women may be more sensitive to these financial incentives than are men. According to their results, women have longer time horizons and are more likely to view Social Security in a long-run, present discounted value fashion rather than just looking at the level of current benefits. On the other hand, in one of few other studies comparing the retirement patterns of men and women, Lumsdaine, Stock and Wise (1992) find no statistically significant differences in retirement behavior. This is an area where research is long overdue.[11]

Gustman and Steinmeier (1992b) have analyzed the impact of another incentive - health benefits after retirement - on the timing of the retirement decision. They find that workers tend to delay retirement at least until the date at which they become eligible for these benefits, and then are slightly more likely to retire once eligible. The net effect is a very small decline in average retirement age.

Exit Patterns from Career Jobs

Researchers have recently begun to analyze the exit routes that older Americans take between full time work on a career job and complete labor force withdrawal. Although many still make this transition in one step, many utilize one or more bridge jobs between the two. Despite the fact that most of the economic literature treats retirement status as dichotomous, Americans actually leave their career jobs in many diverse ways.

Quinn, et. al. (1990) defined a career job as full-time employment held for at least 10 years. Following the RHS sample from 1969, when the respondents were 58 to 63 years old, until 1979, when the biennial surveys ended, we found that a substantial minority did not leave the labor force when they left full-time status on a career job. Among wage and salary workers, a quarter did something else - most found new employment and a few dropped to part-time on the career job. Among the self-employed, with more control over the amount and kind of work they do, only half left the labor force. A quarter remained part-time on the same job, and the other quarter found new work.

Most of these transitional jobs were more than short-term employment. Of those who switched employers, nearly three-quarters were still on the new job a year later, and nearly 60 percent remained after two

years. A comparison of the career and bridge jobs revealed that most of the transitions involved movement to different occupations and industries. More people moved down the socio-economic ladder - from skilled to unskilled and from white collar to blue collar - than moved up. There were many more pay cuts than wage increases.[12] There was weak evidence that those at the ends of the economic spectrum were more likely to stay in the labor force after leaving career employment - the poor probably because they had to and the rich because they wanted to.

Ruhm (1992) has analyzed sample of men aged 58-63 from a much more current dataset - the 1989 Commonwealth/Harris survey - and compared his findings with those on men of the same age from the 1969 RHS sample.[13] Not surprisingly, he finds higher retirement rates today than 20 years ago. He also finds much larger employment drops at the ages of 60 and 62 now than there were then. These are important ages for pension and Social Security eligibility. In 1969, the cross-sectional employment rate dropped about 2 and 5 percentage points at ages 60 and 62 respectively; in 1989, the declines were 13 and 18 points.

Ruhm also found substantial bridge employment. Between 30 and 40 percent (depending on the age) of those employed in 1989 were working on a post-career bridge job, and for all ages but one, these percentages were higher in 1989 than they were for people the same age in 1969.

This research shows that dichotomous definitions of retirement, no matter what the definition used (e.g., labor force participation, a large decline in hours worked, receipt of pension of Social Security benefits or self-defined status) misses much of the story. Retirement routes in America are many and varied. The stereotypical transition - directly from full-time work to full-time leisure - is only part of the story. A substantial minority of

Americans do something other than leave the labor force when they leave their career jobs. For many, the transition involves part-time employment, usually on a new job, in a new line of work and at lower pay. There are offsetting advantages, such as hours flexibility, different working conditions and, for many, the ability to claim a career job pension when its asset value is at its peak.[14]

Uncertainty, Option Value, and Dynamic Programming Models

Most retirement models implicitly assume a world of certainty in which people base decisions on their current situations and their best estimates of the future. In fact, however, there are probability distributions around these best estimates and these distributions change over time. Health can vary and layoffs occur. Labor market conditions can improve or deteriorate. Retirement benefits can differ from expectations, either because individuals did not understand the details initially or because the rules changed after their initial expectations were formed.[15]

Anderson et al. (1986) compared the planned and actual retirement dates of nearly 1,600 male workers in the RHS and found that the majority (about 60 percent) left work within a year of their predicted date. More retired earlier than they had planned than later, and the proportion as expected increased with the person's age at the time of the prediction. More importantly, changes in plans were correlated with changes in the environment; in particular, with the unanticipated increases in real Social Security benefits in the late 1960s and early 1970s, with changes in individual health status and with changes in local labor market conditions. Increases in Social Security wealth and health deterioration increased the probability of retiring earlier than planned and decreased the likelihood of

retiring later; an increase in local unemployment rates did just the opposite. This research shows that plans do change and that models based on assumptions of certainty will miss part of the story.

Much of the most current and most sophisticated research on retirement focuses specifically on issues of uncertainty. Rust (1989), Stock and Wise (1990), Berkovec and Stern (1991), and Lumsdaine et al. (1992) have developed models in which individuals recalculate their optimal behavior each time period, using new information about the present and their current best predictions about the future. The computational requirements of some of these models are extreme, so they are usually simplified in other ways. For example, in Rust's stochastic dynamic programming model, which allows individuals to optimize over age of retirement and future consumption simultaneously, he has no pension plan incentives and assumes that unobserved individual factors, like health and work-leisure preferences, are uncorrelated over time - an unlikely prospect.

What makes these models interesting is that they do not assume that workers know their future wage rates and retirement benefits with certainty, and they allow comparisons of current retirement with retirement at all future dates. In the Stock and Wise (1990) model, for example, a worker decides whether to retire from the firm today by forecasting future wages and retirement benefits, and then estimating the present discounted value of total compensation (earnings plus pension and Social Security accruals) associated with each potential departure date in the future. If any future date looks better, given his labor-leisure preferences, he continues to work. Once he leaves, he cannot return to the firm. By continuing to work, the individual retains the option of leaving later, at a more advantageous age. This is the "option value" of work.

After another year on the job, the worker has more information about the future, based on his actual earnings during that year and any other relevant knowledge he has acquired. He must then make another retirement decision, again comparing immediate retirement with retirement in all subsequent years. The forecasts of future conditions will be different from what they were a year ago, because of the new information. Critical to these models are assumptions about how expectations are formed and how sensitive they are to new information, both of which are difficult to model.

The Stock and Wise results are consistent with the previous literature. Pension incentives are very important. Using personnel data from a large Fortune 500 firm, they find that discontinuities in actual retirement rates correspond closely with the incentives of the pension plan, and predict that changes in the pension plan (such as a delay in the early retirement age or a switch from defined benefit to defined contribution) would have dramatic impacts on retirement patterns - impacts much larger than those predicted, in other papers, for Social Security reform.

Berkovec and Stern (1991) propose a much more complicated dynamic programming model, in which workers choose among 4 states - remaining on the current job, switching to a new full-time or a new part-time job, or leaving the labor force. Once retired, the individual can choose to stay retired, or accept a new full-time or a new part-time job. These choices are made each period, based on current and expected wages, pensions and preferences for leisure. Since the model does not include Social Security, their predictions miss important discontinuities in retirement behavior at ages 62 and 65. Nonetheless, they report that their

dynamic model outperforms an analogous static model, and urge that model dynamics be included explicitly in the estimation procedure.

Lumsdaine et al. (1992) focus directly on the issue of model complexity and predictive validity. Closer approximation to individual behavior often requires an increase in the complexity of the model. At some point, however, the complexity may exceed the actual decision-making processes at work, and predictive power may decline. In addition, computational burdens associated with complexity may require other simplifications in the model that reduce the its usefulness.

Lumsdaine et al. compare the out-of-sample predictive power of three models of increasing complexity - a traditional probit model, an option value model like that of Stock and Wise (1990) and a dynamic programming model like that of Berkovec and Stern (1991). They report that the latter two predict subsequent retirement behavior of a sample of workers from a single firm about equally, but that both significantly outperform the simpler, less forward looking probit model. This suggests that some increases in model complexity are worthwhile, but that others may not be.

Demand Side Analysis

Most of the recent retirement literature has taken a supply side perspective - workers are assumed to choose which of several options to take, based on their preferences and the financial incentives they face. But there has also been a revival of demand side interest, reminiscent of the early literature on involuntary retirement, asking whether older workers face restricted job opportunities as they age.

Although the official unemployment rates of older workers are lower than those of the labor force as a whole, older Americans are more likely

than others to be discouraged workers - out of work but no longer looking and therefore not counted as unemployed.[16] Although workers aged 55 and over (in the mid-1980s) were about as likely as younger workers to be laid off, those who were were much more likely to end up out of the labor force - one-third of those aged 55 to 64, three-quarters of those 65 and over, but less than 10 percent of those 20 through 54 (Herz and Rones, 1989). Shapiro and Sandell (1987) studied older workers who were laid off or fired between 1966 and 1978, and found that older job losers were more likely than others to experience long spells of unemployment and suffered greater earnings reductions when they did find work. Layoffs were also highly correlated with retirement. Almost 30 percent of male job losers aged 60 retired, compared to only 10 percent of those still employed.

Hutchens (1986, 1988, 1991) hypothesizes that firms with large fixed costs of hiring or training prefer a younger worker to an otherwise identical older worker, since the younger worker has more years of labor to offer the firm, and therefore more years to amortize the fixed costs. In a job search framework, the distribution of job offers to a worker will depend on that workers' expected job duration, and job offers will be less frequent or the jobs less attractive the older the worker.

Hutchens (1991) tests this theory with a sample of recently displaced men aged 30 to 59, and finds some weak support for his hypotheses - the proportion of those laid off who are unemployed or out of the labor force increases with age, and the older workers (50 and older) who did find work were paid less than those aged 40-49. He wonders whether stronger results were not masked by selectivity bias - the possibility that the two-thirds of the older workers who were re-employed were the most talented of the

group. Those unemployed and out of the labor force would have been paid even less than those actually employed had they found work.

Straka (1992) has provided an outstanding up-to-date survey of the demand side literature, and concludes that the options facing older workers may be considerably more limited than the supply-side literature has assumed. He does not attribute much of this to age discrimination per se, but rather to sources of labor market adversity, often privately efficient, that happen to increase with age. These include reduced incentives for human capital accumulation, skill obsolescence, physical limitations, fixed costs of employment (as emphasized by Hutchens), and long term, mutually beneficial implicit contracts between employers and employees that require either a mandatory retirement date or a significant cut in compensation late in the life cycle.[17] Straka concludes that without the elimination some of these demand side obstacles, attempts to increase the working lives of older Americans through antidiscrimination legislation or supply side measures (such as the elimination of Social Security work disincentives - see below) may be ineffective.

Summary of the Retirement Literature

The retirement decision is known to be a complicated one, influenced by an individual's mental and physical health, attitudes toward work and leisure, job opportunities, social networks, living arrangements, financial circumstances and expectations about the future. Recent developments in economics have focused on the extent and impact of the financial incentives imbedded in Social Security and in many defined benefit employer pension plans. These incentives can alter compensation patterns over time, augmenting pay with positive pension accruals early in the life cycle (and

thereby discouraging job mobility), and reducing pay with declining and often negative accruals later in life. These pay cuts encourage departure from the career job and often from the labor market as well.

Research has shown that these pay cuts can be large and that they do influence behavior. Other things equal, workers who would suffer large losses in Social Security wealth (at age 65) or private pension wealth (at different ages in different plans) are more likely to leave the firm and the labor force. People behave as though they understand and respond to these incentives.

Research also suggests that the pension effects, for those covered by defined benefit plans, are much more important than the Social Security incentives. Numerous simulations of various Social Security reforms all suggest that their aggregate effects would be small - on the order of months, not years.[18] On the other hand, pension incentives and their behavioral effects are dramatic, as the review by Lumsdaine and Wise (1990) makes clear. For this reason, when discussing future retirement trends below, we put great emphasis on future direction of employer pension incentives. As we will see, there are some indications that work disincentives may become less important in the future.

Disability Benefits as a Means of Retirement

The decline in male labor force participation begins well below the earliest age of eligibility for public retirement benefits in the U. S. and in other industrialized countries. These declines and a simultaneous increase in the disability transfer rolls have generated a growing literature on disability policy that parallels the retirement research discussed above.

Table 3 shows the ratio of persons on disability transfer programs per 1000 active labor force participants in the United States, Germany, Sweden, and the Netherlands between 1970 and 1989. As recently as 1970, this ratio was approximately 50 per 1000 in the three European countries and about one-half that in the U.S. During the 1970s, the rate more that doubled in Holland and increased by over 50 percent in the United States and more modestly in the two other countries. During the 1980s, the rates leveled off in three countries and declined in Germany.

Since people are more likely to suffer ill health as they age, the ratio of disability transfer recipients to workers increases with age. Table 3 documents this pattern. But it is difficult to imagine that narrow health-related changes are responsible for such dramatic differences in disability transfer rates across countries or shifts in these ratios over time.

An alternative explanation is provided by Haveman, Halberstadt, and Burkhauser (1984) and by Aarts, Burkhauser, and deJong (1992), who find evidence for a policy-generated disability "epidemic" - changes in disability policy that induced a rapid increase in the "disabled" population during the 1970s and stabilization in the 1980s. They argue that much of this disability population would have been unemployed, retired, or, in some instances, still working under different policies.

Providing empirical evidence for this conjecture is difficult. Bound and Waidmann (1992) attempt to do so for the United States. They use trends in self-reported disability to infer the impact of disability transfer programs on the labor force attachment of older working-aged men. They argue that about one-half of the 5 percentage point drop in the labor force participation rate of men aged 45 to 54 and about one-third of the 20

percent drop for men aged 55 to 64 between 1949 and 1987 is due to movement onto the disability rolls.

Using a series of cross-sections from National Health Interview Surveys (NHIS), Bound and Waidmann find an increasing prevalence of self-reported disability during the 1970s, and a concurrent rise in the proportion of men reporting specific chronic conditions. But they argue that such a rise in morbidity is inconsistent with medical advances and personal health habits that should have improved the health of this population.

Bound and Waidmann offer four alternative explanations: that earlier diagnosis of pre-existing conditions led to higher self-reported prevalence in the NHIS data; that improved survival increased morbidity; that deinstitutionalization increased the number of NHIS respondents who were mentally ill; and finally, that economic and disability policy variables led people to exaggerate their health problems. They then argue that this last effect is by far the largest and best explanation.

Inferences of this sort suggest that disability policies that attempt to offset income losses associated with poor health can have an important independent effect on labor force participation. Econometric modeling of this relationship in the United States has proven to be difficult and controversial.

Determinants of the Disability Retirement Decision

A number of early studies used time-series data to explore the link between the labor force participation of older men and increases in the disability rolls. Hambor (1975) found that application rates to the Social Security disability insurance program increased when unemployment rates

increased. Leonard (1979), using time-series regressions, found that labor force participation was sensitive to macroeconomic fluctuations and disability insurance characteristics.

Parsons (1980) published the first study of the labor supply effects of disability insurance based on individual micro-data. He estimated labor force participation as a function of the ratio of Social Security disability benefits to wages (the replacement rate) and health, using 1969 cross-sectional data from the National Longitudinal Survey of Older Men (aged 45 to 59 in 1966). He avoided the problem of using a contemporaneous self-reported measure of health by using information from subsequent years of the NLS - whether the person died between 1969 and 1976 - as a proxy for prior (1969) health status.[19] Parsons' main finding is a strong elasticity of nonparticipation with respect to the replacement rate which, if correct, would explain most of the decline in labor force participation rates of men aged 45 to 59 in the 1970s.

Leonard (1979), using cross-sectional data from the Social Security Survey of Health and Work Conditions, and Slade (1984), using a single cross-section from the RHS, also found significant and relatively strong elasticities with respect to the replacement rate, although Leonard's elasticity is only about one-half the size found by Parsons (1980).

Haveman and Wolfe (1984) estimated labor supply equations for men aged 45 to 62 using a cross-section from the Panel Study of Income Dynamics (PSID) and found much weaker elasticities.[20] They also showed that Parsons' results are sensitive to the specification chosen. In more recent work, Haveman, deJong and Wolfe (1991) used more sophisticated data, the 1978 Survey of the Disabled, and methodology, a switching regression to account for the potentially endogenous process that separates

wage earners from transfer recipients. They employed longitudinal earnings data to measure expected changes in income and separately estimated latent health status in an attempt to purge it of endogeneity in the participation decision. Having done so, they continue to find a relatively small elasticity of nonparticipation.

All of these studies find that disability transfer programs do affect labor supply decisions. However, with different data sets, different measures of health and different methodologies, they yield dramatically different elasticities of labor supply to disability benefits. A major reason for this is that none of the studies completely overcomes the problem that one cannot observe the wages of those who are out of the labor force nor the disability benefits of those at work. This basic censoring problem plagues this line of research. Much of the difference in results across these studies is due to the manner in which they estimate these missing values.[21]

Work Following Disability Denial

Another branch of this literature analyzes the subsequent work behavior of those who apply for disability benefits but are rejected. In an early study, Treitel (1976) followed the employment outcomes of men who were denied disability insurance benefits in 1967. Almost 40 percent did not work at all during the first four years following rejection. In a follow-up to this work, Bound (1989) used data from the 1972 and 1978 Surveys of the Disabled and found that only about one-half of rejected disability applicants returned to work. This suggests that for many applicant, health constraints are so great that a return to work is unlikely even if they are denied benefits. But in a recent exchange, Parsons (1991) and Bound (1991) recognize that applying for disability benefits may have a "scarring"

effect that must be considered in evaluating the policy implications of these results.

The fact that many unsuccessful applicants do not return to work does not mean that work decisions are unaffected by disability policy. Substantial time can elapse between the onset of a health condition, its first impact on work performance, and its subsequent influence on job exit and application for disability benefits. Application is a risky gamble in which the outcome can be delayed for some time. Those who take this gamble and lose may have permanent "scars" from the experience, in that they emerge from the process either less able or less willing to work than they were when they first applied. Parsons (1991) argues that the scarring hypothesis is quite plausible because the process was often very lengthy during the 1970s. Applicants for disability benefits had to "invest" in not working in order to maximize their chances in the review process. This time out of the market market may have lowered their subsequent chances of re-employment, even if they were ultimately denied benefits. Bound (1989) concluded that for most applicants, both those who are accepted and those who are denied, the decision to apply for benefits is tantamount to a decision to withdraw permanently from the labor market. But the size of disability benefits and the likelihood of receiving them may still affect the point at which health-impaired workers take that gamble.

This research suggests that the decision to leave one's job and apply for disability benefits is not just medically determined. Rather, it can be influenced by the work environment as well as the size and likelihood of benefits. Therefore, much of what we discussed above about modeling the retirement decision may be relevant for the decision to apply for disability benefits.

This is the strategy that Burkhauser, Butler, Kim, and Slotsve (1992) use to estimate the time between the onset of a health condition that affects work and the application for disability benefits. They assume that an individual's decision to apply is equivalent to deciding whether or not to work. The impaired worker's problem is to choose the optimal age at which to apply.[22] Using the 1978 Survey of the Disabled, they find the replacement rate (as estimated by Bound, 1989), significantly affects speed at which men apply following the onset of a work-limiting health condition.

Accommodating the Disabled

Dissatisfaction over the poor employment experience of people with disabilities has resulted in major legislation mandated job accommodation. The Americans with Disabilities Act of 1990 (ADA) became fully operational in July 1992 for firms with 25 or more employees. It requires employers to make reasonable accommodations to workers with disabilities as long as this does not create an undue hardship on the business. As the previous discussion has shown, why the overall work experience of the disabled population is so poor is not known. By definition, such workers have health conditions which impede their ability to work to some extent. The economic research has focused on the supply side of the market; demand issues have been virtually ignored. Yet it is the demand side of the market that advocacy groups believe is most responsible for the poor work experiences of those with disabilities.[23]

There is little doubt that, on average, people with disabilities in the United States have lower real household income and lower real wages than others. Table 4 shows that in 1987, the median income of U.S. households containing a male with a disability was about three-quarters of that of

households headed by males without a disability. For women, the analogous ratio was even lower, about two-thirds. One reason for these differences is that the wage earnings of those with disabilities comprise a smaller share of total income than is true in other households. In Germany, however, men and women with disabilities do much better. Men with disabilities live in households whose median income is 92 percent of that of households headed by able-bodied men. The ratio for women is 85 percent. The higher ratios are partly due to the fact that the wage earnings of Germans with disabilities are much closer to those of Germans without disabilities than is true in the U.S.. One explanation for this is that the German government has actively intervened in the labor market with specific employment quotas to protect people with disabilities.[24]

But even if quotas can increase the employment of people with disabilities, this does not prove that mandatory accommodation can do so. Burkhauser, Butler, and Kim (1992) provide a first glimpse of the impact of accommodation on job duration following the onset of a health condition that affects work. Using retrospective data from the 1978 Survey of the Disabled, they created a sample of 348 men who experienced such a health condition. They found that accommodation by an employer significantly extends the worker's duration on the job and that increases in the replacement rate decrease it. But they caution that accommodation is not likely to have been assigned randomly so their results are likely to be biased upward . At present, no studies have looked into what factors influence who is accommodated.

Summary of the Disability Literature

The decision to apply for disability benefits is not determined by health conditions alone. In most European countries, the eligibility criteria permit those with only partial disabilities onto the rolls, so that a person's earnings capacity is considered in determining benefits. In the United States only those who are unable to perform any "substantial gainful activity" for at least a year are eligible to be admitted onto the Social Security disability rolls. The dramatic rise and fall in application rates and in the disability insurance population over the past two decades in Europe as well as in the U.S. leave little doubt that forces besides health are at work.

Aggregate U.S. data provide strong prima facie evidence that increasing benefits and easier access to them in the 1970s increased the population describing itself as work-impaired, as well as the population that applied for and received benefits. Reduced access appears to have reduced these populations in the 1980s. But providing sophisticated empirical evidence of the precise relationship between disability policy and labor force participation decisions has been difficult.

It is even more the case here than it is for retirement that better data on health and economic variables are needed to estimate the work effort of those whose health limits their ability to work. Yet most of the data sets used in this literature lacked sophisticated health information. Only the 1972 and 1978 Surveys of the Disabled provide detailed information on both health and economic variables.

The recent passage of the ADA makes it even more important to recognize that the transition to disability is a process. For this reason, the timing of policy interventions to encourage work is important. Substantial

time may elapse between the onset of a health condition, its first impact on work performance, job exit, and application for disability benefits. Furthermore, applying for disability benefits is a risky gamble whose outcome can be delayed for some time. Longitudinal data will be needed to trace this process and to disentangle heterogeneity effects from "scarring" effects on the work behavior of rejected applicants.

Fortunately, the new Health and Retirement Survey (HRS) offers hope for multiperiod analysis of the work behavior of people with disabilities. In the short-run, the retrospective studies of the labor force withdrawal of those with health conditions that used the 1978 Survey of the Disabled can be redone and expanded with retrospective information contained on the first wave of the HRS. This wave also contains detailed information on types of accommodation provided by firms. In the longer run, the onset of a health condition will be captured in future waves of the data. The detailed information that the HRS will contain on firm-specific retirement plans combined with matched information on Social Security records should allow for detailed analyses of the disability and retirement issues raised in this paper.

FUTURE TRENDS, AND RESEARCH AND DATA NEEDS

Recent labor force statistics suggest that the trend toward earlier labor force withdrawal may have stopped in the U.S. The hours worked by older Americans still employed, however, may still be on the decline, since the percentage of the elderly working part-time continues to increase. Changes are currently underway in both the public and private sectors that will influence future retirement decisions by altering the work disincentives

faced at older ages. Although the direction of the impact of some of these changes is clear, a significant unknown remains - whether private sector defined-benefit pensions will go along with Social Security and reduce their work disincentives, or, alternatively, whether they will increase their work disincentives to make up for the loss of the Social Security effect.

Mandatory Retirement Provisions

Mandatory retirement rules once covered about half of the working population in the United States. Prior to 1978, the most common mandatory retirement age was 65. The 1978 amendments to the Age Discrimination in Employment Act made age 70 the earliest possible mandatory retirement age for most American workers, and in 1986, the upper limit at age 70 was removed, virtually eliminating mandatory retirement provisions in the United States.

Since many workers used to retire at age 65, casual empiricism suggested that mandatory retirement was an important factor in the decision. But simple correlations can be misleading. Parnes (1988) found that in a large sample of American men who had retired by 1981, there were only 3 percent who were covered by mandatory retirement, who actually retired at that age, and who said that would have preferred to work longer. Burkhauser and Quinn (1983b) emphasized that age 65 was also the age at which important Social Security and employer pension retirement incentives went into effect, and estimated that at least half (and probably more) of what looked like a mandatory retirement effect was actually due to concurrent financial incentives.

The elimination of mandatory retirement did not have large aggregate effects. The stick was removed, but the carrots remained. Nonetheless,

this change has and will continue to extend the worklife of certain individuals. It also may change the workplace environment and discourage the idea that there is some best age for everyone to retire.

Social Security

A number of changes have occurred and are planned that will increase the rewards for work by older Americans and thereby encourage them to remain longer in the labor force. Whether this will occur on their career jobs or on subsequent bridge jobs will depend on other factors, particularly future changes in private pension incentives.

The Social Security earnings test has already been liberalized for those aged 65-69. (It disappears entirely at age 70, which was 72 prior to 1983.) Since 1978, the earnings recipients are allowed before benefits are reduced have been higher than for those aged 62-64 (currently, $10,680 versus $7,800 per year), and, in 1990, their benefit reduction rate on earnings over the exempt amount was decreased from 1/2 (which it remains for those 62-64) to 1/3. There has been discussion of eliminating the earnings test all together. The Congressional Budget Office has estimated that its elimination would cost about $6 billion per year (only 10 percent of which which would be made up in increased taxes), and disproportionately help those already better off than average (U.S. House, 1992:21). Research suggests that this would have only modest labor supply effects (Leonesio, 1990; Gustman and Steinmeier, 1991).

Other Social Security amendments are also increasing the reward for continued work. Since 1989, the delayed retirement credit (DRC) has increased from 3 to 4 percent for each year's delay of benefit receipt beyond the age at which "full benefits" (100 percent of the Primary Insurance

Amount) are paid. The DRC will continue to increase by 1/2 percentage point every other year until it reaches 8 percent in 2010. This will be close to actuarially fair, and will make Social Security approximately age-neutral; that is, the present discounted value of the benefits will no longer depend significantly on when they are first claimed.[25] This will effectively eliminate the earnings test, since benefits foregone by earnings above the exempt amount will be returned through higher benefits later.

The age of "full benefits" is also scheduled to increase, from 65 to 66 between the years 2000 and 2005 and then from 66 to 67 between 2017 and 2022. Although these changes are usually described as a shift of the DRC curve to the right (one has to wait longer to receive 100 percent of one's PIA), they are just as accurately described as a shift down - lower benefits at any age, or an across-the board decrease in benefits. These benefit declines will lower retirement wealth, and should also, at the margin, delay retirement.

Several analysts have simulated the impact of these Social Security changes (Fields and Mitchell, 1984a; Burtless and Moffitt, 1984; Gohmann and Clark, 1989; Gustman and Steinmeier, 1985, 1991; Stock and Wise, 1990). They agree that they will be in the expected direction, but that they will be modest - on the order of months, on average, not years. Most analysts think that pension changes are potentially much more important.

Employer Pensions

Several important trends are underway among employer pension plans. The first is that pension coverage among American workers is no longer growing. According to Turner and Beller (1992), the percentage of private sector workers who are active participants in an employer pension

plan was constant from 1970 to 1987. More recent evidence suggests that coverage may be declining. Woods (1989) estimates that among full time private wage and salary workers, coverage peaked at 50 percent in 1979, and dropped to 46 percent by 1988.[26] Short and Nelson (1991) report a slight drop in plan participation between 1984 and 1987. Reno (1993), piecing together statistics from a number of sources, shows that coverage grew rapidly from 1940 (12 percent of private sector employees) to 1960 (38 percent), continued to expand slowly though the 1960s and 1970s (reaching 43 percent in 1979), and then declined to 40 percent by 1988.[27] Since workers with pension coverage are more likely to retire early, a decline in coverage may contribute to delayed retirement (Quinn, et. al., 1990:195-200).

In addition, the relative importance of defined benefit and defined contribution plans is changing. Only the former contain the work disincentives emphasized above. The latter are really just savings accounts with tax advantages and are by their very nature age-neutral. The proportion of pension participants whose primary coverage is defined contribution increased from 13 to 32 percent between 1975 and 1987 (Turner and Beller, 1992).[28] In addition, supplementary coverage (a second plan offered by the same employer) has increased, from 21 percent of covered workers in 1975 to 39 percent in 1987, and this is almost entirely defined contribution.[29] Overall, double-counting those covered by more than one plan, the proportion of active participants in defined contribution plans rose from 29 to 65 percent during the decade ending in 1987 (ibid.).[30] If this trend continues, strong and effective work disincentives will become less widespread, inducing less early retirement.

At the same time, however, defined benefit plans, which still provide the majority of primary coverage, have continued to move toward permitting and encouraging early retirement. Wiatrowski (1990) reports that nearly all defined benefit plans now include early retirement provisions, and that fewer than a fifth of those eligible face full actuarial reductions in annual benefits if they retire early. Mitchell (1992) estimates that 60 percent of defined-benefit participants could retire at age 55 in 1980; by 1989, that had risen to 66 percent. The proportion requiring only 5 years of service at age 55 to be eligible rose from 5 to 9 percent; those needing 10 years at age 55 rose from 36 to 43 percent. Only half as many people needed 30 years of service in 1989 than did in 1980 (5 versus 9 percent).

One policy change in the other direction was 1986 legislation that required employers to continue contributions and credits toward pension accrual for workers who work beyond normal retirement age, up to the maximum number of years permitted (ibid.). Previously, credits could cease at this age, usually 65. This will increase total compensation for some older workers, and may induce some to delay retirement.

One great unknown on the retirement horizon is how employer pension incentives will evolve. Mandatory retirement is gone, and strong Social Security retirement incentives are being phased out. Will employers go along with this trend toward an age-neutral workplace, and diminish their work disincentives as well? Or will they try to make up for the loss of the stick (mandatory retirement) and part of the carrot (the Social Security incentives) by increasing the penalties they impose on those who stay on the job too long?

There is evidence that employers have bucked the trend in the past. Mitchell and Luzadis (1988) (and Luzadis and Mitchell, 1991) analyzed the

incentives in some specific private pension plans over time. They found that during the 1970s, when the earliest legal mandatory retirement age was changed from 65 to 70 and momentum for eliminating it altogether was increasing, "the companies with plans that enhanced early retirement incentives by 1980 were the same companies that had made retirement mandatory at a relatively early age in 1970." (Mitchell and Luzadis, 1988:107) In these firms, the carrot replaced the stick. More recent data suggest that this trend toward offsetting pro-work policies with higher rewards for job exit, is continuing. As discussed above, Mitchell (1992) finds that defined-benefit plans tended to encourage earlier and earlier retirements during the 1980s.

How firms will react in the future to Social Security's move towards age-neutrality is likely to depend on future labor markets. If labor shortages do develop, as demographic projections suggest they might, then firms may alter their pension plans to encourage older workers to remain on the job. These incentives have been effective in one direction in the past, and there is no reason to believe that they cannot be equally effective in the other direction as well.

Data Needs

The dramatic increase in retirement research in the 1980s was in part a response to the policy questions surrounding the short- and long-term Social Security budget crises. But this research would not have been possible without the existence of two large longitudinal microeconomic data sets first fielded in the 1960s - the Social Security Administration's Retirement History Study (RHS)[31] and the Labor Department's National Survey of Older Men (NLS).[32]

These outstanding data sets contained large representative samples of older Americans and a wealth of demographic, social, economic and financial data on each respondent. In addition, Social Security internal records were appended, including information on past earnings and precise measures of potential Social Security benefits. A major drawback of both, however, was the paucity of details on employer pension plans. Employer pensions are complex agreements, and these data sets did not begin to capture the subtleties of the individual plans. And they contained even less information on other fringe benefits such as health care.

As it became clear that detailed information on employer pensions was necessary to understand the retirement decisions of older workers, researchers turned to other sources. The Department of Labor's 1983 Employee Benefit Survey of Medium and Large firms includes specific benefit calculation rules missing from the micro data sets.[33] But these data did not represent the entire pension population and lacked most of the other demographic and economic information on individuals found in the RHS and NLS.

In a series of papers, Wise and his colleagues have used detailed information on individuals gathered from a few corporations (Kotlikoff and Wise, 1989; Stock and Wise, 1990; Lumsdaine, Stock and Wise, 1992). These firm-specific data have proven extremely valuable in tracing the accrual patterns of pensions and the way in which workers respond to them. Unfortunately, they contain almost no information on the worker other than the wage history. Hence, they are not useful, for instance, for disentangling economic incentives from the effects of poor health on the retirement decision.

One data set that attempts to merge information on specific pension plans with socio-economic data on a representative sample of workers is the 1983 Survey of Consumer Finance, which surveyed a random sample of 4,200 households in 1983. Since then, two follow-up surveys on this population have been fielded. What made this an innovative data set was that it also surveyed the respondents' employers to obtain pension plan details. Because it is a survey of wealth holdings across the entire age distribution, however, it has only limited value for studying the retirement decision. Another problem is that the detailed information on pensions proved extremely difficult for researchers to access and therefore has been used sparingly.

For these reasons, during the 1980s and into the early 1990s, the data set of choice for retirement questions continued to be the RHS even though most of its respondents left their career jobs in the early 1970s. The lack of data on more recent cohorts has severely restricted our knowledge of how the retirement process is currently operating.

The new Health and Retirement Study (HRS) will go a long way toward correcting this situation. This longitudinal study, funded under a cooperative agreement with the National Institutes on Aging, surveyed approximately 8,000 households with one or more respondents aged 51 to 61 in 1992. It will provide detailed information on the health and economic behavior of this cohort as it makes the transition into retirement in the mid-1990s.

The HRS will prove to be an important resource for researchers in the 1990s because it is newer and because it combines better information on health with more detailed information on economic characteristics. It will also contain employer data on pension and health insurance, along with

Social Security earnings records, and has the potential to link other SSA records such as Supplemental Security Income and Social Security benefits. Unlike the RHS, the study design includes a random sample of women aged 51 to 61 and an oversampling of Blacks, Hispanics, and residents of areas with high numbers and densities of older people.

No prior longitudinal data sets have contained the quality of information on health and economic behavior that will be available in the HRS. Prior data sets with high quality health data like the National Health Interview Survey have contained very little on economic behavior and none on pensions. Hence, they have only rarely been used in studies of retirement or disability insurance acceptance (see Bound and Waidmann, 1992, for an exception).

The best data sets for evaluating the effect of a health condition on work have been the 1972 and 1978 Social Security Surveys of the Disabled. Unfortunately, budget cuts in the 1980s ended this periodic cross-sectional survey. Hence, those interested in evaluating the effect of disability programs on the economic well-being and behavior of workers with health conditions are forced to use this badly out-of-date information (Bound, 1989; Haveman, deJong, and Wolfe, 1991; Burkhauser, Butler and Kim, 1992).

The HRS will be very useful for studying the influence of socio-economic factors on job exit and application for disability benefits. The first wave has a module containing retrospective questions on respondent's health that parallels the questions in the Survey of the Disabled. These responses will provide information on transitions from work for those in the cohort with a current health condition. In the longer term, the full benefits of a longitudinal data set will enable researchers to follow the outcomes of older workers who experience a decline in health in the 1990s. These data

will be particularly useful for those interested in estimating the impact of the Americans with Disabilities Act of 1990. This Act, which was fully implemented for firms with 25 or more workers in 1992, requires that all such firms provide reasonable accommodations to people with disabilities as long as this does not put an undue burden on the operation of the business. The HRS will allow researchers to study the accommodation experiences of older age workers following the onset of a health-related work impairment in the 1990s. Such data will in part offset the major data loss caused by the curtailment of the Survey of the Disabled. But it is not a substitute for investigating the labor force participation rates of people with disabilities. The need for these data remains unmet.

Comparable international data on the health and economic behavior of older workers have been even more difficult to obtain. But even here some gains have been made. The Luxembourg Income Study contains detailed representative cross-sectional data on the populations of most Western European and several Eastern European countries. The data for each country have been refined so that cross-national comparisons can be made.[34]

Longitudinal data fielded outside the United States have been rarer. Few such studies existed prior to the 1980s. But in the last decade, some new longitudinal data initiatives were begun. The German Socio-Economic Panel (GSOEP) surveyed a representative sample of over 6,000 German households in 1984 and continues to interview them annually. Eight waves of these data (1984-1991) are now available. These data, similar to the Panel Study on Income Dynamics (PSID), can be used to trace the work efforts of Germans over the 1980s. They also contain, beginning in 1990, a random sample of the former East German states that are now part of a

unified Germany. The National Institute on Aging has funded a project in cooperation with the Deutsches Institut fur Wirtschaftsforschung (DIW) - Berlin to make the GSOEP available to English speaking users in a fully translated form through the Gerontology Center, The Maxwell School, Syracuse University.[35] New longitudinal data sets of this type are now being fielded in several other European countries - France (Lorraine), The Netherlands, Ireland, Belgium, Luxembourg, and Great Britain - and plans are underway to make these data sets comparable.[36]

All of these new longitudinal surveys contain representative population samples and some contain enough observations of older persons to analyze labor supply decisions from a multi-period perspective. But like the PSID in the United States, their primary strength is in measuring economic well-being. They contain information on health similar to that in the RHS. They also contain limited information on employer pension plans. However, this is not as great a drawback for studies of retirement as it would be in the U.S. because most of these European data sets contain good information on their social security retirement and disability benefits. In European countries, these are the programs that dominate the retirement decision.

A final data collection effort that will help close the gap between the detailed information on health and retirement provided by the new HRS and the PSID type sample design surveys in Europe is the new Health and Retirement Study under development in Holland. This longitudinal survey of 4,000 households containing persons aged 50 to 63 will be fielded in 1993. It is funded by NESTOR, a governmental grant committee especially designed to encourage research on aging in Holland, and by the University of Leiden. This may prove to be an important source for cross-national comparisons of retirement in the U.S. and Holland.

The major new longitudinal data sets now becoming available in Europe promise a whole new era of longitudinal comparisons of the economic well-being and labor force participation of older men and women. But greater efforts must be made to insure the comparability of these data sets with each other and with those in the United States.

Investments in data collection begun in the 1960s paid huge dividends in the evaluation of public policy regarding older men during the subsequent two decades. A lack of follow-up in the 1980s has retarded research on these issues. The fielding of the HRS promises to close the gap in our knowledge of the influence of labor market institutions on the labor force participation of older men and women. But, like the old RHS, it will require several more years of investment in order to have a major payoff. Today, our most critical data need is the patience necessary to continue funding this major social science project until its longitudinal character is complete.

SUMMARY AND CONCLUSIONS

The long term trend towards earlier retirement among men is found throughout the developed world. In some countries, including the United States, the trend may have recently come to a halt. The experiences of older women are more varied, and combine the earlier retirement trend with the increased labor force participation of women in general.

Considerable research on retirement in the United States has shown that strong incentives to retire are imbedded in many of our public and private retirement systems, and that these penalize workers who stay on their career jobs too long. The mechanism is not the paycheck. Explicit

age-related pay cuts would be illegal. Rather,the mechanism is found in pension benefit calculation rules that at some age (65 for Social Security; various ages for defined benefit employer plans), decrease retirement income wealth for those who keep working. These negative accruals are part of compensation, and are equivalent to a pay cut. Many older Americans behave as though they they understand and respond to these incentives - the larger the wealth loss associated with continued work, the more likely they are to leave their career jobs. The majority of these retirees leave the labor force as well, but a significant minority move to new employment - bridge jobs - often part time.

Changes are underway that will decrease these work disincentives and encourage later departure from the labor force. Mandatory retirement has virtually been eliminated. Social Security will become close to age-neutral over the next 2 decades, and the age of "full benefits" is scheduled to increase from 65 to 67. Employer pension coverage is flat or declining, and the proportion of those covered by defined contribution plans (without the retirement incentives emphasized above) is on the rise. But the majority of covered American workers are still in defined benefit plans, and these continue to exert a very powerful impact on retirement behavior.

As long as these incentives remain, so will the current pattern of labor force withdrawal. Workers will tend to leave their career jobs to avoid reductions in their pension wealth, and many will then look for new employment. As Social Security work disincentives disappear, this route will become even more attractive.

Demographic projections, however, suggest that employers may want to change their benefit structures. Industrialized nations are aging. The number of Americans aged 65 and above, about 32 million today, will more

than double by the year 2030, while the number aged 55 to 64 will increase by two-thirds. In contrast, the number under age 18 is projected to decline slightly over the same four decades, and the number of all those under 55 to increase by only 1 percent (U. S. Bureau of the Census, 1989; U.S. Senate, 1991). As a result, the percentage of all Americans aged 65 and over is estimated to increase from under 13 percent today to nearly 22 percent by 2030 (U. S. Bureau of the Census, 1989). A third of the U.S. population will be 55 and older, and the median age will rise from 33 to 42.

Those concerned with retirement finance often emphasize the ratio of the prime working age population (aged 18 to 64) to those of traditional retirement age (65 and over). This ratio, about 5 to 1 today, will drop to below 3 to 1 by 2030. But 65, as we have seen, is no longer the typical age of retirement. When the demographic and retirement trends are combined - more older Americans, and fewer of them working - the projections are even more dramatic. Aaron, Bosworth and Burtless (1989) estimate that the ratio of Social Security contributors to Social Security beneficiaries will drop from 3.3 to 1 today to only 2 to 1 by 2030.

But there is no reason to assume that current retirement patterns must or will continue. Research has shown that retirement decisions are endogenous. People make choices based on the financial incentives they face. These incentives have been changed in the past, to encourage early exit from the firm, and they can be changed again, to do the opposite. Such changes will occur when it is employers' interests to keep older workers on the job. Predicting future labor markets is a risky business. What we can predict with confidence is that if these shortages develop, and if firms decide that the retention of experienced workers can help alleviate the shortages, then the policy tools exist to keep older workers on the job.

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[1] The employment to population ratio is close to the labor force participation rate. The latter includes those unemployed (not employed and actively searching for work) in the numerator, and therefore is slightly larger. But official unemployment rates tend to be small for the aged, so the differences are small. The long-term stories told by both measures are identical.

[2] For all workers, the proportion working part-time has increased modestly in the U.S., from 13 percent in 1970 to 15 percent in 1991 (U.S. Bureau of Labor Statistics, 1971, table A-23; 1992, table 33).

[3] Ruhm (1992) has compared the employment patterns of older men over the past two decades, using the 1969 Retirement History Survey (RHS) and a 1989 Harris poll sponsored by the Commonwealth Fund (see footnote 11). His data confirm that the importance of part-time work rises with age and suggest that the percentage of older employed men (in this case, aged 58-63) working part-time is about 5 percentage points higher than it was 20 years ago.

[4] Comparisons among countries are difficult because of different definitions of part-time work. Some countries utilize subjective self-descriptions by survey respondents. Others use a objective criteria, such as 30 or 35 hours per week, sometimes based on usual working hours, and sometimes based on actual hours during a particular reference week. For more detail, see OECD (1989, Annex 1.B.); Thurman and Trah (1990); or Maier (1991).

[5] Considerable survey evidence suggests that more Americans would like to work part-time than actually do. For example, in a 1989 Harris survey of

older Americans (women aged 50-59 and men aged 55-64; see footnote 11), 6 percent of the wage and salary men and 19 percent of the wage and salary women were actually working part-time. But three times as many of these men (21 percent) and twice as many of these women (43 percent) said that they preferred to be working part-time. See Quinn (1992) and Quinn and Burkhauser (1992) for more detail.

McNaught, Barth and Henderson (1991) studied those already out of the labor force in the same 1989 Harris survey. They found that a substantial minority (14 to 24 percent, by various measures) were willing and able to work, and that the vast majority were willing to work part-time.

6 The discussion of the determinants of the retirement decision draws on the extensive literature review in Chapters 2 and 3 of Quinn, Burkhauser and Myers (1990). For more on the voluntary versus involuntary nature of retirement over the years, see Quinn (1991).

7 An excellent review of this early literature can be found in Campbell and Campbell (1976).

8 See Burtless and Moffitt (1984) and Kahn (1988) for dramatic illustrations of the clustering of earnings below the Social Security exempt amount.

9 The RHS includes actual Social Security records for all the respondents, which allows researchers to calculate potential Social Security benefits precisely. The pension data include details on eligibility and benefits, but not on how benefits would change with continued work. We had to use industry-wide averages for these details.

10 The Labor Department's National Survey of Older Men sampled only men, and the Social Security Administration's Retirement History Study surveyed men and nonmarried women. There were limited data on the

work histories of the wives of the married men in the RHS, but nowhere near as much as was available for the primary respondents.

11 There is even less evidence on racial differences in the response to financial incentives, since the sample sizes of racial minorities in the large microeconomic retirement data sets have been too small. The new Health and Retirement Study, discussed below, samples older men and women, and oversamples Blacks and Hispanics. This will permit analyses of these important and growing subgroups.

12 Pay cuts were particularly dominant when the new job was part-time, with the exception of the few who were able to shift from full-time to part-time on their career jobs.

13 In 1989, under the auspices of the Commonwealth Fund, Louis Harris and Associated conducted telephone interviews with 3500 older Americans, women aged 50 to 59 and men aged 55 to 64. About 2,000 were still working and the other 1,500 had already left the labor force.

14 Ruhm (1990) reports that nearly 60 percent of those in the Commonwealth/Harris survey who were in bridge jobs said that it was the most enjoyable job they had ever had.

15 Mitchell (1988) compared workers' descriptions of key features of their pension plans with the actual features provided by their employers and found missing and incorrect information to be widespread. Although automatic cost-of-living adjustments are not common in private sector pensions, Allen, Clark and Sumner (1986) have argued that post-retirement inflation adjustments in fact are fairly common, even when employers have no contractual obligation to do so. But it may be difficult for workers to predict their firms' behavior years ahead.

16 Herz and Rones (1989) showed that the inclusion of discouraged workers adds over a third to the unemployment rate of men aged 55 and over and adds over 70 percent for analogous women, but has only a very small effect on the unemployment rate overall.

17 Lazear (1979) has argued that firms might lower turnover costs by paying workers less than their contribution to the firm during the early years of employment, and then more than their contribution at the end. In essence, some of the compensation is delayed in order to encourage the worker to stay with the firm. If such a system reduces turnover costs and the gains are distributed to both the employer and the employees, then both parties can benefit. But at the point when lifetime compensation and lifetime contribution (marginal product) are equal, the employment contract must be terminated, or the worker's compensation must be decreased to the level of the marginal product. Although this agreement looks discriminatory at the end, it has in fact benefited the workers over the life-cycle. This theory offers an explanation for both mandatory retirement, which has since been outlawed, and pension plans that penalize workers who stay on the job "too long".

18See Fields and Mitchell (1984a), Burtless and Moffitt (1984), Gustman and Steinmeier (1985, 1991) and Gohmann and Clark (1989), all described in detail in Quinn, et al. (1990,chapter 3).

19 Variations of this "objective" approach have been used by others. Anderson and Burkhauser (1984, 1985), using mortality experience in subsequent years of the RHS, show that such a measure yields quite different results than a self-reported measure of health on the labor force participation behavior of a 1969 cross-section of men aged 58 to 63.

[20] Haveman and Wolfe (1984) use a self-reported measure of health rather than a more objective measure. This may partially explain the differences between their results and those of Parsons (1980).

[21] For past reviews of this literature see Leonard (1986) and Wolfe (1987).

[22] This variation of a dynamic optimal retirement age model is similar to the full information dynamic retirement models of Burbridge and Robb (1980) and Fields and Mitchell (1984b), which assume fixed labor hours over time and find the optimal retirement age given an employer pension and Social Security. The hazard model that Burkhauser et al. used to estimate their theoretical model is a variant of that used by Diamond and Hausman (1984), Hausman and Wise (1984), and Halpern and Hausman (1986).

[23] An exception in the economics literature is Johnson and Lambrinos (1985) who attempt to measure the part of the wage difference between those with and without disabilities that is caused by discrimination. Their study does not consider the importance of discrimination on employment. In the health literature, Nagi (1974) and Yelin et al. (1980), use cross-sectional data to show that job modifications by employers increase the likelihood that a worker with disabilities will continue to work.

[24] In Germany, for example, all firms must employ one worker with a disability for every 16 employees. The penalty for non-compliance is relatively low (200 Deutsch marks--about $125 per month) and only about 4.5 percent of the German work force has disabilities, as defined by the program.

25 As Gustman and Steinmeier (1991) point out, however, a common delayed retirement credit cannot be actuarially fair for all, since different demographic groups have different life expectancies.

26 Korczyk (1992) and Reno (1993) both note that while pension coverage has been declining for men (from 54 to 49 percent of full time male workers between 1972 and 1988), it has been increasing (from 38 to 43 percent) for full-time women over the same period. Pension coverage is still more common among male workers, but the gap is narrowing.

Pension receipt (which is different from coverage) differs dramatically by race. Snyder (1993) estimates that in 1982 57 percent of the married white men received some pension income, compared to 44 percent of blacks and 35 percent of Hispanics. For married women, analogous numbers were 36, 24 and 30 percent; for unmarried men and woman, 29, 15 and 16 percent. There is evidence that the gap is closing, since the growth in pension receipt between 1970 and 1982 was much higher for black than for whites (111 versus 51 percent for men; 300 versus 72 percent for women). The median pension amounts received by those with pension income differed little between whites and blacks (ibid.).

27 Some of the discrepancy in the coverage estimates is due to the different populations being discussed. Reno (1993, table 8) shows estimates for 1979, 1983 and 1988 for all private sector wage and salary workers (40 percent in 1988 - this is Reno's population), full-time private wage and salary (46 percent - this is Woods' population), part-time private wage and salary (9 percent), government employees (75 percent), the self-employed (21 percent) and all workers (44 percent).

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[28] Gustman and Steinmeier (1992a) estimate that about half of the change from defined benefit to defined contribution coverage is due to shifting employment mix as American job growth shifted from large unionized manufacturing firms to smaller service-oriented nonunion employers who have always been more likely to offer defined contribution plans.

[29] Nearly all of these supplementary plans are profit-sharing or thrift-savings programs, like 401(k) plans. In 1987, about 56 percent of these supplementary plans were funded entirely or partly through employee contributions (Turner and Beller, 1992, p. 71 and table 4.14).

[30] Paine (1993) thinks that the trend toward defined contribution (DC) plans will continue both because future sources of employment growth are likely to be in smaller firms and in service industries (both of which prefer DC plans) and because global competition will reduce firms' willingness to offer long term promises based on future wage increases.

[31] The RHS surveyed a cohort of over 11,000 men and non-married women aged 59 to 63 in 1969 and every other year thereafter through 1979. For a detailed discussion of the data set, see Irelan et al. (1976).

[32] The NLS followed a cohort of about 5,000 men aged 45 to 59 in 1966 from then until 1983. For a detailed discussion of this data set, see Parnes et al. (1985).

[33] See Fields and Mitchell (1984c), and Allen, Clark and McDermed (1986) for a discussion of these data.

[34] For a detailed discussion of these data, see Smeeding, Rainwater, and Coder (1991). For an example of the use of these data for retirement research,, see Smeeding (1993).

35 For a detailed discussion of these data see Wagner, Burkhauser and Behringer (1993).

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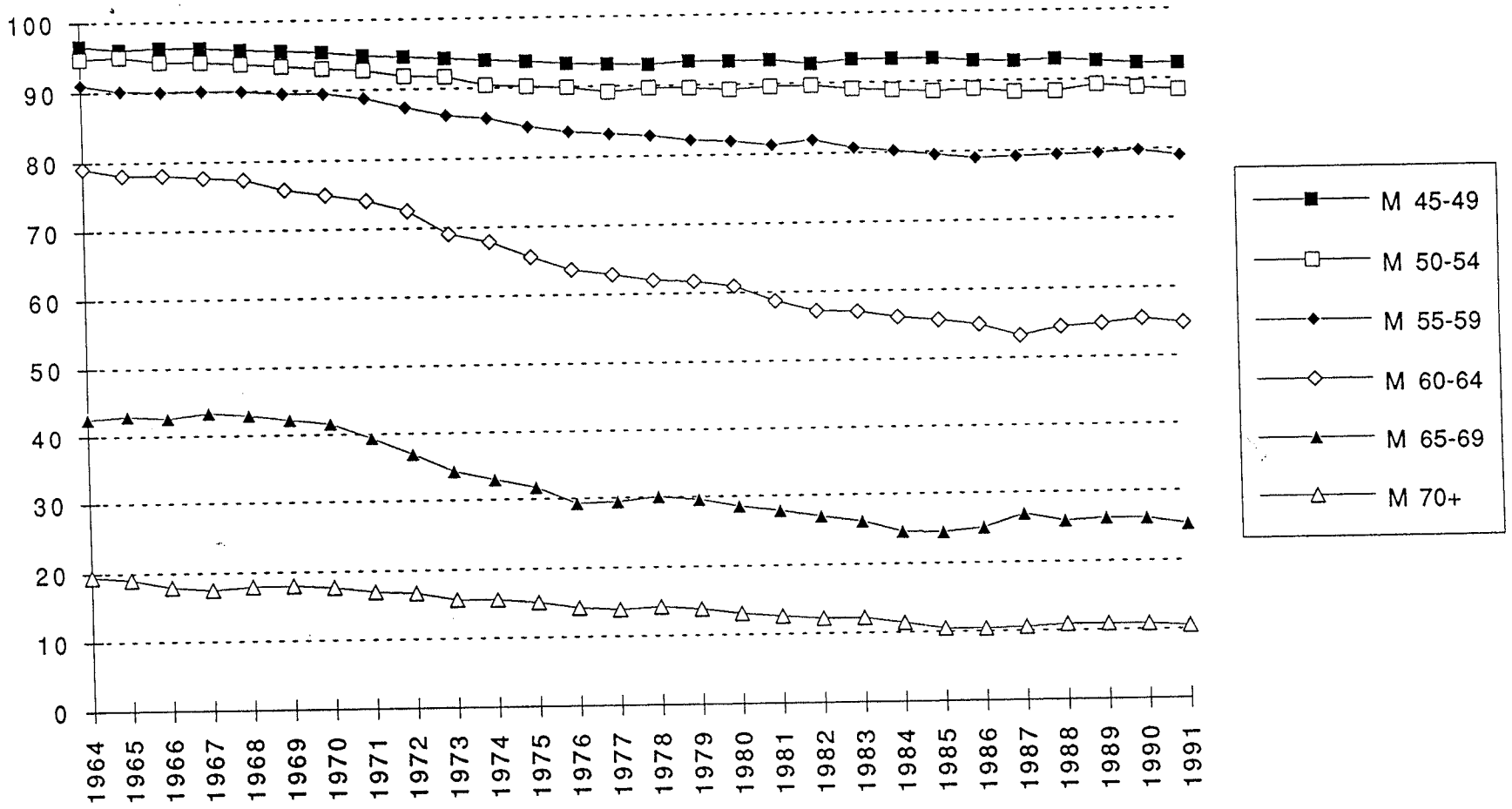
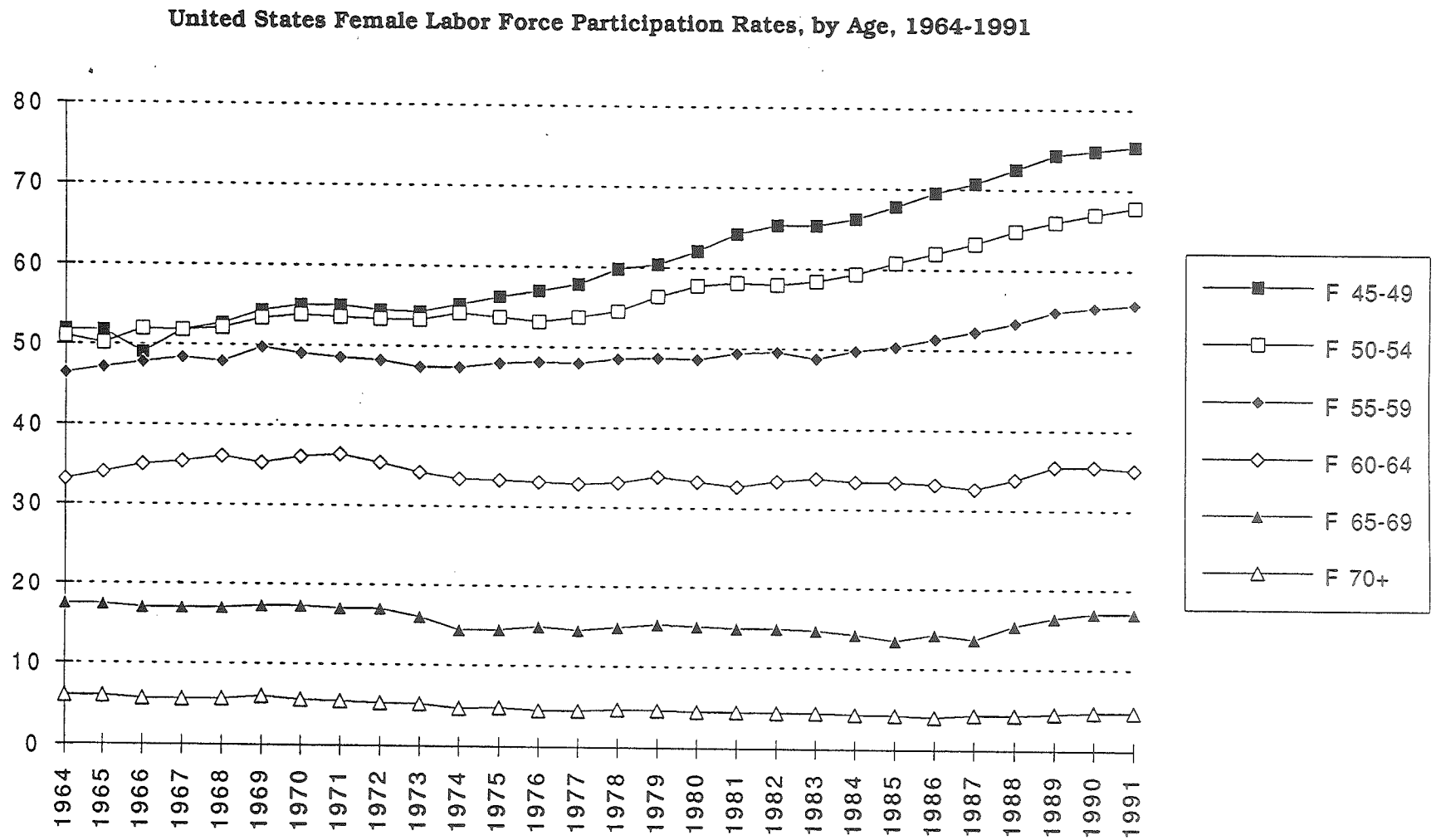
Figure 1

United States Male Labor Force Participation Rates, by Age, 1964-1991



Source: U.S. Bureau of Labor Statistics, Employment and Earnings, January Issues

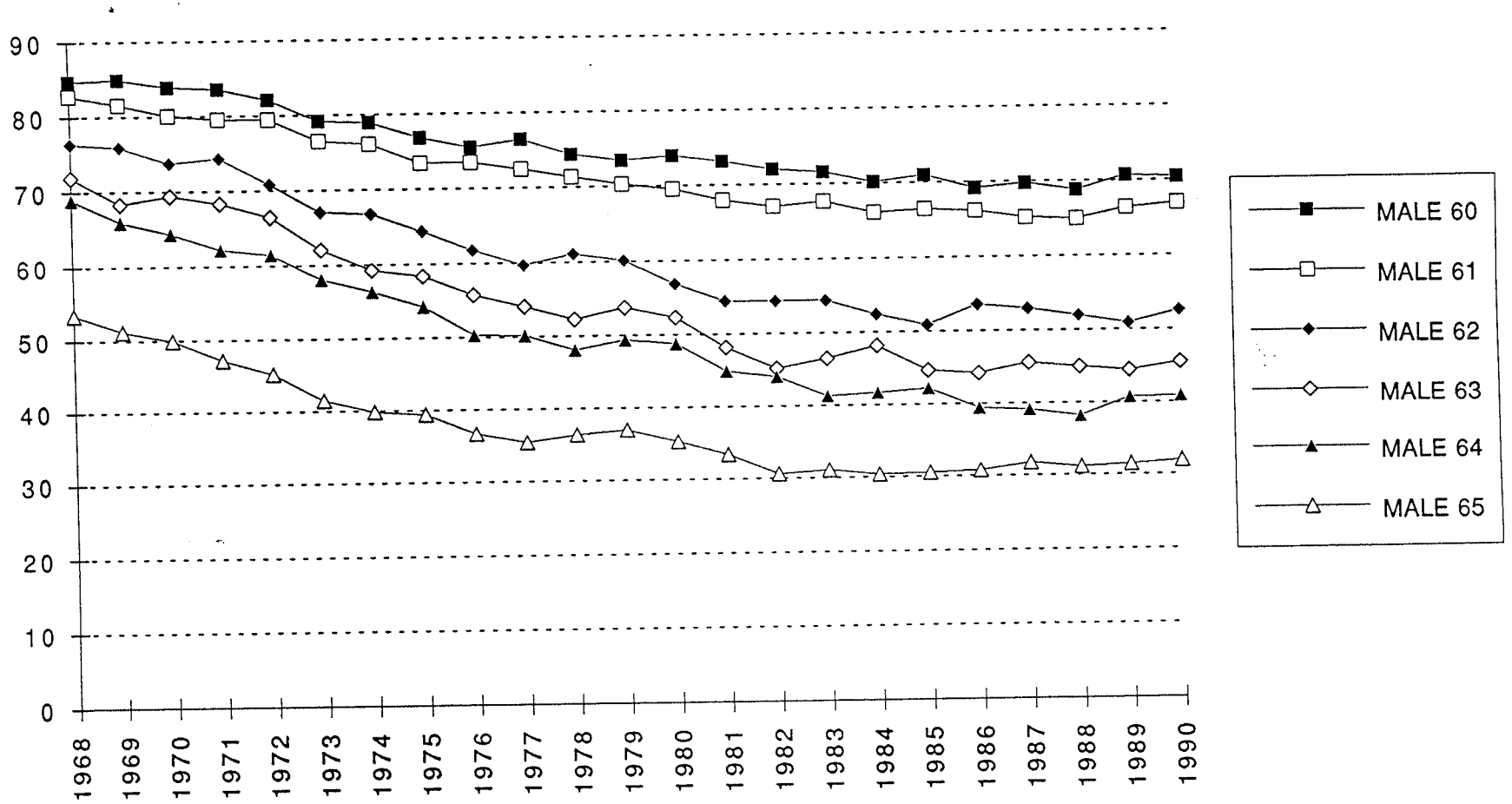
Figure 2



Source: U.S. Bureau of Labor Statistics, Employment and Earnings, January Issues

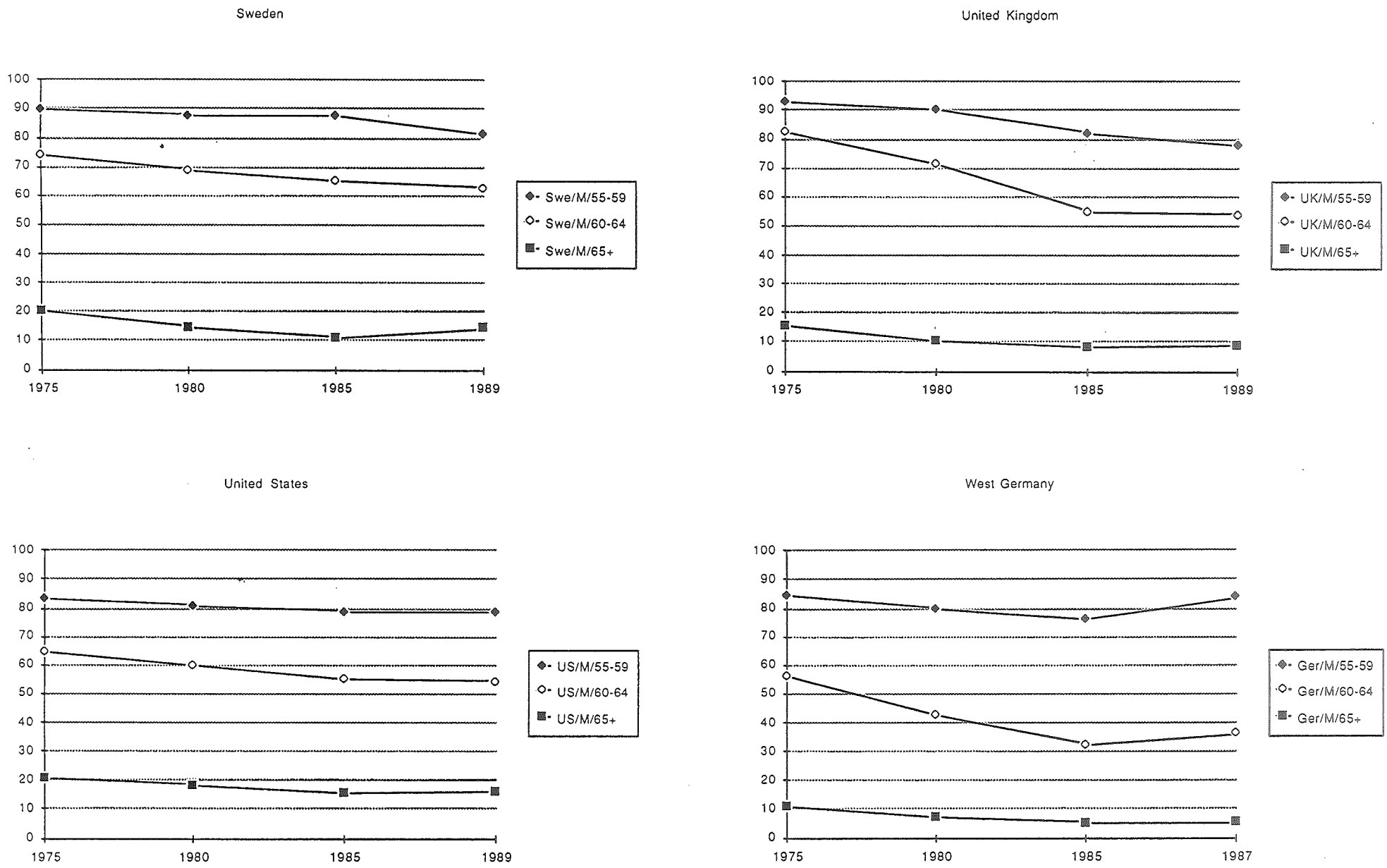
Figure 3

United States Male Labor Force Participation Rates, Ages 60-65, 1968-1990



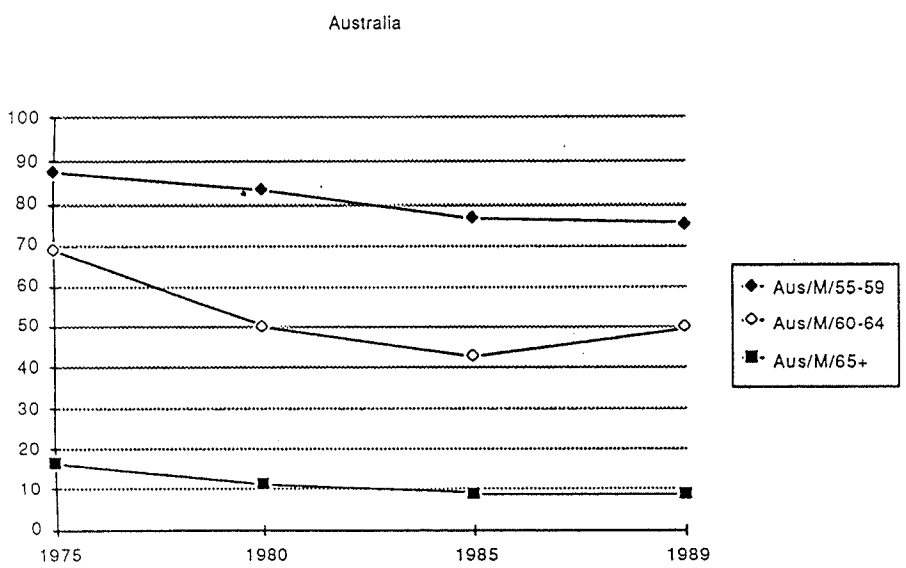
Source: Unpublished Department of Labor Statistics

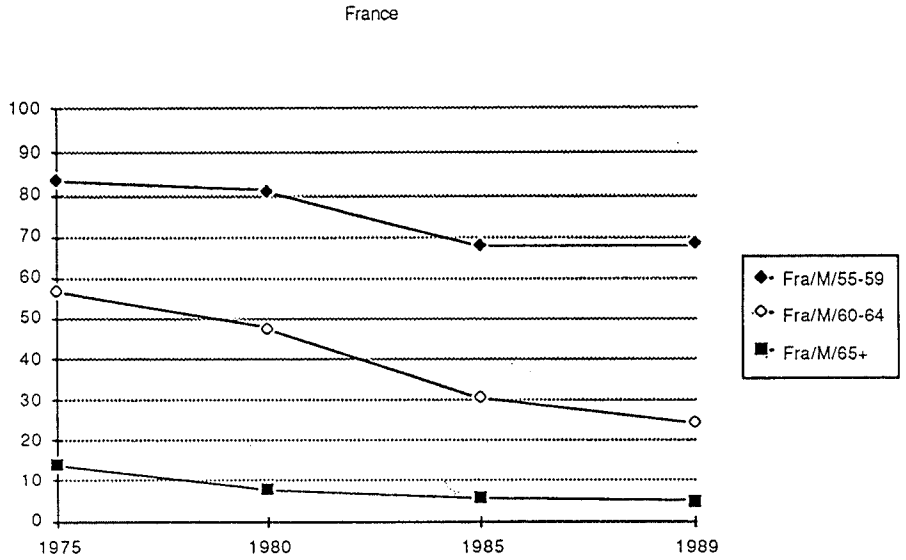
Figure 4: Male Employment to Population Ratios in Eight OECD Countries, 1975-1989

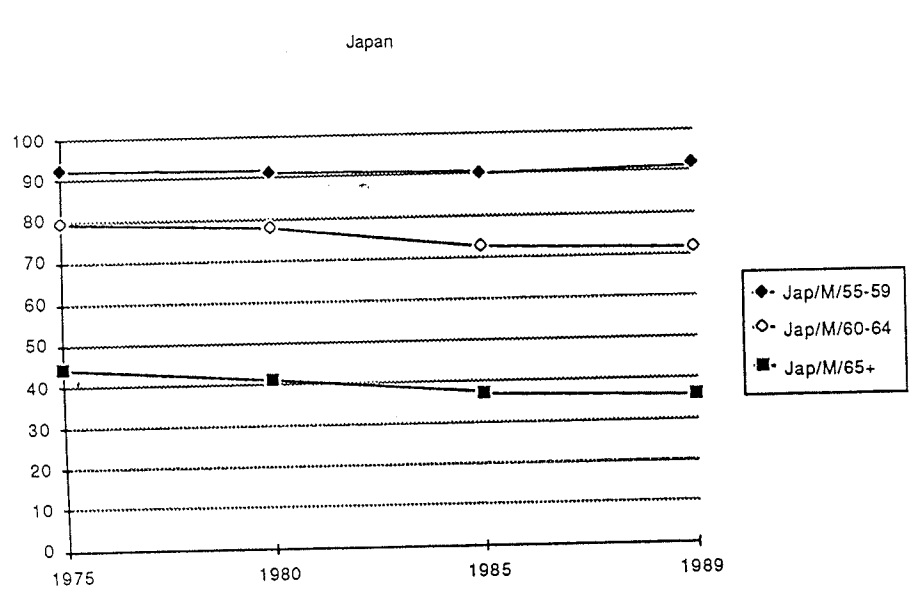


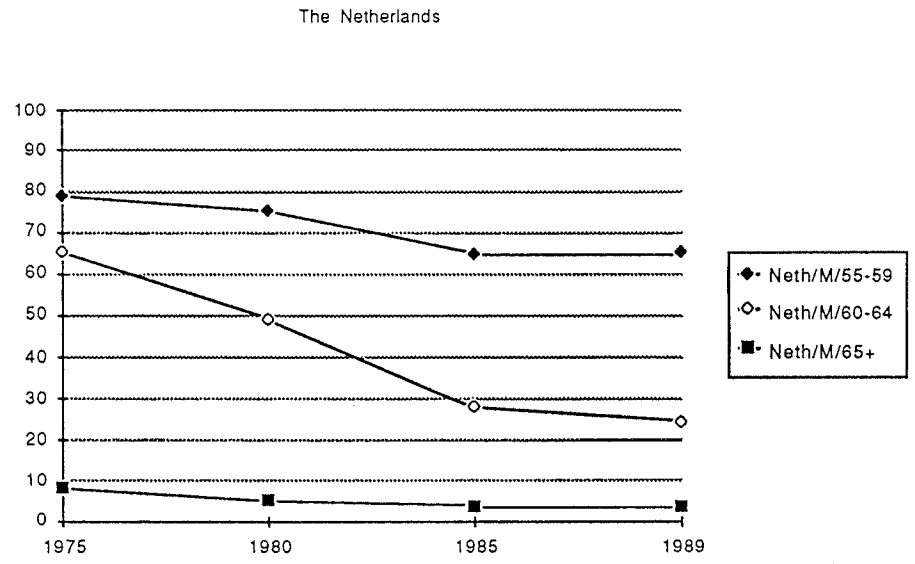
Source: OECD Statistics

Figure 4: Male Employment to Population Ratios in Eight OECD Countries, 1975-1989



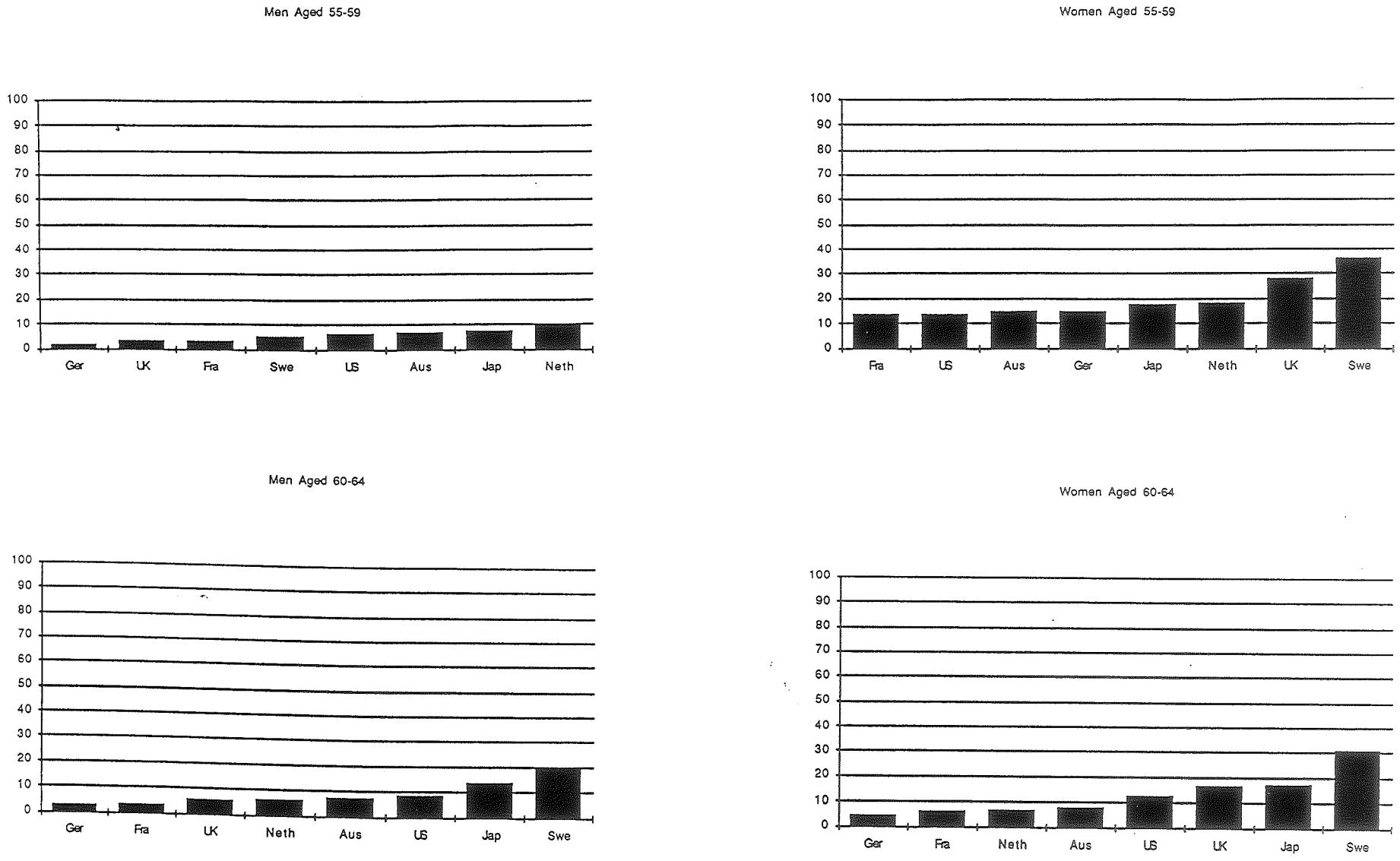






Source: OECD Statistics

Figure 5: Percent of the Population Working Part-time in Eight OECD Countries, by Age and Sex, 1989-1990



Source: OECD Statistics

Table 1: The Employment to Population Ratio for Men Aged 55 and Over

Percentages

	Australia	Canada	Finland	France	Germany	Ireland	Italy	Japan	Norway[a]	Netherlands	New Zealand	Portugal	Spain	Sweden	United Kingdom	United States
1966	..	42.6	60.3	..	..	69.7	17.7	..	..	..	..	..	..	66.6	..	53.1
1967	57.0	42.8	59.6	..	53.4	..	28.5	..	..	..	..	..	..	66.0	..	53.2
1968	56.8	42.5	54.7	58.4	52.5	..	27.6	70.4	..	..	..	..	..	65.2	..	53.5
1969	56.1	42.8	52.9	57.5	47.3	..	0.0	70.1	..	..	..	..	..	62.9	..	53.3
1970	56.3	52.2	61.3	54.2	48.6	..	25.3	68.5	..	..	..	..	..	61.7	55.4	52.3
1971	55.5	50.6	59.3	52.3	45.1	67.3	24.7	68.0	..	39.0	..	..	..	60.0	52.5	51.1
1972	55.1	49.6	55.8	50.2	41.9	..	21.8	66.7	57.7	37.5	..	..	54.6	58.4	51.2	50.0
1973	54.0	49.0	54.5	47.7	39.9	..	21.2	66.7	56.2	36.5	..	..	52.9	56.9	50.2	48.4
1974	51.4	48.5	54.5	46.0	36.5	..	21.7	65.5	53.5	35.0	..	61.8	46.0	55.5	49.1	47.8
1975	48.7	48.4	50.2	44.5	33.7	57.5	21.2	63.9	53.6	33.5	..	56.8	46.5	54.4	48.2	45.7
1976	46.4	46.2	44.3	43.4	32.3	..	19.8	62.6	53.9	33.4	..	56.0	47.6	52.0	46.4	44.4
1977	45.2	45.3	40.8	43.4	31.4	55.6	21.6	61.3	53.9	33.0	..	55.8	46.5	50.2	45.2	44.3
1978	42.2	45.0	38.3	42.5	30.3	..	20.1	60.8	53.3	32.6	..	55.2	44.6	49.6	43.4	44.5
1979	40.8	45.2	38.3	42.3	29.8	54.6	18.2	60.6	52.0	30.5	..	54.6	43.3	49.6	41.8	44.0
1980	40.0	44.7	39.0	41.7	29.9	..	18.7	61.0	49.5	29.3	..	51.6	41.6	49.4	40.3	43.0
1981	38.9	43.7	38.7	40.8	29.7	52.5	18.2	60.8	50.4	26.4	..	47.4	40.2	48.1	37.3	41.9
1982	36.8	41.9	38.8	38.5	29.5	..	14.8	60.4	48.1	24.9	..	46.5	38.4	47.4	34.4	41.6
1983	33.9	40.5	36.0	35.2	29.1	49.1	17.5	59.9	47.7	22.3	..	47.2	36.8	46.0	33.8	39.6
1984	34.1	39.7	35.1	33.9	28.2	47.6	18.5	59.4	45.9	21.3	..	44.9	34.7	45.1	33.5	38.9
1985	33.1	38.9	34.3	33.1	28.0	44.7	18.3	58.9	42.7	21.5	..	41.8	32.9	44.6	32.4	38.4
1986	33.2	37.9	33.9	32.0	28.5	45.7	18.1	58.8	42.4	20.0	40.6	39.8	31.7	44.8	30.8	37.9
1987	32.3	36.9	31.9	30.6	31.6	44.5	17.2	58.4	..	..	38.8	39.7	30.9	44.6	30.6	38.0
1988	31.8	36.7	30.5	30.1	..	44.7	16.8	58.9	..	..	34.7	40.5	29.8	45.5	31.4	37.6
1989	32.7	35.9	29.8	29.8	..	43.4	16.2	59.2	..	..	31.7	41.4	30.1	45.8	32.3	37.4
1990	..	35.3	30.2	28.4	..	..	10.9	60.0	..	..	..	42.0	29.8	44.3	33.0	37.0

a) Data for Norway are for men aged 60 and over.
Source: OECD, *Labour Force Statistics 1970-1990.*

Table 2: The Employment to Population Ratio for Women Aged 55 and Over

Percentages

	Australia	Canada	Finland	France	Germany	Ireland	Italy	Japan	Norway[a]	Netherlands	New Zealand	Portugal	Spain	Sweden	United Kingdom	United States
1966	12.0	..	50.0	..	..	25.4	4.1	..	..	..	..	..	..	28.6	..	23.1
1967	13.2	13.7	48.7	..	18.4	..	6.6	..	..	..	..	..	..	28.1	..	23.3
1968	13.4	13.9	49.1	28.7	18.4	..	6.2	32.2	..	..	..	..	..	28.3	..	23.4
1969	13.0	14.5	45.4	28.6	18.2	..	0.0	32.0	..	..	..	..	..	29.3	..	23.8
1970	13.0	16.6	44.4	27.3	16.5	..	5.1	31.6	..	..	..	..	..	28.7	20.7	23.5
1971	13.7	17.3	45.6	25.3	15.0	23.6	5.0	31.1	..	6.6	..	..	..	28.1	20.7	23.2
1972	13.6	16.3	42.9	24.8	14.2	..	4.2	29.8	24.4	6.6	..	..	14.2	28.3	20.2	23.0
1973	13.4	16.9	43.4	23.3	13.7	..	4.2	30.7	23.5	6.4	..	..	15.3	28.2	19.6	22.4
1974	13.4	16.2	43.0	22.2	12.8	..	4.2	29.4	20.3	6.2	..	21.3	13.0	28.3	19.4	21.5
1975	13.1	16.8	41.9	21.8	11.9	19.6	4.0	29.1	22.3	5.9	..	20.6	13.4	29.3	18.9	21.2
1976	12.7	17.0	39.8	21.7	11.7	..	3.9	29.0	25.1	5.9	..	20.2	13.8	30.2	18.9	21.1
1977	12.8	17.1	39.5	22.1	11.5	17.4	5.3	29.2	26.0	5.7	..	19.2	13.2	29.7	18.8	21.0
1978	11.6	17.3	37.8	21.6	11.4	..	4.8	29.8	26.4	5.7	..	19.8	12.9	30.0	18.0	21.5
1979	10.3	17.7	39.0	21.9	11.3	16.5	4.4	29.6	25.5	5.9	..	19.7	12.1	30.2	17.2	21.6
1980	11.3	17.6	41.1	22.1	11.3	..	4.6	29.5	22.9	5.9	..	19.0	11.3	30.5	17.0	21.2
1981	10.9	17.7	42.2	21.7	11.0	16.0	4.4	29.2	24.8	5.2	..	17.7	10.6	31.7	16.8	21.0
1982	9.3	17.2	43.3	21.0	10.9	..	4.8	29.4	24.9	5.3	..	17.4	10.2	32.0	15.8	21.6
1983	10.0	16.8	44.1	19.7	10.5	15.6	4.2	29.9	24.5	5.5	..	20.2	10.3	32.1	15.0	20.5
1984	9.9	16.7	43.5	19.4	9.9	13.4	4.5	29.3	26.1	5.1	..	19.2	9.7	31.5	15.4	20.4
1985	9.3	16.7	42.7	19.0	9.3	13.1	4.4	29.2	24.5	4.8	..	18.4	9.4	31.0	14.5	20.2
1986	9.7	16.1	39.1	18.6	9.4	12.6	4.6	28.7	24.5	4.4	16.4	17.7	8.9	31.4	14.0	20.4
1987	10.4	16.4	37.1	18.5	10.1	12.4	4.4	28.8	24.9	..	15.5	17.3	8.9	33.2	14.1	20.4
1988	10.6	16.8	37.2	18.4	..	12.3	4.1	28.9	..	..	15.9	17.9	9.1	34.0	14.2	20.8
1989	10.3	16.2	37.8	18.4	..	11.4	4.2	29.4	..	..	14.5	17.8	8.9	34.2	15.6	21.3
1990	11.0	16.5	38.2	17.6	..	..	4.2	30.0	..	..	14.3	18.3	8.6	34.5	15.7	21.4

a) Data for Norway are for women aged 60 and over.
Source: OECD, *Labour Force Statistics 1970-1990.*

TABLE 3

DISABILITY TRANSFER RECIPIENTS PER THOUSAND ACTIVE LABOR FORCE PARTICIPANTS, 1970-1989

Population:	1970	1975	1980	Percent Change 1970s	1985	1989[a]	Percent Change 1980s
Aged 15-64							
Netherlands	49	77	126	157	130	139	10
United States	27	42	41	52	51	43	5
Sweden	49	67	68	39	74	78	15
Germany	51	54	59	16	72	55	-7
Aged 15-44							
Netherlands	14	28	49	250	50	53	8
United States	11	17	16	45	20	23	44
Sweden	18	20	19	6	20	21	11
Germany	7	6	7	0	8	5	-29
Aged 45-59							
Netherlands	102	164	269	164	279	317	18
United States	33	68	83	152	71	72	-13
Sweden	66	95	99	50	108	116	17
Germany	75	64	84	12	103	75	-11
Aged 60-64							
Netherlands	274	410	989	261	1,249	1,932	95
United States	154	265	285	85	254	250	-12
Sweden	229	382	382	67	512	577	51
Germany	419	688	1348	222	1,291	1,109	-18

[a]The numbers for the Netherlands refer to 1990.

Source: Aarts, Burkhauser, and deJong (1991).

TABLE 4

MEDIAN HOUSEHOLD INCOME AND ITS SOURCES FOR MEN AND WOMEN WITH AND WITHOUT DISABILITIES IN THE UNITED STATES AND THE FEDERAL REPUBLIC OF GERMANY

	United States			Germany		
	With Disabilities	Without Disabilities	Relative Shares[a]	With Disabilities	Without Disabilities	Relative Shares[a]
Men						
Median Income	$19,073	$24,624	0.77	DM 29,771	DM 32,462	0.92
Own Wage Earnings	0.42	0.66	0.64	0.46	0.53	0.87
Earnings of Other Household Members	0.30	0.22	1.36	0.33	0.33	1.00
Transfer Income	0.19	0.02	9.50	0.11	0.04	2.75
Other Income	0.09	0.10	0.90	0.10	0.10	1.00
Total	1.00	1.00		1.00	1.00	
Women						
Median Income	$15,232	$22,306	0.68	DM 25,568	DM 29,690	0.85
Own Wage Earnings	0.17	0.29	0.59	0.22	0.21	1.05
Earnings of Other Household Members	0.57	0.57	1.00	0.50	0.64	0.78
Transfer Income	0.16	0.04	4.00	0.17	0.05	3.40
Other Income	0.10	0.10	1.00	0.11	0.10	1.10
Total	1.00	1.00		1.00	1.00	

NOTE: Median Income is median net of tax income adjusted for household size using the equivalence scale implied by the United States poverty line. The in-cash value of food stamps and owner-occupied housing is included in income in the United States. In Germany, the value of owner-occupied housing is included. Income is in 1991 dollars or 1991 deutsch marks. Shares are the mean category income divided by mean pre-tax, post-transfer income. United States estimates are based on the PSID, sample year 1988. German estimates are based on the GSOEP, sample year 1988.

[a]Relative share equals the median share of people with disabilities divided by the median share of people without disabilities. Relative median is the median income of people with disabilities divided by the median income of people without disabilities.