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RETIREMENT RESEARCH USING THE HEALTH AND RETIREMENT SURVEY

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ABSTRACT

This paper highlights unanswered research questions in the economics of retirement, and shows how these issues can be addressed using the new Health and Retirement Survey (HRS). Unique features of the survey are described including administrative records on earnings and social security benefits, and employer provided data on pensions and health insurance. Also collected are indicators of retirement plans, health status, family structure, income, wealth and employer policies affecting job opportunities and constraints. Data from the first wave of the HRS are used to analyze retirement outcomes and constraints shaping retirement behavior.

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Retirement Research Using the Health and Retirement Survey

Researchers and policy makers have become increasingly aware of the critical need for a new longitudinal survey to analyze work, retirement, and health patterns of older Americans. One reason is that existing data sets are out of date, and hence less useful for current policy purposes. The economic, health, and social opportunities facing older people are different now than in past decades. In addition, people reaching retirement age today may have different expectations about health and retirement than in previous years.[1] While both the Retirement History Study (RHS) and the National Longitudinal Survey of Older Men (NLS-OM) were invaluable for analysis of prior generations, they focused on people who are now in their late 70's and 80's. This cohort is now well past the period when most people are making retirement decisions.[2]

The Health and Retirement Survey (HRS) is a new longitudinal survey designed to fill this gap. It includes a comprehensive set of questions which will permit modern econometric studies of labor force and health outcomes and their determinants. Wave 1 of the HRS focuses on a representative sample of older people age 51-61 in 1992 as well as their spouses. These people will be followed with a longitudinal survey format for years to come, with the second wave fielded in 1994.

The HRS collects a rich array of information on income and time constraints affecting this cohort's retirement expectations, attitudes and opportunities. The study includes information on earnings profiles, current and anticipated privately-provided benefits such as pensions and health insurance, current and anticipated government payments such as social security, disability and other benefits, and a variety of other data on income, debt, and assets. Finally the survey contains numerous measures deemed important by sociologists, psychologists, and the medical profession, including employer and fellow-employee attitudes toward older workers, family demands, and an assessment of workers' and spouses' psychological and physical states.

Our task in this essay is to identify how key research and policy questions about retirement can be addressed with the new HRS. After a brief overview of the most important questions that the retirement literature is confronting, we turn to an analysis of the new information available in Wave 1 of the HRS on older Americans' labor market outcomes, along with data on the opportunities and constraints they face, including income and assets, health status, family structure, and transfers. We conclude with a discussion of

what the findings portend for researchers examining retirement and health using the HRS in the future.

I. How Can the HRS Help Address the Important Retirement Questions?

To place in context the anticipated contributions of the new Health and Retirement Survey, it is useful to review briefly some lessons from the last two decades of retirement research. In general, most of those who have examined retirement patterns from an economic perspective would agree with the following points:[3]

- *Older people decide when to retire by taking into account not only current work and leisure opportunities, but future opportunities as well.* Hence retirement behavior must be modelled using an intertemporal utility maximization framework rather than with a single-period model of cross sectional labor force status.
- *Jobs and pensions sometimes make it costly to continue working at older ages.* This can happen when a defined benefit pension subsidizes early retirement, or when a national retirement income system penalizes deferred retirement. Additionally, there may be problems finding jobs with reduced hours of work, and some older workers face age discrimination from employers. All of these factors generate nonlinearities in older workers' budget constraints near retirement.
- *Retirement patterns vary according to family structure and marital status.* The presence, or absence, of spouses, dependent children, and elderly parents, has substantial effects on retirement patterns for both men and women.
- *Retirement is influenced by health as well as economic factors.*

Most retirement researchers would also agree that several important unanswered questions need answers, in order to better understand why people retire when they do, and what effect health and retirement policy have on behavior. Six questions are worthy of special note here, though we recognize that the list could be expanded considerably:

1. What explains the long trend toward earlier retirement among men, and why did the downward trend level out in the last decade?

Men's labor force participation rates fell in the U.S from the 1950's to the mid-1980's, and then levelled off. There remains considerable controversy about what explains these patterns, and answers must be refined for better retirement income policy.[4] The HRS will be useful in providing better estimates of the

incentives created by pensions and Social Security on retirement, and by facilitating the analysis of how changes in these incentives affect retirement outcomes.

2. How does the family context affect decisions about work and retirement?

Researchers have only begun to understand how retirement decisions are determined within the family. Rising rates of market work among women and changing family structures are likely to affect patterns of labor market participation among women and men at older ages. Economic security has become more elusive for some older persons due to increasing divorce rates and longevity, exposing increasing numbers of people to greater risk of poverty and increased likelihood of need for long term care. Linked to this is the question of how well today's aging generation is insured against possible drops in consumption through pensions, life and disability insurance. The HRS offers unique opportunities to examine how family structure affects work and decisions about retirement.

3. What are useful ways to measure and model the impact of health status on retirement?

A debate continues on how best to measure health status in the context of retirement studies. Existing data sets cannot resolve this debate since they do not provide health measures of sufficiently high quality to determine whether self-reported health measures can be treated as exogenous determinants of retirement (Sammartino, 1987). The HRS offers researchers better information on respondents' health than any previous retirement data set, with detailed reports on chronic and acute health conditions, medical care insurance, and medical care utilization. Moreover, the appended questions on provisions of retirement and disability programs, together with these health measures, allow HRS users to determine how health status interacts with benefit and health care plans to shape labor force participation and retirement behavior.

4. How do retirement patterns respond to pecuniary and nonwage attributes of jobs?

Since wages are the most important element in compensation, a great deal of attention must be devoted to their accurate collection. Benefits including pensions and retiree health insurance also affect the rewards for continued work among older individuals, as do nonwage job attributes and job relationships, including implicit threats of dismissal, company unwillingness to adapt to employee disability, job stress, or fellow-worker pressure to leave. Information on these aspects of work is collected in the HRS. Workers and retirees are asked what they could and do earn as of the survey date as well as on their previous job. These

data are supplemented with individual-specific earnings records supplied by the Social Security Administration. Pension and health insurance expectations are collected from the older person directly, supplemented with outside information collected from the employer. Data on job demands, working conditions, and other job attributes are also included in the HRS.

5. How do retirement decisions interact with savings and consumption, as well as wealth accumulation and bequests?

A model which satisfactorily integrates both savings and retirement decisions has yet to be estimated empirically.[5] Retirement models which ignore savings may be misspecified, and conversely savings models which ignore retirement are incomplete. We need to know more about asset accumulation as workers approach retirement, and particularly about those who accumulate virtually no personal assets (Venti and Wise, 1993). Perhaps people do not save because of high time preference or low after-tax interest rates, or perhaps because pensions and Social Security more than meet their projected retirement needs, or they greatly underestimate resource needs in retirement. Additional explanations include uncertainty about future health, combined with the availability of programs like Medicaid that insure losses only after assets are depleted. Information for examining these alternate hypotheses is contained in the HRS.

6. What factors determine peoples' expectations about their future opportunities and constraints in retirement, and how accurate are these expectations?

Existing data sets do not permit a full exploration of how well older people understand what they will receive from Social Security and pensions when they retire, how much savings they will have had to accumulate to sustain their consumption in retirement, and the way that their pension and Social Security benefit payments are affected by additional earnings.[6] The HRS offers a unique opportunity to compare company-provided information on actual health and pension plans provided to covered workers, with respondents' expectations of pensions, insurance, and Social Security benefits. The HRS also asks questions about peoples' anticipated life expectancy, health outlook, spousal retirement expectations, reported planning horizon, etc. Eventually Medicare and mortality information will be matched with HRS survey files, and these too can be compared with corresponding information on the questionnaire. Each of these links enables researchers more accurately to match peoples' stated expectations with realizations, and how in turn these

affect retirement outcomes.

II. Retirement in the Health and Retirement Survey

This section outlines theoretical and practical aspects of the HRS which researchers should be aware of when examining retirement behavior with this survey. In addition we offer some initial evidence on the extent of retirement behavior currently observed in Wave 1, and some early evidence of patterns that will emerge as subsequent waves are collected.

Conceptualizing Retirement

The term "retirement" has many meanings and can be empirically represented using a variety of labor market measures. These include worker withdrawal from the labor force, or the point when he or she leaves a career job or stops working full-time, or when the worker files for pension (or Social Security) benefits, among others.[7]

Because many different types of labor force transitions occur toward the end of the worklife, the HRS incorporates many detailed questions on labor market activity and the opportunities facing older individuals. In Wave 1, the baseline questionnaire collected in 1992, the HRS inquires about respondents' current employment status, pay and benefits, and working conditions (including hours flexibility and employer attitudes). Those who have pensions and health insurance coverage on their current jobs are also asked the name of their employer. Pension and health plan descriptions offered by these firms are being collected from the employer and the U.S. Department of Labor. For persons not employed at the time of the survey, questions are asked about prior employment.

Much of this labor market information is collected for all respondents in Wave 1. For example all are queried regarding recent jobs that lasted for five years or more, and on other jobs offering pension coverage. Moreover, all respondents who signed a release will have their social security earnings history attached to their file, permitting the reconstruction of employment and earnings history in all covered employment (it will, however, not be possible to separate hours and wages). In designing the survey, an effort was also made to obtain information on opportunities not taken. Specifically, respondents are asked about recent job search and unemployment; in addition brief information was obtained on past layoffs. Wave 2, fielded in 1994, and subsequent waves, can then be used to gauge the accuracy of retirement expectations, and whether retirement

behavior is affected by poor information about work and pension opportunities. Lastly, the HRS asks about peoples' reasons for retiring and/or changing jobs, information that has been unavailable in earlier studies.[8]

Work and Retirement in Wave 1 of the HRS

Table 1 shows that a relatively large fraction of HRS respondents are not working, even though the target population is quite young in Wave 1 -- age 51 to 61 years old.[9] The top six rows of the table define retirement as zero or few hours per year of work. By this definition, slightly over one fifth of the men in the sample are retired, and about two fifths of the women. Focusing on men, Whites and Hispanics report equal rates of nonemployment, about one-fifth, while a third of Black males report they are retired by this definition. Among women, about 40% of both White and Black females report no current job, while more than half of Hispanic females are not working for pay.

Different definitions produce different tallies of employment and retirement status. Since the HRS target population was 51 to 61 years old in 1992, the cohort is not yet eligible for social security retirement benefits. Some people nevertheless report themselves as "retired", though the figures are significantly lower than the objective labor force status measures discussed above. Row 7 of Table 1 shows that only 15% of the men and 28% of the women consider themselves retired.[10] The same relative relation by race appears for men.

Evidence on partial retirement patterns also appears in Table 1. Among men, 4 to 6% are partially retired using definitions based on hours of work per week, weeks per year, or hours per year up to 1200 hours, with more being classified as partially retired when the 1500 hour cutoff is used. Partial retirement rates are about double among women, at 6 to 10%, with 15% working fewer than 1500 hours; the gap is much smaller when the employment measure is weeks per year. It is possible that one should differentiate partial retirees between those who always worked part-time, and those who previously held full-time jobs. Fifteen percent of men and 8% of women report having left a long term job after age 45, where by "long term" is meant a job held for 10+ years. If instead the cutoff is having left a job of 20+ years after age 45, the corresponding figures are 8% and 2% of men and women are partially retired. Using self-reports, 8% of men and 5% of women describe themselves as partially retired. White men are more likely to be measured as, and to report themselves as, partially retired as compared to Black or Hispanic males, while Black women are

more likely to be partially retired than are White females; Hispanic women report a low probability of partial retirement.

A final set of measures in Table 1 describe HRS respondents' expectations with regard to work at future ages. Men anticipate that the odds of working at age 62 slightly exceed one half, while women report about a 40% probability of working. Forecasting to age 65, men report only a 30% chance of working, and women less than a 25% chance.

Figure 1 summarizes graphically the patterns for full and partial retirement measures by age in the HRS baseline survey. Defining full retirement as having no current job, the fraction retired increases with age, but the graph is not a smooth curve. Among 61-year old HRS respondents, one-third of the men and almost half the women have no current job; these are higher than the rates at age 51, where 12% of the men and 36% of the women do not hold a job. For men the sharpest change in retirement levels occurs between ages 58 and 59, with other large increases at 54-55 and 60-61. For women the largest increases are at 52-53, 60-61, and 55-56. To what extent these changes are due to provisions of retirement programs awaits further investigation. Partial retirement in Figure 1 is defined as working less than 1200 hours per year; this rises by about five percentage points for men between ages 51 and 61, and less than one percentage point for women.

Other retirement definitions will also be used by researchers studying the HRS, but most of these require additional information to evaluate changes over time in work patterns. It is also worth noting that retirement may not be an absorbing state, so that people may flow back and forth between work and retirement.[11] To permit study of this behavior at baseline and thereafter, HRS respondents are asked retrospective questions about their last job to determine labor force transitions near the end of the worklife.[12] In addition, other information is to be gathered from the Social Security Administration and from the employer.

III. Elements of the Opportunity Set in the HRS

In designing the HRS, it was deemed essential to map carefully the constraints and opportunities older people face, including money and time constraints. This section describes findings from Wave 1 of the HRS about each of these factors.[13]

Labor Market Earnings and Job Opportunities

In developing retirement models, analysts must predict a range of wage offers for all HRS respondents, correcting observed pay measures for selectivity bias and estimating potential wages for work on a full-time "main" job, on a post-retirement but full-time job, and/or on a part-time job.[14] Here we report only evidence on job earnings and opportunities for those employed in 1992.

Several different pay measures appear in Table 2. One approach classifies HRS respondents in Wave 1 as full-time workers if their usual annual hours total 1200 or more. The first three lines of Table 2 show that full-time workers earn higher median pay than do part-time workers, but the differences between the rates depend on the time period over which earnings are measured. On an hourly basis, men employed full time have hourly wages 45% higher than their part-time counterparts ($14 versus almost $10 per hour); however on an annual basis male full-time workers earn more than three times as much ($32,000 versus $10,000 per year). An even more pronounced differential applied to women: full-timers earn 32% more on an hourly basis, and more than three times as much on an annual basis. We also note that pay rates for part-time self-employed men are relatively high in Wave 1 of the HRS.[15]

Table 3 also shows that many workers in the HRS age range face hours constraints.[16] Among full-time male workers, 12% report they would like to work fewer hours than permitted to on their current jobs. Almost 15% would like to increase their hours of work. Increasing hours is a goal of 15% of the full-time working women, while slightly fewer than 15% wish to reduce work hours. Part-time employees appear much less constrained in terms of wishing to provide fewer hours (5% of the men, 3% of the women), but many more would like to increase their hours of work (18% of the men and 21% of the women).

Table 3 shows that a reasonably large segment of the HRS full-time workforce is continuing to work after having been laid off from a job held for more than 10 years. About 8% of full-time men and 6% of full-time women are still working after having been laid off from a long-time job, most of them working for a new employer rather than being self-employed.

Social Security Benefits and Taxes

The HRS cohort is still too young to be eligible for social security based on its own earnings, and most sample members are not now eligible for payments based on spouse status. In future survey waves, social security benefits will be the focus of much attention inasmuch as they constitute the major source of

income for large segments of the older population. It is anticipated that social security benefits will be computed three different ways and the results compared. A first approach will use questions in Wave 1, where respondents are asked what they expect to receive in social security payments at the point they retire. Second, when earnings histories are attached to the files of respondents who have granted permission to the research organization to obtain data, benefit computation algorithms can be used to predict respondents' benefits at various future retirement dates. Analogous calculations will also indicate the retirement incentives created by social security regulations including the earnings test, benefit recomputation rules, and the delayed retirement credit (which may differ across sample members depending on year of birth). Future survey waves will also report benefits actually received by retirees.

Available information regarding social security in Wave I pertains mainly to expected coverage and benefits. As seen in Table 4, fewer than 1% currently receive social security benefits from disability or other programs. The table includes only currently employed workers, but almost all of the employed workers (92%) expect to receive social security benefits. Benefit expectancy does not vary much by marital status, though there is a gap across ethnic groups: Whites are 6% more likely and Blacks are about 3% more likely than Hispanics to anticipate receiving benefits. Other differences observed are less notable by firm size, union status, and pension status, though manufacturing employees are 6 percentage points more likely to expect benefits.

A related question is what happens when people misunderstand the social security benefit structure. This is a concern prompted by prior surveys which concluded that older people tend to stop working when their pay rises to the point that their social security benefits are subject to an earnings test; the anomaly is that other features of the benefit formula offset the earnings test, making it worthwhile for most people to continue in the labor market.[17] If future HRS waves reveal a similar spike in the frequency distribution of earnings at the income disregard for the earnings test. This will suggest that analysts should rethink older peoples' understanding of the benefit computation process. A related issue is how to model workers' evaluations of the uncertainty surrounding future social security benefits and taxes. These future streams should have attached to them peoples' valuations of their riskiness, and the HRS can help make headway in measuring how these streams may vary in the future.

The middle columns of Table 4 display the HRS respondents' expectations with regard to future social security benefit changes. Few believe that benefits are likely to rise on average, with odds of only 2.5 out of 10, while people offer much higher odds that benefits will be cut, about 6 out of 10. Indeed HRS members are as pessimistic about the prospects of a major depression and high inflation as they are about cuts in social security benefits. While the means are fairly similar across most groups shown in Table 4, both Hispanics and Blacks are more optimistic than others about their benefit prospects under Social Security.

Employer-Provided Pensions and Health Insurance

To date, nationally representative retirement surveys have not supplied high-quality data on company-provided pensions and health insurance.[18] This is an important omission inasmuch as benefits are believed to influence retirement patterns profoundly, because they comprise a major portion of older worker's wealth, and because the benefit rules impart large discontinuities to older workers' budget constraints.

The HRS seeks to remedy this data deficit by linking employers' descriptions of their pension and health care plans to each individual's survey record. Survey respondents were asked to identify their employers, and the Institute for Social Research (ISR) is collecting benefit plan reports from various sources for subsequent conversion to computer-readable format. Additionally, a computer software program is being written at the University of Michigan to compute participants' pension eligibility ages and expected benefits, which will streamline the process of estimating pension wealth. As of this writing the employer-side link is not yet available, so the discussion here describes only what HRS respondents state they expect to receive, rather than what their employers plan on providing after retirement.

HRS respondents are asked in Wave 1 whether they are covered by a private pension and if so what type of plan they have. Employed respondents' responses appear in Table 5 (excluding the self-employed). Two-thirds report having pension coverage. Consistent with earlier surveys, the data show that women and nonwhites are less likely to have a pension than are men and whites. People most likely to have a pension are union members, employees of large firms, and manufacturing employees.[19]

These findings are confirmed with a descriptive multivariate probit analysis of pension coverage whose results appear in Table 6. Reported values reflect the effect of a difference in the indicated explanatory variable on the probability of coverage for the set of employed Wave 1 respondents. The results are

consistent with earlier findings that pension coverage is more widespread for better educated and higher paid workers as well as employees in large firms, manufacturing companies, and unionized jobs. Not only are the estimated coefficients statistically significant, but the observed differences in coverage are large and consistent across women and men, after controlling on age and ethnic group. The results also show that pension coverage is significantly lower for self-employed and part-time workers, with self-employed women having a proportionally larger decrease in coverage, and part-time men relatively less likely to have coverage.

Policymakers are currently quite interested in the types of pensions that workers have among those who have a plan, and the HRS offers information on this matter. Approximately 42% of the HRS pension covered sample reports having a defined benefit pension alone, while another 25% indicates having a defined benefit plan paired with another type of plan (Table 5). Defined contribution plans, particularly 401(k) plans, have grown quickly over the last decade. This trend is reflected in the HRS with more than one quarter of all covered respondents having a 401(k) plan (either alone or in combination with other plans). Fewer than 3% of covered workers cannot classify their plan type, a far smaller proportion than in previous surveys. In the 1983 Survey of Consumer Finances, for example, 19% of respondents could not identify their plan type (Mitchell 1988).

Retirement incentives in pensions depend on a number of plan characteristics including the "normal" retirement age, or the age at which retirees are eligible to receive "full" or unreduced benefits. This age has been declining and is now quite low, as is evident from Table 7. HRS pension-covered workers report that their pension plans allow retirement with unreduced benefits at a normal retirement age averaging 61, or a median age of 62. Most pension plans also permit early retirement, though usually with reduced benefits.

In the HRS, workers with defined benefit pensions face a mean (and a median) early retirement age of 58, with a range from 57 to 60 for various subgroups. Respondents with defined benefit plans who know how much their early retirement benefits are reduced report that their pension reduction factor is about 5% per year. A reduction factor of this magnitude usually implies that early retirees receive subsidized benefits.[20] Other early-out incentives include so-called "window" plans. Table 8 shows that more than 5% of all HRS respondents (not just the employed as in previous tables) report that they have ever been offered an early retirement window. About half of those offered the plans have accepted.[21]

Eventually the HRS will permit a comparison of these data with plan characteristics and pension accrual profiles computed from employer-supplied descriptions of the pension. With the computer software it is possible to calculate each covered worker's expected "pension wealth profile," taking as input the worker's pension plan description and assumptions regarding expected future earnings, inflation rates, anticipated Social Security benefits, and longevity information. In addition to providing a straight calculation of the expected benefit at alternative retirement dates, the program can also be used to help answer "what if" questions (such as how the pension might change if the Social Security offset changed, or if the pension contribution or benefit formula changed).[12]

Employer-provided health insurance benefits should also be included among the factors influencing worker mobility and retirement behavior. While costs of employer-provided health insurance are not available in the HRS, there are data on current coverage as well as health care benefits anticipated after retirement. Table 9 shows that health insurance coverage is widespread in the HRS working cohort: 86% have some coverage and 80% of those enjoy coverage through their own employer. Company-supplied health coverage is higher for men and unmarried women, though many married women receive insurance through their spouses. This gender difference probably explains why coverage rates from own employment are higher for Blacks and Hispanics than for Whites overall. In general, employees are more likely to be covered if they are unionized and have pensions (coverage rates are 96% or higher), and work in large and manufacturing firms (92%).

Of those who have health insurance from their employers while actively employed, more than 69% expect continued retiree health insurance coverage, with rates even higher for union employees (80%) and employees of large companies (74%). Only half of Hispanics and workers in small firms hope to receive retiree healthcare coverage. Interestingly only 15% of those with current health coverage do not expect retiree coverage, but a larger group, 16%, does not know what retiree coverage is offered. Some may be entitled to continued coverage through their spouse's continued employment, as is evident in the last column of Table 9.

While a comparison of HRS with other databases is beyond the scope of this study, it is useful to ask whether the HRS pension and health insurance coverage data appear broadly consistent with coverage information from other surveys. Two data sets lend themselves to a natural comparison: the 1991 Survey of Income and Program Participation (SIPP), and the 1988 Current Population Survey (CPS). These two surveys

include people in broader age ranges and pose the coverage somewhat differently than in the HRS so the figures would not be expected to be identical. Nevertheless, all three appear to tell a similar story. Unpublished tabulations from the SIPP indicate that 75% of men age 50-59 who are wage and salary workers are covered by a pension, and 64% of women. Comparable figures for the slightly older HRS sample are 72% and 62%. CPS full-time men and women employees age 50-59 report health coverage rates from their own employment of 78% and 62% respectively in 1988, versus comparable HRS coverage rates of 80% and 58% for men and women respectively.

Nonwage Aspects Of The Job

The HRS asks respondents many questions about nonwage aspects of their jobs, including physical and mental job requirements, worker attitudes toward the job and its constraints, and future prospects for continued employment as well as alternative prospects. Answers to these questions should permit researchers to derive variables useful to measuring HRS participants' preferences toward work and leisure. Where physical demands of jobs are involved, it will also be natural to interact these with individuals' health status in the models explaining retirement.

Table 10 describes job attributes for HRS members working full-time at the time of the survey. A majority of respondents report that their jobs require skill in dealing with others much of the time (57% of men and 70% of women). Around 90% of HRS men and women report their work environments to be friendly most of the time. Three-quarters of men and women report having freedom to decide how they do their work much of the time. Most men (81%) and women (73%) believe they are paid fairly, though, surprisingly, fewer than half of the men (43%) and women (35%) believe that their pay depends on their job performance. Almost no HRS workers believe they are being discriminated against because of their age, and fewer than a fifth of men and women believe that younger people are given preference over older people. Among both men and women, 80-90% reject the idea that employers or fellow-workers exert pressure to retire. Finally, about a third of older men and women work on jobs where they believe they would be allowed to move to a less demanding job with less pay.[23] In general, most of these employees seem to like work: less than a third would retire if they lost their jobs, and more that two-thirds state that they "would continue to work even if they did not need the money".

Respondents are also asked whether their jobs require particular physical and mental requirements. Two-thirds of the HRS men and women say their jobs require physical effort at least some of the time, where these requirements include stooping, repetitive work, and keeping a fast pace on the job. More than half of the women but fewer men report needing good eyesight and intense concentration almost all of the time. This may be because more women than men use computers at work (28% versus 14%). Almost half of the HRS workers agree that they could perform better with more training; more than half state that their job is becoming more difficult over time; and two-thirds report substantial stress on their jobs.

Wealth Measures

The HRS promises greatly improved measurement of financial status as compared to prior surveys. Wave 1 results on economic status in the HRS are discussed elsewhere by Moon, Juster and Abrams (this issue) and wealth measures are discussed by Smith (this issue). Eventually all the different explanations for asset accumulation and decumulation should be integrated with those for retirement, savings, consumption, and bequests.

Other Factors Relevant to Retirement Analysis

The HRS incorporates a richer and more reliable set of indicators of health status, family structure, and disability plan participation than have ever before been available in previous surveys of retirement-age people. Knowledge of these will improve social scientists' ability to measure older workers' opportunity set and should facilitate estimation of key behavioral parameters in retirement models. Given the central importance of health status in determining retirement behavior, careful estimation of health and disability status will both improve understanding of their effects on retirement, and should also reduce bias in retirement models which might otherwise result from imprecise measurement of the impact of poor health on retirement decisions.

The HRS permits improved modeling of retirement decisions in a family setting. Earlier surveys did not provide information on both spouses' health and disability status, a shortcoming which makes it difficult to determine how poor health of the husband influences the wife's work and retirement behavior and vice versa. Moreover the HRS collects data on each spouse's earnings, pension, Social Security and employment opportunities independently, offering better quality data than heretofore available.[24] The HRS also offers good

information on other family members besides spouses, recognizing that older workers' labor supply decisions respond to family needs and resources as a whole. This information on family status can be used to assess older peoples' reactions to changes in household structure including divorce, migration, and death of family members.

IV. Data Matching and Estimation in the HRS

As of this writing, there remain some questions about the HRS which will be important to resolve as the study goes forward. One issue is that none of the proposed data matching efforts have yet been completed, thus delaying for a time analyses of the fully-integrated file using merged HRS respondents' questionnaires with their social security records, employer-supplied pension descriptions, and health insurance files. The likely match rate between pension- and health insurance-covered workers is not currently known, since it depends on benefit plan descriptions supplied by their employers which have not yet been completely processed. The HRS staff has thus far concentrated on cleaning and entering pension descriptions received, but no information is yet available on the extent of the match rate between covered employees and plan receipt. In the event that the plan descriptions cannot be obtained from HRS respondents' firms, pension files maintained by the U.S. Department of Labor will be used as backup.[25] The expectation is that a matched and useable set of pension plan descriptions will be available to researchers in the late fall of 1994. Less information is currently available about the eventual availability of employer-provided health insurance data. A survey instrument was developed and fielded by the HRS staff in 1993 for workers supplying locator information on their plans, but data quality and match rates are not presently known.

Many questions also remain regarding the linkage of HRS and social security earnings records files. Initial tallies show that 9,498 of the age-eligible HRS respondents granted permission to match social security earnings records, out of the full set of 12,654 individuals. Of those who granted this permission, 95% (9089) had valid Social Security numbers. The Social Security Administration received 93% of these forms (8416) within the 60 days required in order to have the data released; current plans call for the remaining 673 to be recontacted in order to obtain fresh releases.

It is anticipated that the HRS data merged with all available files including earnings records will be made available in the Fall of 1994 in a variety of formats. Decisions regarding which specific variables will

be released have not yet been made, though a group of research and policy advisers is working with ISR to sketch the kinds of summary data that will be made available. It seems likely that a file intended for public use will contain masked social security earnings profiles and summary benefit amounts including respondents' Average Indexed Monthly Earnings (AIME) and Primary Insurance Amounts (PIA) from Social Security. Pension wealth amounts will also be appended to the file using the pension software mentioned earlier along with each person's earnings history and plan description. Although final decisions have not been made on the exact variables to be included in the data file, it is probable that several different pension and social security wealth measures will be calculated using different scenarios. This public use file will carry with it broad geographic identifiers (probably Census divisions), but nothing which would allow a data user to locate a respondent precisely by, say, state of residence. A second file will also be created which includes more detailed Social Security information, and a third which includes more geographic detail (but with the summary Social Security information). These last two files will carry with them restricted access and prohibitions against merging them with each other or other HRS files.

V. Conclusion

The Health and Retirement Survey offers researchers ample scope to explore current practices and to answer outstanding questions about retirement. The survey also affords new information with which to evaluate current programs and improve policy design for the future. This is because the survey contains better measures than have ever before been available of older peoples' opportunities and constraints, as well as insights into health and retirement behavior for the generation on the verge of retirement. Critically important questions can be addressed with the survey because of its richness of detail and linkages with Social Security records, company health and pension data, and (eventually) Medicare and Vital Statistics records. Thus, for instance, the HRS will permit researchers to study how retirement responds to changes in income support programs, the Social Security System, pension regulations and trends, requirements affecting health insurance, spouse equity, disability policy, and others.

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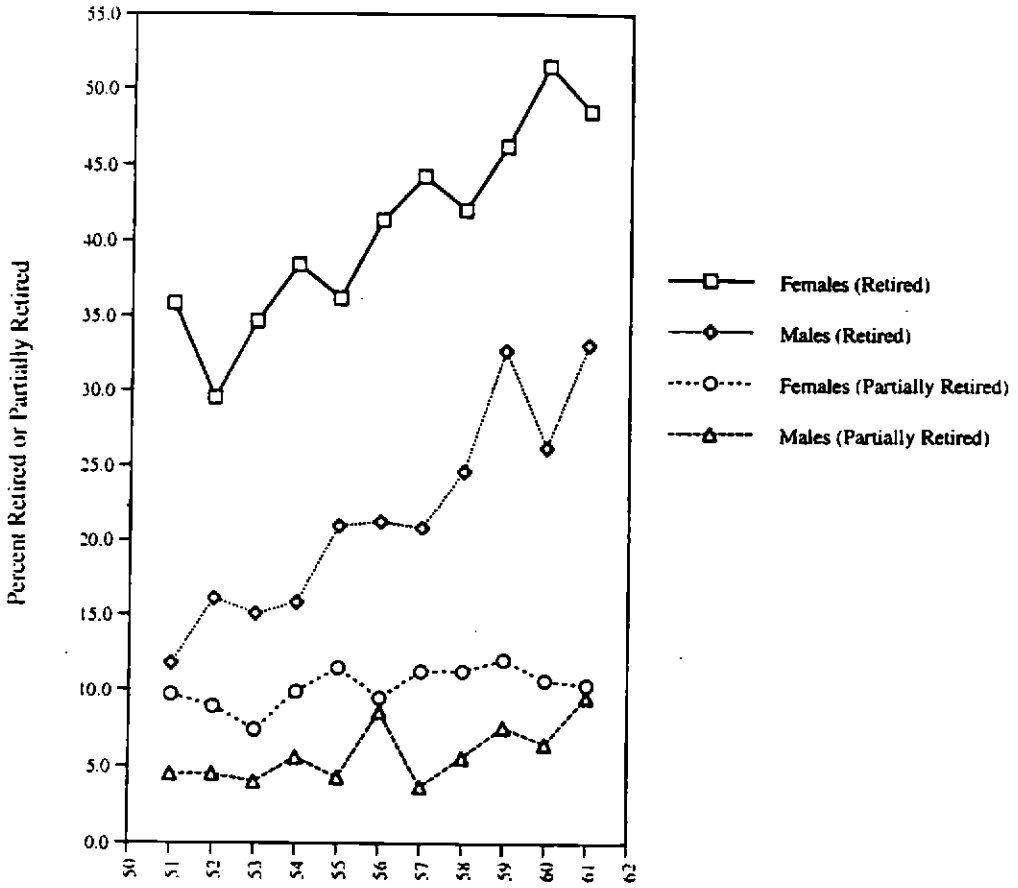
Figure 1

Retirement and Partial Retirement By Age*



*Retirement is defined as no current job. Partial Retirement is defined as less than 1200 hours per year.

Table 1
Employment and Retirement in the HRS Under Alternative Definitions

Retirement Definition	Men	(N)	Women	(N)
"Full Retirement" Status (%)				
No current job	21	(3405)	40	(3818)
White	19	(2726)	39	(2942)
Black	33	(518)	40	(699)
Hispanic	22	(161)	52	(177)
Working < 200 hrs/yr	21	(3405)	41	(3818)
Working < 400 hrs/yr	22	(3405)	42	(3818)
Self-Reported As Retired	15	(3179)	28	(3798)
White	14	(2534)	28	(2931)
Black	26	(494)	29	(690)
Hispanic	14	(151)	35	(177)
"Partial Retirement" Status (%)				
Working < 25 hrs/wk	4	(3432)	9	(3851)
Working < 40 wks/yr	5	(3418)	6	(3827)
Working < 1000 hrs/yr	4	(3405)	7	(3818)
Working < 1200 hrs/yr	6	(3405)	10	(3818)
White	6	(2726)	10	(2942)
Black	5	(518)	11	(699)
Hispanic	5	(161)	10	(177)
Working < 1500 hrs/yr	8	(3405)	15	(3818)
Left 10+ year job after age 45	15	(3405)	8	(3818)
Left 20+ year job after age 45	8	(3405)	2	(3818)
Self-Reported Partially Retired	8	(3179)	5	(3798)
White	8	(2534)	5	(2931)
Black	6	(494)	7	(690)
Hispanic	5	(151)	2	(177)
Chances out of 10 of:				
Working at age 62	5	(2688)	4	(2277)
Working at age 65	3	(2680)	2	(2269)

Note: Table percentages calculated using survey weights and include age-eligible HRS respondents (age 51-61 in 1992) from the HRS Alpha release of May 1993. Numbers in parentheses indicate unweighted sample size used to compute reported fraction.

Table 2
Earnings in the HRS

Median Earnings Measure:	Men		Women	
	Full-time workers (≥1200 hrs/yr)	Part-time workers (<1200 hrs/yr)	Full-time workers (≥1200 hrs/yr)	Part-time workers (<1200 hrs/yr)
Usual hourly wage ($)	$14.00	$9.62	$9.26	$7.00
Usual weekly pay ($)	615	210	370	122
Earnings last year ($)	32,000	10,000	18,800	6,000
Usual hourly wage ($)				
White	14.50	10.50	9.39	7.00
Black	10.68	6.58	8.79	6.49
Hispanic	10.00	9.00	7.30	5.25
Employees	14.10	9.42	9.38	6.73
Self-employed	13.46	11.54	7.00	7.70
Private sector	14.00	9.60	9.05	7.00
Public administration	17.23	*	10.75	8.60

Note: * denotes fewer than five observations. Figures given are medians and calculated using survey weights. The sample includes only age-eligible HRS employed respondents (age 51-61 in 1992) from the HRS Alpha release of May 1993.

Table 3
Hours and Other Job Constraints in the HRS

Constraint:	Men		Women	
	Full-time workers	Part-time workers	Full-time workers	Part-time workers
Hours Constraints:				
Would like to work fewer hours but cannot (%)	12 (1957)	5 (104)	15 (1662)	3 (295)
Would like to work more hours but cannot	15	18	15	21
Laid off >age 45 from 10+ year job and:				
Currently employed at new firm	6 (2459)	8 (187)	5 (1862)	3 (375)
Currently self-employed	2	4	1	1

Note: Table percentages calculated using workers reporting valid annual hours and survey weights; numbers in parentheses indicate the sample size used to compute the reported fraction, including only age-eligible HRS respondents (age 51-61 in 1992) from the HRS Alpha release of May 1993. Full-time is defined as ≥1200 hours/ year; part-time is defined as <1200 hours/year.

Table 4
Social Security and Other Expectations in the HRS

Respondent Group:	Expect to receive social security benefits (%)	Now gets social security benefits (%)	Anticipated odds out of 10 over the next decade: Social security benefits will increase	Social security benefits will decrease	Major depression	Inflation ≥10%
All	92	1	2	6	5	6
By Sex						
Men	93	0	2	6	5	6
Married women	92	1	2	6	6	7
Unmarried women	90	3	2	6	6	6
By Race						
Whites	92	1	2	6	5	6
Blacks	90	1	4	5	6	6
Hispanics	86	0	3	5	5	6
By Union Status						
Union	91	1	2	6	6	6
Nonunion	92	1	2	6	5	6
By Firm Size.						
Large Firm	92	1	2	6	5	6
Small Firm	92	1	3	6	5	6
By Industry						
Manufacturing	96	0	2	6	5	6
Non-mfg	91	1	3	6	5	6
By Pension Status						
Has Pension	93	0	2	6	5	6
No Pension	91	1	3	6	6	6

Note: Table results calculated for currently employed workers using survey weights including only age-eligible HRS respondents (age 51-61 in 1992) from the HRS Alpha release of May 1993.

Table 5
Pension Coverage and Pension Plan Type in the HRS

Respondent Group:	Workers with pension (%)	Covered Workers with Pension Plan Type(s) (%): Only DB	Only DC	Only 401(k)	Both DB& DC only	Both DB& 401k only	Both DC& 401k only	All three: DB, DC& 401k
All Employees	67	42	16	12	12	11	2	3
By Sex								
Men	72	41	14	11	14	12	3	4
Married women	62	45	17	12	9	10	2	2
Unmarried women	59	42	18	13	12	9	2	1
By Race								
Whites	68	41	16	12	12	12	2	3
Blacks	62	55	14	11	11	5	1	2
Hispanics	50	44	20	12	7	11	0	0
By Union Status								
Union	89	59	9	6	14	10	1	1
Nonunion	58	33	19	15	11	12	3	4
By Firm Size								
Large firm (≥100)	81	43	12	11	14	12	2	3
Small firm	45	41	26	17	6	3	3	2
By Industry								
Manufacturing	77	37	11	14	12	15	2	4
Non-manufacturing	63	44	17	11	12	10	2	2

Note: DB=Defined benefit pension; DC=Defined contribution pension. Table figures include only current employees but not self-employed workers using survey weights for age-eligible HRS respondents (age 51-61 in 1992) from the HRS Alpha release of May 1993.

Table 6
Pension Coverage Among Employed HRS Members: A Descriptive Probit Analysis

Dependent variable: Pension Coverage = 1, no pension coverage = 0

	Men		Women	
Independent Variables				
Ln wage	0.19	(10.78)	0.37	(10.70)
Manufacturing	0.11	(2.80)	0.09	(1.79)
Large firm (≥100)	0.34	(7.08)	0.34	(7.04)
Covered by union	0.31	(3.04)	0.34	(2.00)
Large firm * union	-0.07	(0.65)	-0.20	(1.15)
Self-employed	-0.49	(8.37)	-0.89	(9.04)
Part-time	-0.53	(7.49)	-0.22	(4.75)
High school dropout	-0.06	(1.27)	-0.05	(1.23)
Some college	0.10	(1.92)	0.04	(0.85)
College degree	0.15	(3.49)	0.11	(1.80)
Unmarried	-0.10	(2.10)	-0.10	(2.52)
Black	-0.02	(0.43)	-0.02	(0.44)
Hispanic	-0.29	(4.06)	0.079	(0.73)
Age				
51	-0.04	(0.64)	0.04	(0.44)
52	-0.08	(1.11)	-0.06	(0.85)
53	-0.09	(1.33)	-0.04	(0.51)
54	0.05	(0.65)	-0.13	(1.77)
56	-0.08	(1.09)	-0.04	(0.50)
57	-0.05	(0.67)	-0.06	(0.72)
58	-0.12	(1.59)	0.01	(0.16)
59	-0.02	(0.26)	-0.10	(1.23)
60	-0.10	(1.33)	-0.06	(0.77)
61	0.07	(0.65)	0.13	(1.17)

Note: This Table is restricted to age-eligible HRS individuals in the survey without missing data for all variables in the HRS Alpha release of May 1993. There are 1674 men and 1240 women in the models. Reported figures are probit marginal effects; t-statistics are in parentheses. Log likelihoods are -601.2 and -557.8 respectively.

Table 7
Pension Plan Features in the HRS

Respondent Group:	Normal retirement age (mean)	Early retirement age (mean)	Early retirement reduction (%/year)
Employees covered by DB Pension	61	58	5.3
By Sex			
Men	61	58	5.2
Married Women	61	59	5.0
Unmarried Women	62	59	6.6
By Race:			
Whites	61	58	5.0
Blacks	61	58	7.2
Hispanics	62	59	7.0
By Union Status:			
Union	61	58	5.4
Nonunion	61	58	5.2
By Firm Size:			
Large Firm	61	58	5.3
Small Firm	61	58	4.7
By Industry:			
Manufacturing	61	58	5.9
Non-Manufacturing	61	58	5.0

Note: Table figures calculated using survey weights including only age-eligible (age 51-61 in 1992) HRS workers with defined benefit pensions in the HRS Alpha release of May 1993. Figures reported are means; the (unreported) median for the normal retirement age is 62 for all groups; the median early retirement age varies between 57 and 60 among the groups.

Table 8
Early Out Windows in the HRS

Respondent Group	Percent ever offered an early out window	Percent ever accepted an early out window
All	5	47
By Sex		
Men	8	47
Married Women	3	50
Unmarried Women	4	44
By Race		
Whites	5	47
Blacks	4	43
Hispanics	3	46

Note: Table percentages calculated using survey weights; numbers in parentheses indicate the sample size used to compute the reported fraction, including only age-eligible HRS respondents (age 51-61 in 1992) from the HRS Alpha release of May 1993.

Table 9
Current and Expected Retiree Health Insurance Coverage for Employed Persons in the HRS

Respondent Characteristics:	Current Health Insurance		Anticipate Retiree Health Insurance			
	Fraction of employed with coverage	Among covered workers, fraction with own coverage	Fraction among those currently covered by health insurance from own employment			Fraction among those currently covered via spouse's job
			Yes	No	Don't know	
All	86	80	69	15	16	68
By Sex:						
Men	89	90	73	13	14	58
Married Women	87	56	62	19	19	72
Unmarried Women	79	96	62	18	20	100
By Race:						
Whites	88	79	69	15	15	69
Blacks	80	82	66	13	20	70
Hispanics	76	85	55	10	35	32
By Union Status:						
Union	96	88	80	8	12	75
Non-union	83	76	63	19	19	66
By Firm Size:						
Large firm (≥100)	92	84	73	12	14	69
Small Firm	80	72	52	25	23	68
By Industry:						
Manufacturing	92	89	70	13	17	60
Non-manufacturing	83	77	68	16	16	69
By Pension Status:						
With pension	97	85	74	13	14	72
Without pension	66	63	50	23	27	63

Note: Figures are percentages of relevant sample calculated using survey weights and age-eligible HRS respondents (age 51-61 in 1992) from the HRS Alpha release of May 1993. In the last column employees who do not know if they are covered by health insurance while working are included in the base and account for an average of 30% of the cell (ranging as high as 60%).

Table 10
Job Requirements, Job Characteristics, and Attitudes Toward Work of Full-Time HRS Workers

Job Requirements:	Men				Women			
	Almost all or all the time	Most of the time	Some of the time	None or almost none of the time	Almost all or all the time	Most of the time	Some of the time	None or almost none of the time
Physical Demands:								
Physical effort	21	20	30	30	21	18	28	33
Heavy lifting	10	10	32	49	8	7	25	60
Stooping	15	15	37	34	11	13	40	36
Good eyesight	46	41	9	4	61	31	5	2
Other Demands:								
Concentration	47	38	13	2	52	35	11	2
Dealing w/ people	57	27	13	3	70	20	7	3
Computers	14	9	21	55	28	11	17	43
Analyze info.	24	20	22	33	26	17	23	35
Keep up pace	25	24	20	31	38	23	15	24
Repetitive work	30	27	30	13	43	27	23	7
Learn new things	25	27	38	9	29	24	37	10
Freedom to decide	38	37	16	9	35	34	18	13
Friendly work env.	42	45	11	1	49	41	9	1

(Continued)

Table 10 (continued)

Job Characteristics and Worker Attitudes	Men				Women			
	Strongly agree	Agree	Disagree	Strongly agree	Strongly agree	Agree	Disagree	Strongly disagree
Job Characteristics								
Need training	10	38	40	12	11	34	45	11
More difficult	12	44	38	6	13	40	41	6
Need good memory	29	65	6	1	32	60	7	1
Involves stress	19	45	32	3	23	45	28	4
Attitudes Toward Work								
Retire if lost job	8	20	50	22	8	24	44	24
Don't work for $	14	54	24	9	13	55	24	8
Want joint retirement	12	45	37	6	13	42	38	7
Employee Attitudes								
Pay is fair	14	67	16	4	13	60	21	7
Wrk influences pay	10	33	48	10	6	29	52	13
Boss likes youth	4	15	67	13	4	11	66	19
Pressure to retire	3	15	68	15	2	12	65	21
Can partially retire	2	32	55	10	2	30	55	13

Note: Figures given are fractions of relevant sample. First panel of Table 10 includes self-employed workers; second panel excludes them. Table percentages calculated using survey weights including only age-eligible HRS respondents (age 51-61 in 1992) from the HRS Alpha release of May 1993.

Endnotes

1. Previous questionnaires gathered little information on women's work and retirement, mainly because fewer than a fifth of all women worked in the paid labor market. The NLS-OM excluded women entirely, while the RHS provided inadequate information on the labor market activities and opportunities of women, especially married women. Minority groups were also underrepresented in prior retirement surveys, making it difficult to use these to study ethnic differences in retirement patterns. Another problem with previous surveys was that they had inadequate pension data. Two recent reviews examine strengths and weaknesses of the existing literature on pensions and retirement; see Gustman and Mitchell (1992) and Gustman, Mitchell and Steinmeier (1994).

2. The Retirement History Survey (RHS) consisted of a biannual survey of people born from 1906 through 1911 who survived to enter the sample frame in 1969. The last wave of the RHS was completed in 1979. (Sample members who survived until 1995 would be 84-89 years of age.) Numerous studies using that data set for retirement analysis are listed in U.S. Department of Health and Human Services (1987). Respondents to the NLS Older Men's Survey (NLS-OM) were age 45-59 in 1966, and the last regularly scheduled labor market survey of this group occurred in 1983; an additional special survey wave was fielded in 1990 for determining circumstances after retirement. Studies using the NLS for retirement analysis appear in the Center For Human Resources Research (1988). Respondents to the National Longitudinal Study of Mature Women Survey (NLS-MW) were 30-44 years of age in 1967; that survey is only now becoming available for use in retirement research.

3. Campbell and Campbell (1976) review older retirement studies; more recent reviews include Mitchell and Fields (1982), Quinn, Burkhauser and Meyers (1990), and Sammartino (1987). See also Gustman and Steinmeier (1984, 1986), Hurd (1990), Lumsdaine, Stock and Wise (1992), and Rust (1990).

4. The long downward participation trend has been attributed to trends in the wage structure, perhaps due to changes in the occupational and industrial mix of jobs disfavoring unskilled and older workers; however the evidence does not appear to support this conclusion (Anderson, Gustman and Steinmeier 1993). Worsening health cannot explain the trend either; recent evidence suggests that longer-lived recent generations are more able to work as compared to their older counterparts (Manton, Corder and Stallard 1993). Increasing pension coverage and pension wealth coupled with improvements in Social Security benefits may be part of the explanation (Ippolito 1990). Nevertheless Social Security incentives and wealth effects from unexpected benefit increases appear to have a relatively small effect on retirement incentives and outcomes (Burtless, 1986), and the effects of unexpected wealth changes, including those from the early years of a growing Social Security System, should eventually be fully reversed. Pension incentives in defined benefit plans may also contribute to earlier retirement ages, although these plans do reduce retirement in the years before eligibility for early retirement age is attained (Stock and Wise 1990 a and b). Defined contribution and 401(k) plans embody little or no retirement incentives beyond wealth effects (Gustman and Steinmeier 1992; Ippolito forthcoming). Early retirement window offerings and defined benefit plans do offer increased incentives to leave early (Brown this issue; Luzadis and Mitchell 1991). Trends in pensions raises questions not only about their direct effects, which do work towards encouraging earlier retirement, but also raise questions on a higher level about why defined benefit pensions continue to be changed to encourage earlier retirement.

5. Empirical retirement models tend to focus on labor market behavior alone, assuming implicitly that savings and consumption can be left in the background (and on rare occasions when savings and consumption are addressed in retirement models, it is generally assumed that capital markets are perfect). Conversely, empirical analyses of life cycle consumption and savings tend to assume retirement is exogenous. Relaxing these assumptions requires gathering data on work, savings, wealth accumulation and bequests, much of which is being undertaken in the HRS.

6. Pension and social security rules may not be well understood (c.f. Bernheim 1988; Mitchell 1988; Gustman and Steinmeier 1989).

7. There is an additional complication that many older people pass through a partial retirement transition phase between full-time work and complete retirement; this has been variously defined as working part time, having a low-wage job, being employed in an occupation which is relatively undemanding and/or flexible in terms of hours requirements; others focus on changes in hours or wages, changes in occupation and industry, and working after acceptance of Social Security or pension benefits (Gustman and Steinmeier 1984 discuss many variants).

8. This information must be used with caution to the extent that it is often unclear whether a worker or the employer instigates exit from employment. In a long-term contract setting, where the wage profile is tilted or the pension accrual is such that the wage exceeds productivity near the end of the contract, an older employee might tend to want to work longer than was mutually agreed-on at the outset (Lazear 1979).

9. All HRS data in this paper use the Alpha release tape, which contains "approximately three quarters of the eventual HRS Wave 1 sample, and has been given only very preliminary cleaning and consistency checking. The data tape provides weights, but they are based only on the major elements of selection probability. The weights are not adjusted for nonresponse bias nor for some minor elements of selection probability." (HRS 1993)

10. Some people in the HRS have no extended period of earlier labor force participation, so measuring retirement as exhibiting zero attachment to the labor force overstates the extent of transitions out of the labor force. For example, in answer to the self reported retirement status question (variable 4901), 910 individuals in the Alpha tape indicate that the question is not relevant, and 1328 indicate that they are fully retired. Thus in comparison with the number of people who indicate that they are retired, two thirds as many people indicate that the question is not relevant to them because the individual doesn't work for pay or is a homemaker, or hasn't worked for pay for 10 or more years. For purposes of comparability between the objective and self reported measures, individuals who report that the self reported retirement status question is not relevant were counted as retired. Excluding these individuals reduces the percentage self reporting that they were retired by about one and a half percentage points for men and by about fourteen percentage points for women.

11. Reverse flows are discussed by Quinn, Burkhauser and Meyers (1990) and Rust (1990).

12. While HRS questions about past jobs is less complete than about employees' current jobs, survey length precluded the inclusion of an entire job history.

13. Because the HRS focuses on individuals and families, it is not nationally representative of employer practices. As a result, the survey can make only a modest contribution to answering the question of why companies offer the particular compensation and employment policies they do. Analysts who model retirement behavior from the supply side should nevertheless be aware that workers' preferences may be correlated with company characteristics, to the extent that employers design compensation packages to attract and keep employees with specific attributes. In particular it may be controversial for HRS-users to assume that pay and benefits are exogenous determinants of retirement outcomes (for a discussion of this issue in the pension literature, see Gustman and Mitchell 1992 and Gustman, Mitchell and Steinmeier, 1994; studies of labor demand appear in Hamermesh 1993).

14. Some of the often cited inverted U-shaped age-earnings profile is due to change of employers and hours reductions among older workers, according to a study of the Retirement History Study (Gustman and Steinmeier, 1985). Earnings appear to decline less with age among workers who remain with the same employer as they grow older.

15. Table 2 covers currently employed workers with valid annual hours; earnings figures are *median* amounts among all individuals whose usual hours places them in one or the other of these categories. Median full-time hourly and weekly wages for men are based on 2,111 observations, while the corresponding part-time wages are based on only 148 observations. Earnings in 1991 are based on 1,939 observations for full-time earnings, and 123 observations for part-time earnings. In the case of women, there are 1,699 full-time and 331 part-time wage observations for hourly and weekly wages, and 1,563 and 282 observations for full-time and part-time earnings in 1991.

It should also be noted that differences between *means* are smaller than the differences between the medians. Men employed full-time average 81% more than part-timers on an annual basis ($36,769 versus $20,288), and the mean of the usual hourly wage variable is actually less for full-timers than for part-timers ($18.23 versus $27.06 per hour). The latter finding is not due solely to outliers, since the third quartile value for part-timer's usual wage exceeds the third quartile value for the full-time wage ($21.64 for part-timers versus $19.95 for full-timers). It should be noted that the part-time information is based on a sample of only 148 observations, of which 49 are self employed individuals whose mean usual hourly wage is $30.04. Among women HRS respondents, mean values are closer for full and part-time workers, but once again the hourly wage for part-time self-employed exceeds that for the full-time self-employed ($15.33 per hour for part-timers versus $11.19 for full-timers). In both cases it is possible that selectivity bias favors individuals who choose part-time work. Also, there may be some individuals who report unusually or temporarily low levels of hours worked, raising calculated hourly wages.

16. These numbers combine the responses from a question regarding whether the individual can reduce or increase hours of work, with another on whether the worker would like to change hours given that he or she cannot. We recognize that constraints on work hours are not necessarily inefficient. One reason is that they may reflect the terms of an implicit contract which supplies backloaded compensation despite productivity which flattens or even falls with age. In this event workers will want to supply too much labor late in life, and a mechanism must be found for terminating the contract (Lazear 1979). Other reasons that hours may be inflexible are fixed costs of employment and requirements for coordination in team production.

17. Studies on this problem are reviewed by Hurd (1990). On the other hand Bernheim concluded about the RHS that "...people seem to be reasonably competent at forming relatively accurate expectations conditional on the information that they do choose to use. In addition, it is somewhat comforting to note that few individuals exhibit the kind of extreme optimism that might be responsible for catastrophic error in financial planning; indeed, there is a general bias toward conservatism." (1988: p.314)

18. The Survey of Consumer Finances (SCF) and National Longitudinal Study of Mature Women (NLS-MW) are the only nationally available surveys which provide matched employer pension data. The number of retirees in the SCF is relatively small. Firm-side pension plan details on the NLS-MW were just coded in mid-1993 and retirement analysis with the data set has not yet utilized the employer provided plan descriptions.

19. The percent unionized in the HRS is about 26%, a finding virtually identical to the Current Population Survey figure for 45-64 year olds (Currie, Hirsch and Macpherson 1990).

20. Benefit accrual varies among plans with formulas of different types and depends on such factors as adjustments in the benefit formula in future years, the extent of post-retirement adjustments in benefits, and other factors that vary among plans. For a discussion see Mitchell (1992) and Gustman and Steinmeier (1989).

21. Note that the early retirement windows questions must be linked to a specific job on the basis of dates of employment (Brown, this issue).

22. Calculating pension wealth, and the changes in pension wealth if retirement is deferred, requires that the analyst know each worker's expected retirement age and how benefits are likely to change if retirement is deferred. In addition spousal benefits must be taken into account, as must temporary early retirement

windows, post-retirement cost of living benefit adjustments, and potential disability pensions. The HRS asks each pension-covered person for such plan details, which can be compared with information available in the employer-supplied pension Summary Plan Description.

23. For further discussions of this issue see Hurd and McGarry (this issue).

24. This paper does not summarize retirement patterns or elements of the opportunity set for HRS respondents falling outside the age range of 51 to 61, who generally appear in the data file because they are spouses of age-eligible sample members. Considered by themselves, these individuals are not representative of their age group in the population. However data on these people will be of immense importance to analyses of family retirement behavior, since these individuals are representative of spouses of a population falling within the age range.

25. To measure the actual changes in the pension, consideration is being given to collecting employer provided plan descriptions at other than the base year.