The Work and Retirement Decisions of Older Women: A Literature Review

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ABSTRACT

This paper reviews the economic literature on the work and retirement decisions of older women. Economic studies generally find that married women respond to the financial reward for work (for example, wages) in making their work and retirement decisions, but that they do not respond to unearned income and wealth (for example, the value of lifetime Social Security benefits). Unmarried women are found to respond to all types of financial variables. Most economic studies find that the family plays only a limited role in the work and retirement decisions of women. The retirement status of the husband does influence the wife's retirement decision, but the health status of the husband does not. The presence of dependents in the household, regardless of whether they are children or parents, is not found to influence work and retirement among women. The relevance of these results to Social Security policy is discussed.

There are a number of reasons to be cautious about the results. The literature to date is small; it is based on data that are deficient in some respects, and it contains studies that have methodological problems. These problems are discussed and prospects for future research are explored.

I. Introduction

Since 1940 the labor force participation rate of women (the percentage of women working or looking for work) has more than doubled, rising from 27.9 percent in 1940 to 57.4 percent in 1991 (Ferber, 1993, p. 34). Women now make up approximately 45 percent of the U.S. labor force and most of the projected growth in the labor force over the next several years will be accounted for by women (Fullerton, 1989, p. 7). In recent years, women's earnings have risen relative to men's (Hill and O'Neill, 1990) and today, for women, payment for market work totals over a trillion dollars (U.S. Department of Commerce, 1993, p. 166).

The increased importance of women to the labor market is not a phenomenon restricted to young and middle-aged women. Women are an increasingly important part of the older labor force (age 55 or older). In 1964, women made up 33 percent of this labor force (U.S. Department of Labor, 1965, p. 74). By 1992, this percentage had grown to 43 percent (U.S. Department of Labor, 1993, p. 174). The labor market experience and earnings of women in this age range are substantial. On average, women reaching age 55 have worked over half of their adult lives (Hill and O'Neill, 1990, p. 16). Market earnings for women 55 or older exceeded 119 billion dollars in 1992 (U.S. Department of Commerce, 1993, pp. 132-133).

Because older women are important to the labor market, and because their importance will almost certainly grow, it is necessary that researchers, policymakers, and others come to an understanding of the factors that shape the labor force decisions and experiences of these individuals. Of primary importance is an understanding of the most fundamental labor market decision older individuals make: the labor force participation decision. This decision, the converse of which could be referred to as the retirement decision, has profound consequences

for the individual and society. An individual's decision to leave the labor force leads to the loss of an important source of income (earnings), and, thus affects the individual's well being at the time and later in life. At the societal level this means that poverty patterns can be related to labor force participation patterns. Also at the societal level, labor force participation patterns affect national output and the financial status of important government programs, such as Social Security.

In an effort to contribute to an understanding of the factors that shape the labor force decisions of older women, I present in this paper a review of the economic literature on the work and retirement decisions of older women. Such a review is useful in that consistent findings across studies are documented and available for policy analysis. Also, by establishing what is known and what remains to be done, such a review helps to provide a foundation for future studies.

The review of the literature presents, separately and in chronological order, detailed reviews of thirteen recent studies. Reviewing each study individually is done because of the small number of studies on the work and retirement decisions of older women and the fact that these studies differ substantially in empirical approach and variable definition.[1] Preceding the set of individual reviews is a presentation of some recent labor force data on older women and a discussion of how these data relate to the modelling of the work and retirement decisions of older women. As such, this section serves as a natural introduction to the individual reviews.

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[1]The thirteen studies reviewed here do not quite represent an exhaustive compilation of women's retirement studies. Some studies were omitted because their focus was to some extent unique (that is, direct comparison with other studies would have been difficult). Also, studies that failed to examine the role of Social Security in the retirement decision were omitted.

Following the set of individual reviews is a general discussion of the literature. Prospects for future research and some policy issues are discussed. The structure of the paper is such that a light reading of the individual reviews and a more thorough reading of the discussion section should provide a good overview of this literature. In addition, the individual reviews have enough detail that they allow the reader to focus on a particular study or a particular set of studies.

II. Older Women and the Labor Force

In Table 1, I present age-specific labor force participation data on women born in 1915, 1920, 1925, 1930, and 1938. Each entry in the table represents the percentage of women of a given age and birth cohort who are either working or looking for work (entries under some ages are blank because women in some birth cohorts have not yet reached these ages). With this table it is possible to take two types of "views" of women's labor force behavior. First, by reading across a row of the table, one can follow the participation behavior of women from a particular birth cohort as they age. Second, by reading down a column of the table, one can observe how participation rates at particular ages have changed across birth cohorts.

By taking the first type of view, it is clear that participation falls more sharply at some ages than at others. Generally, for all cohorts, participation declines gradually from ages 55 to 59 and then takes its first pronounced dip at age 60. For example, for the 1920 birth cohort, the average yearly drop in the participation rate between the ages of 55 and 59 is 1.5 percentage points while the drop in the participation rate between the ages of 59 and 60 is 4.2 percentage points. Ages 62 and 65 are also ages at which there are relatively pronounced declines in

participation rates. By taking the second type of view it is clear that for ages prior to 62, labor force participation rates generally are higher for more recent birth cohorts. For example, 62.4 percent of women from the 1938 birth cohort participated in the labor force at age 55 compared to only 52.6 percent from the 1915 birth cohort.

This table can serve as a good introduction to the modelling of older women's work behavior. First, it brings to light the important issue of whether to model the labor force participation decision at a point in time or the retirement decision (the age at which a worker decides to leave the labor force). Though both clearly measure a work decision, the individuals used in modelling these work decisions are different. A model of the labor force participation decision at a point in time includes all women while a retirement model includes only women who were working. For women, this distinction is potentially important. From Table 1, note that even for the most recent birth cohort a substantial number of women (37.6 percent) were not in the labor force at age 55. These women would be included in a labor force participation study but not in an age of retirement study because they are not in the labor force and cannot therefore retire from it.[2] In the discussion section of the paper, I will address whether empirical results vary systematically with the type of study but the reader should keep in mind that models are being estimated on potentially very different samples of women.

Another reason the simple tabulations in Table 1 serve as a good introduction to the modelling of work decisions is that the pronounced declines in participation rates at certain ages

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[2]As will be seen in the individual reviews, definitions of retirement are not as tidy as I have implied in this discussion. Generally, though, retirement studies emphasize the timing of the work decision and restrict the sample to individuals who had worked at some previous time.

are suggestive of the types of variables that could potentially explain work and retirement behavior. As noted above, labor force participation rates drop markedly at ages 60, 62, and 65. These ages are important because they are the ages associated with important provisions of Social Security. Generally, age 60 is the age of first eligibility for Social Security widow-benefits and age 62 is the age of first eligibility for Social Security retired-worker or spouse benefits.[3] That participation rates fall at these ages suggests that income not related to current work effort is an important determinant of retirement or non-participation. That is, sharp drops in participation occur at these ages because individuals are more able to afford an exit from the labor force. Measures of unearned income (income other than earnings) and/or measures of wealth are used as explanatory variables in all studies reviewed here.[4] Generally, studies find that measures of unearned income and/or wealth are important determinants of participation/retirement for single women but not for married women.

Currently, the age at which full benefits are payable under Social Security is age 65. At this normal retirement age (NRA), the earnings test of Social Security may discourage work. This is because earnings over an exempt amount lead to a reduction in Social Security benefits. The delayed retirement credit (DRC) partially restores benefits lost to this test; the annual rate

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[3]Disabled widows can receive benefits at age 50 and spouses can receive benefits before age 62 if they have a child in care who is entitled to benefits.

[4]In this paper, I will use the term income to refer to money received in a specified period (for example, monthly Social Security benefits). I will use the term wealth to refer to financial assets (the value of stocks, for example), property assets (the value of a home, for example), and the value of income over the lifetime (the value of Social Security benefits over the lifetime, for example).

at which benefits are restored is not actuarially fair.[5] Because earnings above the exempt amount mean lower benefits, the financial reward for work is reduced at this age. The decline in the reward for work may discourage participation at this age. There are a number of factors that influence an individual's reward for work including wages, provisions of pension plans, and other provisions of Social Security. Measures of the reward for work are used as explanatory variables in all studies reviewed here. As will be seen from the individual reviews, the financial reward for work is an important determinant of participation/retirement for both single and married women.

The tabulations also suggest a role for non-financial determinants of participation/retirement. Women's participation rates gradually decline from ages 55 to 59 and then begin to fall more sharply starting at age 60. Above, it was noted that this could be in response to the availability of unearned income. It could also be in response to the retirement decisions of husbands. In the U.S., the average age at which females marry is approximately two years below the average age for males (Bergstrom and Bagnoli, 1993, p. 186). Further, participation rates for males begin to drop off sharply after age 62. It is possible, therefore, that the acceleration in female retirements starting at age 60 is related to the acceleration in male retirements at age 62. It is plausible to believe that the retirement dates of husband and wife are linked because certain retirement activities, for example travel, are enjoyed more if done in conjunction with one's spouse. As will be seen from the individual reviews, studies do find that married women are less likely to continue working if their husbands are retired.

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[5]The earnings test applies at ages 62 to 69. However, benefits lost to the test prior to the normal retirement age are restored later at a rate that is approximately actuarially fair. See Leonesio (1993) for a more detailed discussion of the earnings test.

As noted above, participation declines with age. There are a number of factors associated with advanced age that may induce exit from the labor force. One of these factors is diminished health. Most studies of single women model the effects of health and generally find that poor health interferes with continued work. For reasons discussed below, most studies of married women do not model health status and its relation to work. Another factor associated with advanced age is increased caregiving responsibility. As women age, they may find it more likely that family members (husbands, parents, and other relatives) are experiencing declining health and, because of this, these family members may need assistance in carrying out daily activities. Attempts to provide such assistance to these family members may make continued work for the woman difficult. Most studies of participation or retirement attempt to model potential caregiving responsibilities. With regard to husbands, this typically involves including a measure of the husband's health status in the empirical analysis; the idea is that husbands in poor health will be in greater need of daily assistance and, as a result, continued work by the wife will be difficult. With regard to parents, this typically involves measuring their presence in the household. This measure of dependent parents does not separate those parents who are only financial dependents from those who are dependent on their children for assistance in carrying out daily activities. However, parents in the household are likely to be fairly old (because their children are already of retirement age) and, because they are living with their children, they are probably having trouble functioning independently. Caregiving responsibilities for these parents may make continued work difficult. Somewhat surprisingly, most studies reviewed here find that the husband health variables and the dependent parents variables are not determinants of participation or retirement among women.

There is a final reason that labor force tabulations can serve as a good introduction to the literature. In 1970, women from the 1915 birth cohort were 55 years old and had a labor force participation rate of 52.6 percent (Table 1). In that same year, 55-year-old men had a participation rate of 91.8 percent (based on unpublished tabulations from the Current Population Survey, U.S. Department of Labor, Bureau of Labor Statistics). These figures on males and females mask the behavior of some important sub-groups. For example, among women aged 45-54 in 1970, unmarried women had a high labor force participation rate (69.9 percent) relative to married women (47.8 percent) (U.S. Department of Commerce, 1973, pp. 68-69). These numbers are relevant to the literature reviewed here because the main database used to study the labor force behavior of both men and women, the Retirement History Study (RHS), was initiated circa 1970 and the structure of this database reflects the realities of the older labor force at that time.

The weaker attachment of married women to the labor force circa 1970 was reflected in the preliminary field interviews for the RHS which revealed that, for many married women, retirement was not a meaningful concept (Sherman, 1974, p. 58). As a result, married women were not independently sampled for the RHS and those included in the RHS (because they happened to be married to men who were sampled) were not asked a full range of questions. Most importantly, health questions were not consistently asked of married women which explains why most studies of married women have not modelled health effects. Despite these problems, half of the studies of married women reviewed here use the RHS. The RHS does have a number of strengths which should be noted. These strengths include a longitudinal structure (individuals aged 58 to 63 were first interviewed in 1969 and were interviewed every 2 years for a period

of 10 years), a large sample size (roughly 7,000 couples and 4,000 unmarried individuals were interviewed), and the attachment of Social Security administrative records (earnings and benefit records).

Before turning to the individual reviews I will briefly discuss two recent databases that have also been used to model older women's work decisions: the New Beneficiary Survey (NBS) and the National Longitudinal Survey of Mature Women (NLSMW). The NBS is a cross-sectional survey conducted in 1982 of individuals who first received Social Security benefits during the period June 1980 to May 1981. It, like the RHS, contains Social Security administrative records. Other advantages of the NBS are that a large number of women are included in the sample, the women are from more recent birth cohorts than the RHS, and a full range of questions including health questions were asked of all women. A disadvantage of the NBS is that it is not a representative sample of older individuals. For example, among all of the individuals who turned 62 during the sampling period, only those who filed for benefits at that age had a chance of being included in the sample. Another disadvantage of the NBS is that it is a cross-sectional database (although questions about past events were asked).[6]

The NLSMW is a continuing, longitudinal survey of women. The survey began in 1967 with 5,083 respondents aged 30 to 44 at the time. The strengths of the NLSMW are that a large, representative group of women from recent birth cohorts was sampled, a full range of questions have been asked of the respondents, and the women have been followed through a major portion of their lives (interviews have been conducted on a regular basis for the last 27

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[6]In 1991, the surviving respondents of the NBS were interviewed. This 1991 survey, the New Beneficiary Followup (NBF), is discussed in U.S. Department of Health and Human Services (1993). None of the studies reviewed in this paper use data from the NBF.

years). The weakness of the NLSMW is that currently Social Security administrative records are not attached.[7]

In Table 2, I present a listing of the studies that will be reviewed individually. In addition, information is provided on the databases, the samples, and the work measures used in these studies.

III. Research on the Work and Retirement Decisions of Women

Allocation of Time and Resources by Married Couples Approaching Retirement
by Robert L. Clark, Thomas Johnson, and Ann Archibald McDermed

Using three waves of the Retirement History Study (RHS) (1969, 1971, 1973), Clark, Johnson, and McDermed (CJM) (1980) empirically examine the determinants of labor force participation among husbands and wives. Labor force participation during the survey week of each year is modelled separately. The RHS data reflect the substantially lower labor force participation rates of wives relative to husbands, circa 1970. For example, in the survey week of 1969, 32.6 percent of the wives participated in the labor force compared with 76.0 percent of the husbands. For the empirical work, CJM impose only one major sample restriction, namely, that self-employed individuals and their spouses are ineligible for inclusion in the sample. The lack of severe sample restrictions leads to fairly large sample sizes: 3,312 couples for 1969, 2,170 for 1971, and 2,174 for 1973. The authors employ a logit model to relate the

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[7]More information about the RHS can be found in Irelan (1972), more about the NBS can be found in Holden and Iams (1987), and more about the NLSMW can be found in Center for Human Resource Research (1993).

explanatory variables to the labor force participation decision.[8]

The explanatory variables used in the estimation, generally, fall into one of two categories: variables reflecting family characteristics and variables reflecting financial conditions. The family variables included in the wife's participation equation consist of characteristics of the husband (age, health status, and labor force status), characteristics of parents (the number of dependent parents in the household), and characteristics of children (the number of dependent children in the household). Health status of the husband is based on the Fillenbaum-Maddox index (F-M index) (Fillenbaum and Maddox (1977)). For the F-M index, 5 categories of health status are created based on self-reported conditions. These categories and their index values are as follows: self-assessed health better than that of others and no activity limitations are present (index=1), self-assessed health better than that of others with some activity limitations present (index=2), self-assessed health worse than that of others with some activity limitations present (index=3), health problems and activity limitations are severe enough that at most part-time work is possible (index=4), and health problems and activity limitations are severe enough that no work is possible (index=5). CJM use this index to put individuals in three categories: the first is composed of those who have a F-M index of 1 or 2, the second is composed of those who have a F-M index of 3, and the third is composed of those who have a F-M index of 4 or 5. The husband's health status variables, the dependent parents variable, and the dependent children variable are included because women with husbands in poor health and/or women with dependents may find that caring for these individuals makes participation in the labor force difficult.

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[8]In this summary, I only discuss what CJM refer to as the direct effects of the model.

CJM find that there is a positive association between the labor force status of the husband and the labor force status of the wife. Wives are more likely to be in the labor force if their husbands are in the labor force, and vice versa. Other than the husband's labor force status, however, CJM find little evidence that the family environment of women is important in their participation decisions. Of the remaining family variables, only the number of dependent parents in the 1971 specification has a significant relationship with wife's labor force participation. In this specification, the presence of dependent parents discourages participation by the wife.

As with most participation or retirement studies, CJM's financial variables are of two types: variables that reflect wealth or unearned income and variables that reflect the financial reward for work. In the first category are measures of spouse's wage, home value, asset wealth, and each spouse's pension and Social Security wealth. Social Security and pension wealth are defined as the present value of an individual's lifetime benefits.[9] Individuals with high levels of wealth or unearned income are more able to afford retirement, and thus, a negative relationship between these variables and labor force participation is expected.

CJM employ a measure of the individual's wage rate to incorporate the financial reward for work.[10] Those who can earn high wages have a stronger incentive to work, and thus, a positive relationship between wages and labor force participation is expected.

In all specifications, the woman's wage has a large, positive effect on her labor force participation. Among the wealth variables, the most consistent results are found with regard to

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[9]Pension benefits are self-reported. The assumptions that underlie the construction of Social Security benefits are not discussed in detail by the authors.

[10]A predicted wage based on a separate empirical procedure is used rather than an actual wage.

the financial variables of the husband and with regard to asset wealth. Couples in which the husband has high wages, high pension wealth, or high Social Security wealth are couples in which the wife is less likely to participate in the labor force. Couples with high asset wealth are also couples in which the wife is less likely to participate.

Women with high values of own pension wealth are generally less likely to participate but those with high values of own Social Security wealth are generally more likely to participate. The generally positive relationship between wife's Social Security wealth and her participation is contrary to theory (i.e., high values of wealth should discourage work) but is not surprising given the fact that Social Security wealth measures commitment to the labor force (because it is based on past earnings) as well as wealth.

Labor-Force Participation of Older Married Women
by John C. Henretta and Angela M. O'Rand

Henretta and O'Rand (HO) (1980) use three waves of the RHS (1969, 1971, 1973) to examine patterns of labor force participation and determinants of labor force exit by married women. Analysis is presented separately for two groups of women: those under 58 in 1969 and those 58 and older in 1969. HO's measure of labor force status in a given year is based on responses to survey week questions.

In the first part of their paper, HO examine whether the women in their sample exhibit "orderly" or "disorderly" labor force patterns. HO judge an individual's pattern to be disorderly if, during the period 1969 to 1973, the individual exits the labor force and then returns. Disorderly patterns are not uncommon: among women who work at least one survey year, HO find that roughly 19 percent of the younger women and 14 percent of the older women have

13

disorderly participation patterns.

In the second part of their paper, HO examine the determinants of work stopping. Two definitions are used: the stopping of work by 1971 given labor force participation in 1969, and the stopping of work by 1973 given labor force participation in 1969 and 1971. The two definitions of work stopping and the two age groups give rise to four equations. A logit model is employed for each of these.

HO use several variables to represent the financial environment of the women. These variables are the wife's wage in 1969, pension coverage status of the wife, pension coverage status of the husband, earnings of the husband in 1968, and the Social Security benefit available to the couple when the husband turns 65 (assuming the husband receives a retired-worker benefit and the wife a spouse benefit). In addition to the financial variables, HO include five variables that represent the family environment of the women (husband's health status in 1969 (measured by whether the husband reports a health problem that limits his work), husband's labor force status in 1969, husband's age, wife's age, and the presence of dependents (children or parents)) and one variable that measures past work experience (the number of quarters of Social Security covered employment accumulated between 1955 and 1964).

No variable is statistically significant in all four equations and only five variables - wife's age, wife's work experience, wife's hourly wage, wife's coverage by a pension, and the presence of dependents - are significant in at least two of the equations. Among these five, pension coverage and work experience appear to have effects that vary by age group. Pension coverage has no effect on the younger women but does discourage work among the older women and work experience encourages work among younger women but discourages it among older

women. The effects of the other three variables do not seem to vary by age group. Generally, older women, women with low wages, and women without dependents were more likely to stop working during the period under study.

Retirement, Wages, and Labor Supply of the Elderly
by Giora Hanoch and Marjorie Honig

Using four waves of the RHS (1969, 1971, 1973, 1975), Hanoch and Honig (HH) (1983) analyze, among other things, the determinants of labor force participation among white women who were unmarried in 1969. An individual is considered to be in the labor force in a given year if she worked for pay at any time during the year. The only major sample restriction is that women who were self-employed in 1969 are excluded from the sample. Observations are combined across individuals and years to form one pooled sample. There are 5,436 observations in the sample. The estimation method is ordinary least squares.

Though a number of variables are included in the estimation of the participation decision, most variables fall into three broad groups: health, work experience, and unearned income. Health status is measured by indicator variables that reflect whether the individual reports a health limitation and whether the individual has a disability. Measures of unearned income include non-wage family income (from the previous year), current potential Social Security benefit (based on 1972 rules, the woman's own earnings record, and the assumption that the earnings test will not be applied), and pension coverage status.

With regard to the health status variables, the authors find that individuals in poor health are much less likely to participate in the labor force. For example, the probability of participation in the labor force is lower by 13 percentage points for those with a health

15

limitation. As for work experience, the authors find that, generally, those with greater work experience are more likely to participate in the labor force at later ages.

Perhaps the most interesting results in HH's study pertain to unearned income variables, especially the Social Security variable. These authors find a large negative relationship between current potential Social Security benefits and labor force participation. In terms of magnitude, a 1000 dollar increase in the annual benefit reduces the probability of participation by about 13 percentage points. Although high levels of non-wage family income (from the previous year) also discourage labor force participation, their effect is quantitatively much smaller. An increase of 1000 dollars in non-wage income reduces the probability of participation by about 3 percentage points. HH argue that the large Social Security effect may be due to the fact that future Social Security income is not incorporated into the participation model. Pension coverage status has no effect on labor force participation.

HH also estimate a similar labor force participation model for married males in the RHS. An important result is that married men and single women have very similar labor force participation behavior.

Employment of Retired-Worker Women
by Howard M. Iams

Iams (1986) uses data from the 1982 New Beneficiary Survey (NBS) to examine the work behavior of female Social Security retired-worker beneficiaries.[11] As mentioned previously, the

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[11]A retired-worker is someone who receives benefits from Social Security and who is eligible for retired-worker benefits. Eligibility for retired-worker benefits is based on having the requisite number of quarters of covered employment. Many retired-worker women are dually entitled which means that even though they are eligible for retired-worker benefits, their spouse

1982 NBS is a cross sectional survey that provides information on individuals who first received Social Security benefits between June 1980 and May 1981 (18-30 months prior to the survey). Despite the fact that the women in the sample have been "retired" for at least a year and a half, 20 percent are employed at the time of the survey.

Iams uses a set of dichotomous explanatory variables and multiple classification analysis to estimate the probability of working at the time of the survey. Included in the set of explanatory variables are job characteristics of an individual's longest held job, private pension receipt status, health status, unearned income (all family income (including Social Security benefits) other than the woman's earnings), spouse's work status, age at Social Security benefit receipt, education, and race. Results are presented separately for married and unmarried individuals.

For unmarried women, access to income other than earnings is an important predictor of employment. All else equal, unmarried women without private pension income have an employment rate 12 percentage points above the average for all unmarried women. Another indication of the importance of pensions in predicting employment is that when the pension variable is dropped from the model explained variance in employment rates falls from 22 percent to 16 percent. Similar, though less dramatic, empirical results occur with regard to the effects of unearned income. Health status is also an important predictor of employment among unmarried women. Those women who have difficulty walking or difficulty grasping things had an employment rate 6 percentage points below the average for all unmarried women.

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benefits (based on their husbands' earnings records) are higher. In practice, only the higher spouse benefits are paid to this group of retired-worker women.

Iams finds that pension receipt, health status, and unearned income are important in predicting the employment of married women, though the effects are not as large as they are for unmarried women. Married women without pension income have an employment rate 4 percentage points higher than the average and married women with difficulty walking or grasping have an employment rate 3 percentage points below the average. As for the effect of spouse's employment status, the empirical results indicate women with a husband employed have an employment rate 9 percentage points above the average.

For all women, Iams finds sizeable occupation effects on employment. Women whose longest held job was in a blue collar occupation are less likely to be employed (married blue collar women have an employment rate 7 percentage points below the average, while the figure for unmarried women is 12 percentage points).

The Married Woman's Retirement Decision: A Methodological Comparison
by Wendy A. Campione

Campione (1987) uses data from the Panel Study of Income Dynamics (PSID) to analyze the retirement decision of married women. Her definition of retirement is based on an activity question in the 1979 survey. Individuals who report they are retired are classified as being retired and individuals who report they are working or looking for work are classified as not retired. A large group of women, those who report they are full-time homemakers, are excluded from the analysis. This exclusion results in a very small sample (187 women, who range in age from 55 to 70).

A major focus of Campione's study is the possible effect of Social Security on the retirement decision. She creates two "potential Social Security wealth variables," SSW79 and

SSW80. SSW79 is designed to measure the present value of an individual's lifetime Social Security benefits if the person began receiving benefits in 1979. SSW80 measures lifetime benefits if receipt is postponed one year. Campione views the difference between these two variables, ΔSSW, as a measure of the incentive Social Security provides to continue working for another year.

Though ΔSSW is designed to measure the reward for work from Social Security, it does not incorporate an important feature of the system. Individuals who work another year have an additional year of earnings. These additional earnings can lead to higher Social Security benefits (if the individual receives benefits on her own record rather than her husband's and if these earnings are among the "high" earnings Social Security uses to calculate benefits). The fact that Social Security rewards additional earnings with additional benefits is not incorporated into ΔSSW. ΔSSW seems to measure other features of the system, such as the fact that postponing benefits past age 65 (or losing them to the earnings test at this age) reduces Social Security wealth because these lost benefits are not restored later with an actuarially fair increase.

Campione also tests for other financial effects. A measure of asset wealth and a measure of home equity are included in the empirical work. Pensions are modelled with the variable ΔPPW, which measures the change in the lifetime value of pension benefits if retirement is postponed a year. In addition to these financial variables, Campione tests for family effects by including the number of dependents (children or parents) as an explanatory variable.

Campione uses a logit procedure to estimate the relationship between the explanatory variables and retirement status. Consistent with her expectations, women with low values of ΔSSW are more likely to retire. Unexpectedly, ΔPPW has the opposite effect. Assets, home

equity, and the number of dependents are found to have no effect.

Having established the relationships between the above variables and retirement status, Campione next seeks to determine whether these relationships change when information on the husband is included in the empirical model. She constructs the same type of variables for the husband as she did for the wife (husband's values of ΔSSW, ΔPPW) and includes these variables in a logit equation, along with husband's health status (measured by whether the husband reports a health condition that limits his work), husband's retirement status, and the original wife variables. In general, the inclusion of the husband variables does not change her previous results. A result from this enlarged model is that husband's retirement status is a determinant of wife's retirement status. The wife is much more likely to be retired if the husband is retired. Husband's health is found to have no effect on the wife's retirement status.

Women's Retirement Behavior: Implications for Future Policy
by Timothy D. McBride

McBride (1988) uses the 1982 NBS to analyze the timing of retirement among women retired-worker beneficiaries. He restricts the sample to "career workers." These are women who have worked at least 10 years since 1950 and at least one year since 1974. These are important restrictions for married women. More than 30 percent of married retired-worker women are excluded from the sample because of these restrictions.

McBride defines retirement age as the age of first receipt of Social Security retired-worker benefits. He classifies each woman into one of four groups based on whether she applied for benefits at age 62, 63-64, 65, or 66+. Empirical work is done separately for married and unmarried women (never married, divorced, separated, or widowed). There are

1,486 individuals in the married sample and 1,702 individuals in the unmarried sample.

The empirical model for both types of women is an ordered probit model. Once the parameters of the model are estimated, it is possible to compute the probability of retirement at any of the specified age ranges (62,63-64,65,66+), given a set of values for the explanatory variables. McBride calculates these probabilities by setting the values of all but one of the explanatory variables to the sample average; the one not set at the sample average is set at some hypothetical value. As such, they reflect the retirement probabilities of a woman who is "average" except for the one hypothetical value.

Several variables that describe the woman's family environment are used as explanatory variables. For all women, variables that measure the number of children and the number of parents in the household are included. For married women, the husband's labor force status, the husband's health status (measured by whether the spouse reports that he has a health condition that limits work), and the age difference between spouses are also included as explanatory variables.

For married women, the number of dependent children and the age difference between spouses are the only family variables that are significantly related to the timing of retirement. A married woman who has no dependent children (and "average" values for other explanatory variables, as described above) has a 69.7 percent probability of retiring early (at age 62). If the woman instead had two dependent children, the probability of early retirement would rise to 82.5 percent. Wives the same age as their husbands have a 68 percent probability of early retirement but wives five years younger than their husbands have a 72.2 percent probability of early retirement.

21

For unmarried women, the retirement decision is dramatically affected by the presence of elderly parents in the household. Unmarried women with no parents in the household have a 36.2 percent probability of early retirement. This figure rises to 50.1 when there is one elderly parent in the household and to 65.4 when there are two elderly parents in the household. The presence of dependent children, however, reduces the likelihood the woman will draw benefits at age 62.

For all women, five financial variables are included in the estimation: the woman's Social Security wealth, pension wealth, asset wealth, wage rate at her last job, and dual beneficiary status. For married women, the husband's Social Security wealth is included, as is a variable that reflects the husband's eligibility for a private pension. Both the woman's Social Security wealth and pension wealth are calculated as the sum of future expected benefits, discounted by the real interest rate. Expected benefits in a given year are current benefits multiplied by the probability of living to the given year. The husband's Social Security wealth is calculated in basically the same way (the only difference being that Social Security benefits had to be estimated for a small percentage of husbands who had not yet begun receiving benefits).

Of the seven possible financial variables for married women, only three have statistically significant effects. Married women whose spouse benefit exceeds their retired-worker benefit are much more likely to retire early. For these dually entitled women, there is an 81 percent chance of early retirement. The corresponding figure for women whose retired-worker benefits exceed their benefits as a spouse is 65.4 percent. McBride interprets this result as follows: women who will be dual beneficiaries have no incentive from Social Security to continue

22

working, because for these women, benefits are based on their husbands' records and additional earnings by these women do not produce additional benefits. In addition to this Social Security effect, McBride finds that married women who draw high wages are more likely to retire later. Somewhat surprisingly, those with high asset wealth are also more likely to retire later.

As with married women, unmarried women are more likely to retire later if they draw a high wage or if they have high values of asset wealth. Unlike married women, however, single women with high levels of pension and Social Security wealth are more likely to retire early. Single women with a Social Security wealth of 100,000 dollars (1982 dollars) have a 40.3 percent probability of retiring at age 62 while those with 25,000 dollars in Social Security wealth have only a 28.6 percent probability of retiring at this age. Similar magnitudes are found with regard to pension wealth.

McBride also includes variables that address ability to work issues. He finds that women (both married and unmarried) whose last jobs were labor intensive ones (generally, blue-collar jobs) are more likely to retire early, suggesting that continued work in physically demanding jobs may be difficult. He also finds that, for unmarried women, health status (measured by the number of health problems mentioned by the respondent) is a determinant of retirement. Those with more health problems are more likely to retire early. For married women, however, health status does not have a statistically significant effect on the timing of retirement.

Married Women's Retirement Behavior
by Silvana Pozzebon and Olivia S. Mitchell

Pozzebon and Mitchell (PM) (1989) use a very small group of couples from the RHS to analyze women's retirement decisions. Only women who are members of private sector, dual

earner families in 1969 are included in the sample. The sample is further restricted to white women aged 54-62 in 1969 whose husbands were aged 59-61 in 1969. Only 139 couples meet these restrictions. These women are followed for ten years and their retirement age is defined as the age at which they first report they have no job and are not looking for work. Individuals who have not retired by the end of the ten-year period are given a retirement age based on their expected age of retirement.

In the first type of empirical model, the authors use ordinary least squares (OLS) to relate retirement age (RETAGE) to a set of explanatory variables. There are four OLS regressions presented, the most parsimonious of which has 2 explanatory variables and the most inclusive of which has 6 explanatory variables. Unless otherwise noted, the discussion below refers to the most inclusive regression.

Four financial variables are constructed: PVY60, PVY65, YCHANGE, and HPVYR. PVY60 is the combined present value of pension income, Social Security income, and earnings available for the wife if she chooses to retire at age 60. PVY65 is similarly defined except that it is defined conditional on the wife retiring at age 65. Earnings at different ages of the woman's life, which are used in these calculations, are estimated based on a growth function and past earnings. Social Security benefit calculations are based on these earnings estimates and the husband's earnings (rules in effect at the time of the husband's 60th birthday, which PM call the "planning date," are used). Pension benefits are estimated for the individual based on the industry the individual draws a pension from and are adjusted downward for inflation. These income streams are adjusted for survival probabilities and discounted by the real interest rate. PVY60 is viewed as a wealth variable. The difference between PVY65 and PVY60 forms a

variable YCHANGE, which reflects the financial reward for delaying retirement to age 65. The final financial variable, HPVYR, is another wealth variable. HPVYR is the present value of the husband's income streams starting at the planning date and given the actual date of his retirement.

PM find that neither YCHANGE nor PVY60 is a significant determinant of when women leave the labor force. High values of HPVYR are significantly associated with later retirement, which is not consistent with a wealth interpretation. PM argue HPVYR may reflect underlying "tastes" for work that are correlated among couples (i.e., hard working women marry hard working men who have high values of HPVYR). In any case, PM find no evidence that married women respond to financial incentives in making their retirement decisions.

Three family variables are also created: husband's age minus wife's age (AGEDIFF) and two (1,0) variables indicating the presence of dependent children in the household (DEPCH) and the presence of a spouse in poor health (HHPOOR). Health status of the spouse is based on the previously-described Fillenbaum-Maddox (F-M) index. If the husband scores a 3, 4, or 5 on this index, then he is considered to be in poor health (HHPOOR=1).[12] PM find the presence of dependent children has no statistically significant effect on the woman's age of retirement but the presence of a sick husband does. Poor health of the husband results in a 5-year postponement of retirement by the wife. This result is somewhat of a surprise in that one might think ill husbands would place time demands on wives that would make continued work difficult. PM suggest that perhaps the reason these women retire later is because their employment

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[12]Recall that an index value of 5 means the husband cannot work. Because PM's sample is restricted to those working at some point in time it is not clear that anyone in their sample has this value of the index.

provides health insurance for the family. In addition to HHPOOR, AGEDIFF has a large and statistically significant effect on RETAGE. A one standard deviation increase in AGEDIFF (2.3 years) lowers the wife's age of retirement by over 1.5 years.

The importance of the financial variables relative to the family variables can be partly judged by comparing the explanatory power of the most parsimonious regression, which contains only the wife's financial variables (PVY60, YCHANGE), with the explanatory power of the other regressions. When PVY60 and YCHANGE are the only explanatory variables, only 2 percent of the variation in retirement ages is explained. Inclusion of HPVYR leads to a modest, 2 percentage point increase in explained variation. When DEPCH and AGEDIFF are added to these three variables, however, explained variation rises sharply (to 22 percent). Twenty-six percent of total variation is explained when HHPOOR is included with the rest of the variables. These results reinforce the authors' general conclusion that the family environment, modelled with DEPCH, AGEDIFF, and HHPOOR, is more important in the retirement decision than the financial environment.

In the second type of empirical model, a conditional logit model, the probability of retiring at a given age, R, depends on the attributes of that retirement age, as well as factors that are not specific to retirement age R. Included in the first group of variables are the present value of income from all sources if retirement age R is selected (PVY), the number of years that can be spent in retirement if retirement age R is selected (RET), and whether or not the husband is retired at wife's retirement age R (HRET). In the second group are AGEDIFF, DEPCH, HPVYR, and HHPOOR.

The ratio of the coefficient on PVY to the coefficient on RET provides information on

how women value wealth relative to leisure. In one specification, this ratio is calculated to be approximately .2, which is only a third of the value that has been previously reported for men (Fields and Mitchell (1984)). PM argue that this is evidence women place a higher relative value on time at home than do men (relative to the value of additional wealth). Thus, as was found in the OLS model, financial incentives (Social Security, pensions, etc.) are likely to have a small influence on the age at which married women choose to retire. With regard to other explanatory variables (HPVYR, AGEDIFF, DEPCH, HHPOOR), PM find essentially the same results generated by the first empirical model, namely, that high values of HPVYR and HHPOOR and low values of AGEDIFF are significantly associated with later retirement. Again, the presence of dependent children has no effect.

One variable that is included in the second empirical specification that is not dealt with in the first is a variable that reflects the retirement status of the husband. PM find that the retirement status of the husband does not influence the wife's retirement decision.

Retirement Differences Among the Respondents to the Retirement History Survey
by Stephan F. Gohmann

Using the RHS, Gohmann (1990) analyzes the retirement decision of unmarried white women and unmarried black women. His empirical approach is nearly identical to the first empirical approach of Pozzebon and Mitchell. For inclusion in the sample, women must be working in 1969 and must not be self-employed. Retirement age is defined as the age the woman leaves her last reported job.

As with PM, two types of financial variables are defined. An individual's wealth (WEALTH) is defined as the present value of pension and Social Security income if the worker

27

retires at age 60. DWEALTH is defined as the change in the present value of income from pensions, Social Security, and earnings if retirement is postponed from age 60 to age 65 (Gohmann's method of constructing earnings, Social Security benefits, and pension benefits is very similar to that of Pozzebon and Mitchell). These two financial variables along with measures of education and health status complete the list of explanatory variables in Gohmann's model. Health status is based on the Fillenbaum-Maddox index and is measured exactly as in Clark, Johnson, and McDermed.[13]

For white women the financial variables have the predicted effect: high values of WEALTH are associated with early retirement and high values of DWEALTH are associated with later retirement. For black women, the coefficients on WEALTH and DWEALTH are not significantly different from zero. Education and health status have no effect on retirement for either group of women.

Gohmann also estimates his retirement model for other groups, including white males. In general, unmarried white women were found to be more responsive to the financial variables than were white males (married or unmarried).

The Effect of Social Security on Married Women's Labor Force Participation
by Therese A. McCarty

Using the 1969 and 1973 waves of the RHS, McCarty (1990) investigates the determinants of labor force participation among married women. Women are divided into five age groups for the empirical work (under 51, 51-55, 56-61, 62-64, over 64). There are no

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[13]As was the case in Pozzebon and Mitchell's study, it is not clear anyone in Gohmann's study has a value of 5 on the Fillenbaum-Maddox index.

major sample restrictions.[14] A probit model is estimated for each age group.

Combined Social Security wealth (combined for the husband and the wife) and unearned income (total household income less wife's earnings, less Federal taxes, less household Social Security benefits, and less household public assistance benefits) are included in the labor force participation equations. To create each individual's Social Security wealth, McCarty assumes each spouse starts receiving benefits at age 65. An individual's Social Security wealth is the sum of expected benefits from age 65 to age 100, discounted by the real interest rate. For the wives, expected benefits at a given age are a weighted average of each type of benefit (spouse, widow, or retired-worker). The weights are the probability of receiving each type of benefit (these probabilities are based on earnings records and survival probabilities).[15] Husband's Social Security wealth is formed in an analogous way except he is assumed always to be a retired-worker beneficiary. No attempt is made to include pension wealth.

The reward for work is modeled with two variables. One of these variables, marginal benefits (MB), reflects the increase that would occur in Social Security wealth if the individual were to earn one more dollar in the labor market. Sixty-seven percent of the women in the sample have MB values of 0. This variable is included because women with different earnings histories, life expectancies, and other characteristics have different rewards for continued work. For example, women who will receive benefits based on their husbands' earnings records do not increase the value of their Social Security benefits by augmenting their own earnings. The

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[14]The sample sizes for the age groups are as follows: under 51 (333), 51-55 (767), 56-61 (1665), 62-64 (733), and over 64 (278).

[15]These calculations are based only on past earnings. That is, the calculations assume no future earnings will accrue to either spouse.

29

second variable associated with the gains to work is the individual's marginal tax rate, TXRT. McCarty constructs this variable so that it incorporates both the marginal Federal income tax rate and the Social Security payroll tax rate. The marginal Federal income tax rate is computed at zero hours of work for the woman and is calculated assuming husband's earnings are given. In the probit procedure, the natural logarithms of (1+MB) and (1-TXRT) are entered as explanatory variables.

McCarty finds that neither wealth nor unearned income has the anticipated negative effect on labor force participation. The coefficient on Social Security wealth is generally not significant and changes signs across age specifications. Unearned income is significantly related to labor force participation in all age specifications but the effect is opposite of expectations: high levels of unearned income are associated with a greater likelihood of participation. In this case, unearned income likely proxies for wage rates of the wife or unobserved characteristics of the husband and thus no income effect is revealed.

Unlike the wealth variables, the variables reflecting the reward for work generally operate according to expectations. Individuals with low marginal tax rates or high marginal benefits were significantly more likely to work in almost all age specifications. The magnitudes of the effects are substantial. For example, an increase of one standard deviation in the ln(1+MB) variable (an increase of .11) increases the probability of participation by approximately 11 percentage points. Increasing ln(1-TXRT) by its standard deviation (.09), which is a lowering of the tax rate by approximately 4.5 percentage points, increases the

probability of participation by approximately 36 percentage points.[16] Given that the participation rate in the sample as a whole is 35 percent, these effects are quite large.

In addition to the financial variables, McCarty includes two family variables in the estimation: the husband's current labor force status and the number of dependents in the household (parents and children combined). For younger women, the labor force status of their husbands has no effect on their labor force participation. However, for the two oldest groups, women are more likely to work if their husbands are working. With regard to dependents, McCarty finds no significant relationship with women's labor force participation.

The Joint Retirement Decision of Husbands and Wives
by Michael D. Hurd

Using two samples from the NBS, Hurd (1990) attempts to determine whether retirement among couples is a joint process. That is, he attempts to determine whether couples choose retirement dates that are close together. The first sample of couples is based on male retired-workers and their spouses and the second sample is based on female retired-workers and their spouses. Retirement age is defined as the age at which the individual leaves his/her last job. Individuals who are still working at the time of the NBS and individuals who have a retirement age under 55 are excluded from the sample.

In the first part of his paper, Hurd presents some descriptive statistics that are consistent with the joint retirement hypothesis. For example, using both samples, Hurd finds approximately one in four couples have retirement dates that are within a year of each other and

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[16]These tax and marginal benefit effects are based on an averaging of partial effects across age specifications.

approximately one in fifteen have retirement dates in the same month.

In the second part of his paper, Hurd presents three multivariate models. The first of these three specifications, a joint retirement model based on a Stone-Geary utility function, is rejected (based on specification testing) and the second specification can be nested within the third. Because of this, I will only discuss empirical results from the third specification.

In the third specification, an individual's retirement age is a linear function of a set of family and financial variables.[17] An individual's wage, annuity (annual pension benefit plus annual Social Security benefit), and asset wealth are included in the set of financial variables, as are the spouse's wage and spouse's annuity.[18] The family variables consist of the individual's health status (measured by whether health limits certain activities), the age difference between spouses (husband's age minus wife's age), the spouse's health status, and the spouse's retirement age. Hurd estimates the model for husband and wife in each of the two samples (four equations).

In both samples, the husband's retirement age has a significant and positive effect on the wife's retirement age. In terms of magnitude, results from both samples indicate that if the husband delays retirement by one year the wife will delay retirement by just over four months. Interestingly, Hurd finds that there is an age difference effect in addition to this retirement effect. All else equal, women with an older spouse are more likely to retire early. With regard to health status, Hurd does find women with poor health are more likely to retire early but he

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[17]There are 983 couples in the male retired-worker sample and 702 couples in the female retired-worker sample.

[18]Hurd treats own wage, own annuity, and assets as endogenous variables. He, however, does not discuss which variables are used as instrumental variables.

does not find the husband's health status influences the wife's retirement age.

Among the financial variables, only the woman's annuity has a significant relationship with her retirement age in both specifications. Women with high current pension and Social Security benefits tend to have late retirement ages. Hurd believes the annuity variable measures both wealth effects and reward for work effects (changes in pension and Social Security wealth due to continued work). He therefore argues that the reward for work effect of the annuity variable is dominant.

An Empirical Analysis of Married Women's Retirement Decisions
by Jessica Primoff Vistnes

Using the RHS, Vistnes (forthcoming) models the determinants of work and retirement among married women. The sample is restricted to working women age 55 or older. In addition, the sample is restricted to women who never return to work once they retire. There are 765 individuals who meet the sample restrictions.

Vistnes estimates the probability of working at a given age conditional on the woman having worked two years ago (the two-year requirement is necessary because of two year skips in the RHS). For instance, the probability of work at age 57 is estimated only for women who were working at age 55. Ten separate probit equations are estimated (ages 57-66). In addition to these ten probit models, Vistnes presents three other probit models in which the coefficient estimates are constrained to be equal across all ages, across ages 57-61, and across ages 62-66.[19]

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[19]In the constrained estimation, the sample is pooled. For example, in the estimation that constrains coefficients across ages 57-61, a woman who works at ages 55, 57, and 59 will provide three data records.

The explanatory variables in the probit models include several financial variables. Four wealth variables are presented: net housing wealth, net non-housing wealth, the present value of the husband's earnings, and the couples' combined Social Security wealth (SSWLTH). Combined Social Security wealth is equal to the present value of the husband's lifetime Social Security benefits plus the present value of the wife's lifetime Social Security benefits. Generally, for the husband, benefits over the lifetime are computed using his complete earnings history (that is, up to the date of his retirement) and his actual date of benefit receipt. For the wife, benefits over the lifetime are based on earnings up to the date of the observation and based on some assumptions about the timing of benefit receipt. Future benefits are adjusted for survival probabilities and discounted using a real interest rate.

Vistnes includes two variables that measure the financial reward for work: the after-tax annual earnings of the wife (WAGES) and the change in Social Security wealth if the wife works another year (ΔSSWLTH). Much of the variation in ΔSSWLTH arises from the spouse and dual beneficiary provisions of the Social Security system. Generally, women who will receive benefits as spouse or dual beneficiaries cannot increase their Social Security benefits by accruing additional earnings (because benefits are based on their spouses' records). Those who will receive benefits as non-dually entitled, retired-worker beneficiaries, on the other hand, can augment their benefits through continued work. In addition to the variables already mentioned, Vistnes includes two dummy variables indicating pension coverage status of the husband and the wife.

Rather than discuss empirical results for all 10 individual age specifications, I will focus only on the constrained estimates. Among the wealth variables, only net non-housing wealth

appears to be a determinant of work. In all three constrained specifications, net non-housing wealth has a negative relationship with work. While Social Security wealth effects are not uncovered, Vistnes does find that incentives imbedded in the Social Security system do alter women's work decisions. Women with low increments to Social Security wealth are less likely to work. The magnitude of this Social Security effect varies slightly by age. In the specification that constrains equality of coefficients across ages 57-61, a one standard deviation decrease in ΔSSWLTH (a decrease of 390 1967 dollars) lowers the probability of working by 6.5 percentage points. When coefficients are constrained across ages 62-66, a one standard deviation decrease in ΔSSWLTH (a decrease of 639 1967 dollars) lowers the probability of working by 5.1 percentage points. Vistnes's results suggest that the spouse and dual beneficiary provisions of Social Security are work disincentives of a non-trivial magnitude. Note, however, the other reward for work variable, WAGES, was not found to affect work decisions.

The effect of pension coverage varies by age. When coefficients are constrained to be equal across ages 57-61, women with pension coverage are more likely to work. The opposite is true, however, for the model in which coefficients are constrained across ages 62-66. Thus, pensions appear to encourage work initially but then discourage work at later ages.

In addition to the financial variables, Vistnes includes three variables related to the family: husband's retirement status, husband's age, and husband's health status (measured by whether the husband reports that his health is worse than that of others his age). Wives are more likely to work if their husbands are working. Wives are also more likely to work if their husbands are old rather than young. Finally, Vistnes finds no relationship between husband's health status and the wife's work behavior.

Responses to Social Security by Men and Women: Myopic and Far-Sighted Behavior
by Cordelia Reimers and Marjorie Honig

Reimers and Honig (RH) (1993) use the RHS to analyze the labor market re-entry behavior of single women and married men. In their study, retirement occurs when an individual exits his or her initial job (the initial job is the one the individual held at the time of the first RHS interview (1969)). Labor market re-entry occurs if the individual re-enters the labor force following retirement. Individuals who were not working in 1969 or who never exited their initial jobs during the course of the RHS are excluded from the sample. The sample is further restricted to whites. There are 542 women and 1,740 men who meet these sample restrictions. Eighteen percent of these women and sixteen percent of these men did re-enter the labor force following retirement.

The authors employ a hazard or conditional probability model to analyze the re-entry decision. The conditional probability of re-entry (the probability of re-entering the labor force in a given period conditional on not having worked since initial retirement) is specified to be a function of several explanatory variables. Some of the explanatory variables remain constant over time but some do not. Indeed, one of the explanatory variables is the amount of time that has elapsed since retirement.

The primary focus of RH's re-entry study is the role of Social Security. Five Social Security variables are formed: BENCURR, SSWFORE, SSWSURP, LNHRSE, and SSWLOSS. BENCURR is a measure of an individual's current Social Security benefit. An individual's earnings up until the year of initial retirement are used to compute Average Monthly Earnings (AME), using rules in effect at the time of initial retirement. This AME is used to calculate the Primary Insurance Amount (PIA), using rules in effect at the time of the current observation.

To form BENCURR, this PIA is adjusted downward if initial retirement occurred before age 65 (actuarial reduction) or adjusted upward if initial retirement occurred after age 65 (the delayed retirement credit). SSWFORE is a measure of the discounted value of lifetime benefits that could be "foreseen" as of 1969. Benefits over the lifetime are calculated using the individual's adjusted PIA (calculated using rules in effect in 1969) and are discounted to age 55. The lifetime value of benefits actually received differs from those foreseen because of Social Security benefit increases legislated after 1969. The increased value of these unforeseen benefits is captured in the variable SSWSURP ("surprise" Social Security wealth).[20] As measures of unearned income or wealth, BENCURR, SSWFORE, and SSWSURP are hypothesized to discourage re-entry into the labor force.

Two variables are created to measure the effects of the earnings test. LNHRSE is a measure of the number of hours an individual could work without losing any benefits to the earnings test. It is based on the exempt amount of earnings under the earnings test and an estimate of the hourly wage an individual could earn if he or she re-entered the labor force. The basic idea is that people may want to avoid the loss of benefits associated with the earnings test. Those with a large number of exempt hours either do not face the test or only have to make modest restrictions in hours of work to avoid the test; these people can still re-enter the labor force and work their desired number of hours without facing the penalties of the test. Those

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[20]The wealth variables are positive prior to age 62 but BENCURR is zero prior to age 62 (the earliest age Social Security retired-worker benefits are payable). Also, BENCURR is higher if retirement occurs after age 65 (because of the delayed retirement credit) but the wealth variables are lower if retirement occurs after age 65 (because the delayed retirement credit is not actuarially fair). Thus, although BENCURR and the wealth variables are closely related, they are not perfectly related, and, thus, separate effects can be uncovered in the empirical work.

with a low number of "exempt hours," however, have to make severe restrictions in hours of work to avoid the test; such a severe restriction in hours may not be possible (if part-time jobs are scarce, for example) and/or may not be preferable (fixed-costs associated with working, such as commuting costs, may be high enough that it is not "worth it" to just work part-time). Because of this inability or unwillingness to restrict hours of work, these individuals may decide not to re-enter the labor force. SSWLOSS is a measure of the amount of lifetime benefits an individual could potentially lose if he or she re-entered the labor force.

Four other financial variables are included: a dummy variable measuring pension eligibility (DPEN), annual pension income (RPENAMT), annual interest and dividend income (RINTDIV), and the natural log of the predicted wage upon re-entry (PLNRWAGE).[21] Non-financial variables include age of initial retirement (AGERET) and the number of quarters that have elapsed since initial retirement (DURATION). They also include dummy variables measuring presence of a current health limitation (DHEALTH), current marital status (DMAR), whether the job in 1969 was a government job (DCGOVT), whether the job in 1969 was in the service industry (DCSERV), and whether the job in 1969 was in a white collar occupation (DCWHITCL). In the empirical work, LNHRSE is interacted with a dummy variable measuring age less than 65 (AGELT65), to allow the earnings test to have effects that vary by age.

An interesting part of RH's approach is that they are able to empirically judge whether individuals are behaving myopically or far-sightedly. For example, they can determine whether individuals respond to current benefits (BENCURR), which would be myopic, or whether they respond to benefits over the lifetime (SSWFORE), which would be far-sighted. As another

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[21]All financial variables in the study are expressed in 1968 dollars.

example, if individuals respond to the earnings test prior to age 65, they are behaving myopically because they are not taking into consideration the future increases that will replace their lost benefits.

With regard to the five Social Security variables, RH find that women only respond to foreseen Social Security wealth when making decisions about re-entry into the labor force. Women with low values of this type of wealth have a higher probability of re-entering the labor force after initial retirement. That the labor force participation decision of women depends on wealth but not on current benefits or the features of the earnings test has policy implications. First, the earnings test may affect the number of hours women work but it does not affect their decision to participate in the labor force. Second, even if this test currently does depress the number of hours women work, the scheduled changes to the delayed retirement credit should eliminate or reduce the work penalties associated with the test. This second implication follows because by responding to wealth (and not to current benefits) women have demonstrated a far-sighted approach to Social Security program features. A far-sighted approach will take into consideration features such as the delayed retirement credit. Interestingly, the authors find males appear to behave myopically, responding to current benefits rather than wealth.

Among the other variables, for women, only PLNRWAGE, DPEN, DHEALTH, and DCGOVT have statistically significant effects. Women who can earn a high wage upon re-entry are more likely to re-enter and women who are eligible for pension income are less likely to re-enter. Onset of a health problem discourages re-entry, as does previous employment in a government job. One interesting "non-result" is that the amount of time since initial retirement does not affect the probability of re-entry. Women who have been retired for a long period of

time are just as likely to re-enter the labor force in any given period as are women who have been retired a short period of time.

Retirement In A Family Context: A Structural Model For Husbands and Wives
by Alan L. Gustman and Thomas L. Steinmeier

Gustman and Steinmeier (GS) (1994) present evidence from the National Longitudinal Survey of Mature Women (NLSMW) that indicates wives and husbands tend to select retirement dates that are close to each other. They argue this empirical result is consistent with three possible explanations. First, individuals may enjoy leisure activities associated with retirement to a greater extent if they can participate in them with their spouses. This is a causal explanation of the closeness in retirement dates among husbands and wives; the retirement of one spouse raises the value of retirement for the other spouse. Second, couples with similar work and retirement preferences may tend to marry. This is a correlation story, rather than a causal story, of the proximity of retirement dates; individual preferences are determining retirement dates and it happens that members of married couples have similar preferences. Third, the tendency of husbands and wives to select similar retirement dates could be the result of their shared financial situation. For example, a family with large asset holdings may be one in which both spouses retire early. Understanding which of these explanations is the most appropriate is important from a policy perspective. The first explanation implies that a causal relationship exists between the retirement behavior of the husband and the wife. Any retirement policy (government or otherwise) that affects the retirement behavior of one spouse will generate a secondary retirement effect on the other spouse.

GS construct a family retirement model from which the appropriateness of the above

competing explanations can be judged. In their model, the wife's utility in each year depends on "family consumption" and the wife's "leisure." The husband's utility is similarly specified. The leisure terms in the utility functions are dichotomous (1 if the individual is retired, 0 otherwise). An individual's age, an individual's health status, the retirement status of an individual's spouse, and an error term (reflecting an individual's retirement preferences) enter the utility function as factors that shift the value of leisure. Each spouse maximizes utility subject to a lifetime family budget constraint that incorporates earnings, pension benefits, and Social Security benefits.[22]

For each spouse, the authors can estimate the coefficients on the leisure shifters and the variance of the error term. They can also estimate the correlation between the error terms of husband and wife. In this model, the coefficient on the age term reflects how an individual's valuation of leisure changes as the individual ages, which in turn provides information on the importance of financial incentives on the timing of retirement. If the coefficient on age is very large, the value of leisure is rising rapidly and financial incentives to continue working are not likely to be strong enough to prevent retirement. The coefficient on spouse's retirement status indicates the change in the value of leisure due to the occurrence of the spouse's retirement. This coefficient is designed to measure the causal relationship between the retirement dates of couples. The estimate of the correlation between the error terms provides information on whether tastes for retirement are correlated among husband and wife.

The authors use data on 564 married couples in the NLSMW to estimate the parameters

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[22]In the empirical work, the sample is restricted to women with a strong career orientation. Because of this, GS assume women will receive Social Security benefits as retired-workers who are not dually entitled.

of the family retirement model. The parameters of the model are estimated by maximum likelihood estimation. Retirement is defined to occur when the individual stops full-time work for good. Each couple met two important sample inclusion criteria: the members of the couple had to be married in every NLSMW survey and each member of the couple had to be career-oriented. Wives are career-oriented if they work full-time for at least three consecutive surveys after age 40 and do not retire prior to age 50. Husbands are career-oriented if they work full-time for at least two-thirds of the surveys prior to retirement and do not retire prior to age 50.

GS estimate several variants of their model. In what follows, unless otherwise noted, I discuss results from the fullest model (the one in which all possible parameters are estimated). The authors find that there is a causal relationship between retirement dates of husband and wife. If an event leads to one spouse retiring, the other spouse is more likely to retire. The authors find, further, that while both spouses enjoy retirement more if the other spouse is retired, husbands are particularly affected. That is, husbands are much more likely to retire if their wives retire than vice versa. The authors speculate that husbands may wait for their wives to retire because they are reluctant to take on household responsibilities by themselves. In addition to the causal link between retirement dates, the authors find that the correlation between error terms is positive, suggesting that individuals who marry do have similar tastes for retirement.

The coefficients on the age terms suggest that both husbands and wives value leisure more highly as they age, but husbands in particular value leisure at later ages. As discussed above, this suggests wives are more likely than husbands to respond to financial incentives when making their retirement decisions.

By comparing the age coefficients to the other coefficients in the model (spouse's

retirement and poor health), it is possible to measure these effects relative to the effect of age. The onset of a health problem (defined as a health condition that prevents or limits work and that lasts for at least two consecutive surveys) has a fairly dramatic effect on an individual's retirement decision. For a wife, the onset of such a health problem has approximately the same effect as her aging two years. For a husband, the onset of a health problem has approximately the same effect as his aging three years. The effects are smaller for spouse's retirement. For a wife, the event of the husband retiring is equivalent to her aging by about two months. For a husband, the event of the wife retiring is equivalent to his aging by about eleven months.

As noted above, GS estimate several variants of their model. In one of these variants the authors suppress the spouse effect and the correlation in retirement tastes between spouses. In this variant, the model is similar to a retirement model that simply ignored the retirement behavior of the spouse. With regard to the coefficients on age and health status, results from this reduced model are not very different from the full model. This suggests that if a researcher is not interested in modelling spouse effects, or cannot model them because of data problems, the researcher can ignore the spouse and still successfully model the effects of other variables (health status, for example).

As noted above, the authors find that there is both a causal link and a correlation link between retirement dates of husband and wife. To determine which is the most important, as well as to determine what role (if any) similar financial circumstances play in the closeness of retirement dates, the authors turn to simulation analysis. They use the parameter estimates, actual values of the explanatory variables, and random draws from a specified distribution to simulate retirement dates for the sample of couples. The results from the simulation indicate

43

that the distribution of the difference in retirement dates between husbands and wives has a sharp peak at zero, indicating husbands and wives retire together. If the authors suppress the correlation in tastes for retirement (the correlation link) but not the coefficient on spouse's retirement (the causal link), there is still a sharp peak at zero. If the reverse is done, there is only a small peak at zero. This suggests that the causal explanation is the most important one behind the joint retirement phenomenon. When both the above effects are suppressed, the peak at zero essentially disappears. This last result indicates that the joint retirement phenomenon is not driven by the similar financial situations of husbands and wives. Said differently, when the correlation between retirement tastes and the influence of spouse's retirement status are suppressed, the underlying budget situations do not produce similar retirement dates in the simulation.

IV. Discussion

Studies of the work and retirement decisions of older women are few in number. In part, this reflects the limited data available in the past to study older women. High quality data on the labor force experiences of older women are now becoming available, though, with the advent of the Health and Retirement Study (HRS) and with the aging of the National Longitudinal Survey of Mature Women (NLSMW). The HRS, begun in 1992 with a sample of individuals then aged 51-61, is a longitudinal survey expected to continue until at least 2004. Approximately 5,000 couples and 2,400 unmarried individuals were interviewed. The HRS will have Social Security administrative records appended (earnings and benefit records). Though

the sample is still mostly of pre-retirement age, this survey will ultimately be a better instrument for studying women's retirement than its precursor, the RHS, because married women were independently sampled and because parallel questions are being asked of male and female respondents. Another strength of the HRS relative to its precursor is that employer-provided pension data will be available for the respondents.

Many of the women of the NLSMW are now of retirement age (ages at the 1992 survey range from 55 to 70). These women have been interviewed regularly over the past 27 years and thus a wealth of information on all important life experiences is available. Like the HRS, the NLSMW contains employer-provided pension data on the respondents. The Bureau of the Census and the Social Security Administration (SSA) are considering plans to link NLSMW data with SSA administrative records. (The administrative records, however, would be available only to researchers within the two agencies.) In general, these two databases will rectify some of the very serious data problems associated with the study of women's retirement. In particular, these two databases will correct the data problems associated with studying health and its relation to work and problems associated with studying pensions.[23]

The availability of high quality data on older women coupled with the growing importance of older women to the labor market will almost certainly lead to a dramatic growth in the amount of research conducted on older women. In this section, I will attempt to provide some of the foundation for this growth by discussing the literature on work and retirement as

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[23]Pensions are of growing importance to older women. In 1976, only 15 percent of women over the age of 64 received pension income from sources other than Social Security or Railroad Retirement (U.S. Department of Health, Education, and Welfare (1979)). The corresponding figure for 1990 is 27 percent (U.S. Department of Health and Human Services (1992)).

a whole. Consistent findings will be noted and evaluated. The relation of these findings to some policy issues will be discussed. In addition, I will note some broad subject areas that have not been systematically addressed in the economic literature.

In Table 3, I present a summary of the results from the literature with regard to commonly used family variables. In the first row are the results concerning the effect of husband's retirement status. On a fairly consistent basis, studies reveal that wives are less likely to retire while their husbands are still working. Although not shown in Table 3, it is also true that many studies find that effects run the other way as well. That is, husbands are less likely to retire while their wives are still working. These results indicate that retirement policy is capable of generating spouse effects.

The retirement effects of the 1983 amendments to the Social Security Act have been simulated for men. The amendments to the Act and their simulated impact on male retirement are discussed in Leonesio (1993). Two of the most important changes in the Act are the gradual increase in the age at which full benefits are payable (the normal retirement age (NRA)) and the gradual increase in the delayed retirement credit (DRC). Between now and the year 2027, the NRA will rise from age 65 to age 67 and the benefit payable at age 62 will fall from 80 percent of the full benefit to 70 percent of the full benefit. The DRC is scheduled to rise to 8 percent by the year 2008, which will make it an approximately actuarially fair adjustment. Both changes are expected to induce delayed retirement among men, and, based on the spouse effects discussed above, it seems reasonable to expect that married women will also delay retirement. The magnitude of this spouse effect is likely to be modest, though. This is because men are expected to delay retirement only slightly in response to the changes in Social Security (on the

order of a few months).

While understanding the relationship between the wife's retirement behavior and the husband's retirement behavior is relevant for policy discussions, it is sometimes impossible or costly to model retirement in a joint framework. It is therefore natural to wonder whether modelling retirement as a joint process among couples is necessary, especially if the focus of the research is not on the interaction between spouses' retirement behavior. Gustman and Steinmeier estimate a model that incorporates spouse effects. They also estimate a model without spouse effects. They find that including information on the spouse does not change the results with regard to the other variables in the model. For example, the estimated effect of a woman's health status on the timing of her retirement is basically the same whether or not the husband's retirement status is included in the model. Campione, Pozzebon and Mitchell, and Hurd also estimate models with and without spouse effects. As was the case in Gustman and Steinmeier's research, inclusion of spouse's retirement status does not fundamentally alter the results with regard to other variables. Thus, there is tentative evidence from the literature that modelling retirement as a joint process is not necessary if spouse effects are not the focus of the research. This has relevance for future studies because modelling retirement as a joint process is certainly more complicated and is certainly more demanding of the data.

The second row of Table 3 presents results from studies that included husband's health status in the wife's participation/retirement equation. As with husband's retirement status, there appears to be some consistency across the literature. Most studies find that husband's health status has no effect on the participation/retirement decision of the wife. This result is surprising because husbands in ill health almost certainly place greater time demands on their wives than

47

do husbands in good health; these time demands should make continued work difficult.

It is possible the absence of husband health effects is the result of two distinct effects going in opposite directions. Husbands in poor health place greater time demands on their wives (discouraging work) but also place greater financial demands on their wives (encouraging work). These greater financial demands may come about because husbands in poor health have high medical expenses. Another possible reason for the absence of husband health effects is that the health status measures used in the studies reviewed here have not been capable of separating minor and/or transitory health problems of the husband from permanent and/or disabling health problems (the kind that are likely to make continued work by the wife difficult). Some research by Haurin (1985) suggests that this distinction may be important. Using a sample of middle-aged women from the NLSMW, Haurin (1985) finds that permanent disability of the husband (a disabled husband is one who suffers a health problem for more than one survey and who is never observed to work again following the onset of the health problem) results in a large and persistent reduction in the annual hours worked by the wife. Temporary health problems are found to have very little effect on wife's annual labor supply. Given that the literature reviewed here has failed to find spouse health effects and given that this could be a result of using imprecise measures of health status, the role of husband's health in the retirement decision of the wife is a fertile area for future research.

Results concerning the influence of dependents appear in the third and fourth rows of Table 3. In general, results from the literature indicate that dependents in the household, regardless of whether they are children or parents, do not have an impact on the retirement decision. This result is as unexpected as the result regarding husband's health status, and, as

was the case with that variable, the result may reflect more on variable creation than it does on the caregiving or other roles of older women. Three studies do not separate child and parent dependents even though they possibly have opposite effects on retirement decisions. Dependent children may create financial pressures (encouraging work) whereas dependent parents, who are more likely to be in poor health, may create time pressures (discouraging work). Even when these groups are treated separately, no additional information on the dependents is incorporated in the empirical models. For example, studies have not incorporated the health status of the dependents. By using information on health status, it may be possible to separate those who are only financially dependent on the family from those who are dependent on the family for assistance in daily activities. It is the second category of dependents who are likely to place time demands on the woman, and, thus make continued work difficult. Future studies should make the distinction between child and parent dependents and should make the distinction between financial and care dependents.

An interesting issue is whether the family effects uncovered in the literature vary by type of study. As noted in the beginning of the paper, labor force participation studies are likely to have very different samples than retirement studies because the former generally include all women and the latter only women who meet some work restrictions. As is evident from the individual reviews, some studies measure work behavior that does not neatly fit into a labor force participation classification or a timing of retirement classification. Nevertheless, two of the studies listed in Table 1 (Clark, Johnson, and McDermed, and McCarty) are clearly labor force participation studies. Neither imposes severe work restrictions on the sample and both measure the participation decision at a point in time. Generally, these two studies find results

consistent with results from the literature as a whole. These two participation studies find that wives are more likely to work if their husbands are working and find that caregiving variables (husband's health, presence of dependents) are not determinants of work.

The family environment, modelled with the variables discussed above, is only part of the story in women's retirement. Researchers have devoted a great deal of effort to modelling the financial environment in which the participation/retirement decision is made. As is evident from the individual reviews, financial variables are of two general types: income or wealth not related to work effort and changes in income or wealth due to continued work (the reward for work). The first type of variable is hypothesized to have a negative relationship with work while the second type is hypothesized to have a positive relationship with work. Results from the literature generally confirm the second hypothesis for all women but confirm the first hypothesis only for single women.

Gohmann, Hanoch and Honig, Iams, McBride, and Reimers and Honig all find that wealth or unearned income does have a negative relationship with work among single women. Also, as discussed in the individual reviews, these income and wealth effects are often important predictors of participation/retirement behavior.

For married women, income and wealth effects are often not found or are found but not in the expected direction. There is almost no evidence that Social Security wealth (variously defined) influences participation/retirement. There is also very little evidence that income attributed to husbands discourages work effort by wives. Henretta and O'Rand, Hurd, and Vistnes find no relationship between husband's income and work effort by the wife, and Pozzebon and Mitchell and McCarty find an unexpected, positive relationship between husband's

income and work effort by the wife.

Understanding income and wealth effects is important from a policy perspective because changes in Social Security often alter individuals' income and/or wealth. For example, the increase in the normal retirement age (NRA) and the concurrent reduction in early retirement benefits will have the general effect of reducing the lifetime value of benefits payable under Social Security. Results from the women's literature suggest that the wealth effects of this particular change in the system will encourage unmarried women to delay retirement but will not alter the work and retirement decisions of married women. One author, Gohmann, has simulated the wealth effects of the increase in the NRA and the concurrent reduction in early retirement benefits for unmarried women. His results indicate that wealth effects from the increase in the NRA, on average, will cause unmarried white women to delay retirement by 1.68 months and will cause unmarried black women to delay retirement by just over two weeks.

As stated above, results from the literature indicate that unmarried women would respond to the wealth effects of such changes as the increase in the NRA but married women would not. It is possible married women are less sensitive to levels of income and wealth than single women, as the literature suggests, but it is also possible that these variables correlate with unobservables that counteract or overwhelm true income and wealth effects. One possibility is that high levels of income and wealth are associated with better than average health. Because health status of the wife is generally not included in empirical models of married women, the income and wealth variables may be picking up two distinct effects operating in different directions. It is interesting to note that all of the studies of single women (where income and wealth effects were found) did include health status controls. Future research on women's

retirement will be able to address this issue because both the NLSMW and the HRS contain fairly extensive measures of health status. Another possible reason for the absence of income and wealth effects is that measures of a couple's income and wealth may reflect the wife's preference for work. This could happen if women who enjoy work marry men with similar preferences toward work. Thus, variables such as husband's earnings may be a marker for women with a strong work ethic. As such, these variables may not capture true income effects. This type of problem is more difficult to address than the one concerning health status because an individual's "preference for work" is a true unobservable, not just an artifact of a particular database. Future researchers will have to find variation in unearned income that could reasonably be viewed as being independent of preferences for work.

One of the most consistent results in the women's retirement literature is that work is positively associated with the financial reward for work. Indeed, among the many studies that have modelled the reward for work, all but one (Pozzebon and Mitchell) have found effects.[24]

Among these reward for work results, those in McBride, McCarty, and Vistnes are of particular concern for Social Security policy. In these studies, the absence of a link between earnings and benefits for many women (women who will be spouse or dual beneficiaries) was found to be a work deterrent of some consequence. Results from these studies suggest that any change in the Social Security system that establishes a link between earnings and benefits for these women would have a positive effect on work. The earnings sharing plans considered in

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[24]As was the case with the family effects, results on financial variables do not seem to vary by type of study. Generally, results from the labor force participation studies (Clark, Johnson, and McDermed, McCarty, and Hanoch and Honig) do not differ from the results of the overall literature.

the 1980s, for example, would have established such a link.[25]

Despite the fact that the effects of the reward for work variables are consistently verified in the literature, there are reasons to be cautious about the results. This is because measures of the financial benefits of continued work are often correlated with excluded variables that affect participation/retirement. For example, in McCarty's work, the marginal benefits (MB) variable (the increment to Social Security wealth from additional earnings) is correlated with the age difference between the husband and the wife (husband's age minus wife's age). Low values of MB are associated with a greater age difference.[26] Because McCarty only controls for wife's age in the empirical analysis, MB may proxy for husband's age (husband's of advanced age are associated with low values of MB). This creates two problems in interpreting the effect of MB. First, husbands of advanced age are more likely to be in poor health. McCarty does not control for husband's health status and, thus, low values of MB may be associated with non-participation in the labor force by wives because of a husband health effect and not a Social Security effect.

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[25]Essentially, earnings sharing would abolish spouse benefits. A couple's combined earnings over the life of their marriage would be divided equally between them and each member's benefit would be based on his or her own earnings record. See U.S. Department of Health and Human Services (1985) for a discussion of earnings sharing.

[26]In general, MB is low if the wife expects to receive benefits based on her husband's earnings record (that is, she expects to be a spouse, dual, or widow beneficiary) and is high otherwise. In forming MB, McCarty only uses earnings up until the point of the observation. This procedure causes a wife who is younger than her husband (age difference is positive) to have a less complete earnings history than her husband. This in turn means the wife has a greater expectation of receiving benefits as a spouse or dual beneficiary, which causes MB to be low. In addition, a woman married to an older husband (age difference is positive) has a greater expectation of receiving widow benefits, which would also cause MB to be low. Also, note that a woman who is older than her husband (age difference is negative) and who is fully insured will have a high MB because she will collect benefits before her husband (an assumption of McCarty's), which must be on her own earnings record.

Second, since some researchers have found that the age of the husband, in itself, is an important determinant of wife's retirement, MB may be measuring husband age effects and not Social Security effects. As another example, Vistnes's measure of the increment to Social Security wealth, ΔSSWLTH, is based on past earnings and past earnings are not controlled for in the empirical work. Past earnings, to a large extent, measure one's attachment to the labor force and thus ΔSSWLTH may be a proxy for this attachment. In particular, low values of ΔSSWLTH may reflect a weak attachment to the labor force. This is because women with low earnings are likely to eventually draw benefits on their husbands' earnings records, and hence, are likely to have ΔSSWLTH values of zero. Thus, low values of ΔSSWLTH may be correlated with earlier retirement because women with low values of ΔSSWLTH have a weaker attachment to the labor force and not because of responses to features of the Social Security system. A similar argument could be applied to the Social Security effects found in McBride.[27] In studies that do not control for women's health status, there is also a possibility that the reward for work effects occur because women with high rewards for work are the women in better than average health. Research in this area could be strengthened in the future by including controls for husband's age, husband's health status, own past earnings, and own health status. Such controls would allow for a clearer interpretation of the reward for work variables.

There are areas of research that are virtually unexplored because of past data constraints.

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[27]Both McBride and Vistnes are aware that reward for work variables may proxy for attachment to the labor force. McBride includes a control for years worked (measured by positive annual hours). Vistnes notes that, in unpublished work, quarters of covered employment was added as a control variable and notes that the overall results in the unpublished work were not very different from the published results. Both McBride's and Vistnes's controls, however, are limited measures of work history and they may not be sufficient to isolate financial effects.

Women's health and its role in retirement is one of these areas. Although all studies of single women include health status variables, less than half of the studies of married women include health status measures. The lack of research in this area presents problems for those trying to make and evaluate retirement policy. As noted previously, Congress recently amended the Social Security Act in ways that were designed to encourage older workers to delay retirement. Whether or not these reforms will have their intended effects depends on the older population's ability to work at late ages. Currently for women, discussions of health and its relation to work at late ages proceeds at a very crude level. Understanding women's health and its role in retirement is also important for those interested in projecting the participation/retirement behavior of future cohorts of women. Health at later ages is probably strongly related to observable characteristics such as health at earlier ages, education, income, work history, and marital history. As these characteristics are changing in known ways across cohorts, we might make reasonable inferences on the future health of currently young and middle-aged women, which in turn would be valuable in forecasting future participation/retirement behavior.

A related area that has received even less attention is the role job characteristics play in women's retirement. The physical requirements of work vary by occupation and industry. Thus, the effect of a decline in health on participation/retirement is not constant across jobs; declines in health should particularly affect those in physically stressful jobs. In addition to physical requirements, jobs vary in many other attributes. Some jobs have more pleasant working conditions, some carry more personal responsibility, some have more flexible work schedules, etc. For all of these reasons, it seems probable that an individual's occupation and

industry influence the retirement process.[28]   Again, because the mix of occupations and industries is changing across cohorts in a known way, such research may allow us to make reasonable inferences on the future retirement behavior of currently young and middle-aged women.   Also, research in this area has the potential to address the ability to work issue discussed above.

Other fruitful areas of research include examination of the relationships between retirement, work experience, and marital history. There is a great diversity of work experience patterns among older women. Some women began their careers following the completion of their education but others postponed the start of their work life beyond school completion (most likely, to raise children). O'Rand and Henretta (1982) have shown that the start date of a woman's work life has an independent effect on the timing of her retirement (independent of financial and other variables). Women who start late tend to finish late. Their study, however, pertained to older, unmarried women who retired in the early 1970s. With the NLSMW and the HRS, this type of study can be conducted on more recent cohorts of both married and unmarried women. This research is important for discussing future retirement patterns, as women today are clearly starting their careers earlier than past cohorts. In addition to the diversity of work experience, there is also a great deal of diversity in the marital histories of older women. Women currently of retirement age are the women who experienced the dramatic post-WWII increase in the divorce rate. Labor force participation is clearly related to marital

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[28]Although not the focus of their work, Iams and McBride did include job characteristic measures in their empirical work. Iams found women whose longest held jobs were in blue-collar occupations were less likely to work after receipt of Social Security benefits and McBride found women whose longest-held jobs were labor intensive were more likely to retire early.

status at later ages. For example, among women 55 and over, the labor force participation rate of divorced women is nearly twice that of married women (Herz 1988). However, the effects of marital history on work at later ages are largely unstudied. Again, understanding these effects would put us in a better position to discuss future participation/retirement patterns.

V. Summary

In this paper, I have reviewed the recent economic literature on the work and retirement decisions of women. On a consistent basis, the following results have been found in this literature.

- Wives are less likely to continue working if their husbands are retired, and husbands are less likely to continue working if their wives are retired.

- The presence of dependents in the household, regardless of whether they are children or parents, is not a major determinant of the work and retirement patterns of older women.

- The health status of husbands is not a major determinant of the work and retirement patterns of wives.

- Unearned income and/or wealth influences the work and retirement decisions of unmarried women but does not influence the decisions of married women.

- For all women, work is positively related to the financial reward for work. Consistent with this, married women are more likely to work if, by working and earning, they can augment the lifetime value of their Social Security benefits.

Despite the fact these results have been found consistently in the literature, there are a number of reasons to be cautious about these results. First, the literature on the work and retirement decisions of older women is quite small; these results are based on only thirteen studies. Second, the databases used to generate these results have various deficiencies including dated samples and inadequate information on health, pensions, and earnings. Third, the absence

57

Table 2.—Work and retirement studies of women

Study	Database	Sample(s)	Work measure
Clark, Johnson, and McDermed	RHS	Married	Labor-force participation (LFP), defined as working or looking for work
Henretta and O'Rand	RHS	Married	Stopping of work by specified date
Hanoch and Honig	RHS	Unmarried	LFP, defined as positive annual hours of paid employment
Iams	NBS	Married and unmarried	Employment following receipt of Social Security retired-worker benefits
Campione	PSID	Married	Self-reported retirement status
McBride	NBS	Married and unmarried	Retirement age, defined as the age at which Social Security retired-worker benefits are first received
Pozzebon and Mitchell	RHS	Married	Retirement age, defined as the age at which the woman first reports she is neither working nor looking for work
Gohmann	RHS	Unmarried	Retirement age, defined as the age at which the woman leaves her last reported job
McCarty	RHS	Married	LFP, defined as usually working a positive number of hours per week
Hurd	NBS	Married	Retirement age, defined as the age at which the woman leaves her last reported job
Vistnes	RHS	Married	LFP, defined as positive hours of work, conditional on having worked 2 years prior to the observation
Reimers and Honig	RHS	Unmarried	LFP following initial retirement
Gustman and Steinmeier	NLSMW	Married	Retirement age, defined as the age at which the woman stops full-time work

Note: The four databases are the Retirement History Study (RHS), the New Beneficiary Survey (NBS), the Panel Study of Income Dynamics (PSID), and the National Longitudinal Survey of Mature Women (NLSMW).

Table 3.—Family effects in the women's work and retirement literature

Variable	CJM	HO	I	C	MB	PM	MC	H	V	GS
HRET	+	NE	+	+	NE	NE	M	+	+	+
HPOOR	NE	M		NE	NE	-		NE	NE	
DEPCHILD	NE	M		NE	+/-	NE	NE			
DEPPAR	M				NE/+					

Studies: Clark, Johnson, and McDermed (CJM); Henretta and O'Rand (HO); Iams (I); Campione (C); McBride (MB); Pozzebon and Mitchell (PM); McCarty (MC); Hurd (H); Vistnes (V); and Gustman and Steinmeier (GS).

Variables: husband retired (HRET), husband in poor health (HPOOR), presence of dependent children (DEPCHILD), and presence of dependent parents (DEPPAR).

Symbols: (+) — variable is associated with earlier retirement age or nonparticipation in the labor force by the woman. (-) — variable is associated with later retirement age or participation in the labor force by the woman. (M) — results vary by specification. (NE) — no statistically significant relationship is uncovered. The cell is left empty if the variable was not included in the analysis.

Notes: Some studies are omitted because they did not include any family variables. McBride studied both married and single women; results with regard to married women are presented first. In three studies (Henretta and O'Rand, Campione, and McCarty), dependent children and dependent parents were placed in the same category; these results are presented in the DEPCHILD category and the DEPPAR category is left empty.

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