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**The Retirement Expectations of Middle-Aged
Individuals***

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ABSTRACT

We use the first three waves of the Household Income and Labour Dynamics in Australia (HILDA) Survey to examine the retirement plans of middle-aged workers (aged 45-55). Our results indicate that approximately two-thirds of men and more than half of women appear to be making standard retirement plans. At the same time, more than one in five individuals seem to have delayed their retirement planning and approximately one in ten either do not know when they expect to retire or expect to never retire. Retirement plans are closely related to current labor market position. Specifically, forming expectations about the age at which one will leave the labor market appears to be easier for workers in jobs with well defined pension benefits and standard retirement ages. Moreover, those who report that they do not know when they expect to retire do in fact appear to face greater uncertainty in their retirement planning. Those who anticipate working forever seem to do so out of concerns about the adequacy of their retirement incomes rather than out of increased job satisfaction or a heightened desire to remain employed. Finally, men alter their retirement plans in response to labor market shocks, while women are more sensitive to their own and their partners' health changes.

JEL codes: J260, J010, J080

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1. Introduction

Understanding how middle-aged workers plan for retirement is important for many reasons. First, while policy makers and researchers often conceptualize (and model) retirement as a one-time complete withdrawal from the labor market, empirical evidence suggests that this characterizes the experiences of only half of retirees (Maestas, 2005).¹ Examining retirement expectations can help assess the extent to which this transition reflects voluntary versus involuntary behavior, which in turn has implications for the well-being of older individuals. Second, studying expectations about retirement allows us to avoid the potential “justification bias” which occurs when retirees retrospectively report job loss or poor health as the cause of their retirement in order to provide a socially acceptable excuse for leaving the labor force.² Third, as workers are continually making long-term investment decisions based upon their expectations about the future, retirement plans are likely to be quite important for understanding not only actual retirement patterns, but also savings behavior and wealth accumulation.³ Finally, public policies targeted towards altering workers’ retirement patterns must in the first instance altering workers’ beliefs about retirement, which requires a better understanding of the process by which workers formulate their retirement plans.

In this paper, we use the first three waves of the Household, Income and Labour Dynamics in Australia (HILDA) survey to examine the changing retirement plans of middle-aged individuals (aged 45–55). HILDA is relatively unique in asking all non-retired individuals aged 45 and older at what age they plan to retire. Analyzing data on subjective

¹ Others will transition through a period of partial retirement or cycle back and forth between periods of work and nonwork before retiring completely. Borland (2005) presents a conceptual model of the transition to retirement.

² Justification bias is a form of reverse causality that makes it very difficult to assess the true effect of job loss or poor health on individuals’ decisions to retire early. The empirical evidence on this phenomenon is limited (Anderson and Burkhauser, 1985; Dwyer and Mitchell, 1999; Cai and Kalb, 2005), but there are clear advantages to focusing attention on an outcome variable that measures future expectations, as opposed to, concurrent outcomes.

³ Kleinjans and Lee (2006) find a positive effect of nursing home expectations on savings behavior. Bernheim (1989), Disney and Tanner (1999), and Gustman and Steinmeier (2001) discuss the factors that lead to a divergence between retirement expectations and realizations.

expectations is typically methodologically challenging, because these questions can be difficult to conceptualize leading many respondents to explicitly refuse to answer or to reply that they do not know. For example, many wave 1 respondents in the U.S. Health and Retirement Survey (HRS) could not articulate an answer to the question, “When do you think you will retire (completely)?”, reporting instead that they did not know (14.2 percent) or that they never intended to retire (14.1 percent).⁴ This type of item non-response generates data that are hard to interpret and that pose a number of problems that are difficult to test for and solve in empirical models (see Van Soest and Hurd 2004a; 2004b and Kleijnans and Lee, 2006).⁵

Thus, many researchers interested in examining retirement plans, instead focus on questions that ask each individual their subjective probability of working full-time at specific ages (see for example, Honig, 1998; McGarry, 2002). While these questions are also likely to be informative about retirement plans (and typically have much less non-response), we feel that an exclusive focus on these questions is problematic for at least two reasons. First, many non-responding individuals may in fact be facing greater uncertainty about their retirement options (see Disney and Tanner, 1999) and it is important to identify them so that they can be accounted for explicitly in the analysis. Second, asking only about the likelihood of working at various ages begs the question of whether workers see retirement as something distinct to the complete cessation of employment.⁶

Our approach to the non-response problem is to use the complexity in individuals’ responses over time to divide our sample into four subgroups with retirement plans that we

⁴ Author’s tabulation of question K13 in the publicly available data at <http://hrsonline.isr.umich.edu>.

⁵ Researchers often deal with this non-response problem by dropping individuals who do not report an expected retirement age or arbitrarily assigning a specific retirement age to those who report that they never intend to retire (see for example, Benítez-Silva and Dwyer, 2002; 2003 and Munnell, et al., 2004).

⁶ For example, Maestas (2005) argues that it is useful to consider subjective information about retirement status in combination with objective information about current labor force participation because individuals’ notions of retirement differ. Similarly, Borland (2005) discusses a transition to retirement in which a worker shifts from a relatively permanent (or regular) pattern of labor market participation to another pattern involving fewer hours of work and weaker labor market attachment.

believe we can interpret. These subgroups represent approximately 93 percent of the initial sample, leaving just 7 percent of individuals whose responses shed little light on their retirement expectations. Our goal is first, to assess the factors driving individuals' subgroup membership and second, to develop a deeper understanding of the retirement plans of individuals in each subgroup. In particular, do individuals responding "do not know" appear, in fact, to face greater retirement uncertainty? Do those who "never" intend to retire expect to keep working because they want to or because they feel they cannot afford to stop? Answering these questions adds depth to our understanding of the way in which middle-aged individuals are planning for retirement.

Our results indicate that approximately two-thirds of men and more than half of women appear to be making standard retirement plans. At the same time, more than one in five middle-aged individuals seem to have delayed their retirement planning and approximately one in ten either do not know when they expect to retire or expect to never retire. Retirement plans are closely related to current labor market position. Specifically, formulating expectations about the age at which one will retire appears to be easier for workers in jobs with well-defined pension benefits and standard retirement ages. Moreover, those who report that they do not know when they expect to retire do, in fact, seem to face greater uncertainty in their retirement planning. Those who anticipate working forever appear to do so out of concerns about the adequacy of their retirement incomes rather than out of increased job satisfaction or a heightened desire to remain employed. Finally, men alter their retirement plans in response to labor market shocks, while women are more sensitive to their own and their partners' health changes.

2. What Do We Know about Retirement Expectations

A large international literature examines a number of issues related to individuals' retirement expectations. In particular, a number of studies have used the U.S. Health and Retirement

Survey, the U.S. Retirement History Survey, or the UK Retirement Survey to examine the accuracy of retirement expectations by comparing them to actual retirement behavior. This research concludes that individuals form rational retirement plans, in general stick to them, and respond as expected to unanticipated changes in circumstances (Berheim, 1989; Dwyer and Hu, 1999; Benítez-Silva and Dwyer, 2002, 2003; Dwyer, 2001).⁷

Other studies have sought to directly model retirement expectations (see Dwyer and Mitchell, 1999 for a review). For example, using a rich model including expected 'base year' wealth (i.e., total discounted wealth available in early retirement), expected marginal gain to delaying retirement, occupation, industry, region, health insurance, and detailed health status, Dwyer and Mitchell (1999) find that although the estimated effects of the economic variables on retirement expectations are statistically significant, they are small in magnitude and in the U.S. context the most influential economic factor in the decision to retire may be access to health insurance. This and other research has also shown that poor health is strongly correlated with the decision to leave the labor market (McGarry, 2002; Dwyer, 2001; Dwyer and Mitchell, 1999; Benítez-Silva and Dwyer, 2002). Finally, though the evidence is limited, expectations seem to be related to subsequent behavior. Kleinjans and Lee (2006) conclude that those who believe that they are likely to enter a nursing home, are in fact subsequently more likely to do so. Moreover, there is a link between these expectations and savings behavior.

Many of the insights into retirement in Australia have been achieved by examining the determinants of the labor force status of older Australians, without focusing directly on retirement behavior. Gong et al. (2006) review this literature and conclude that demand-side

⁷ This research on retirement expectations fits into a broader body of literature assessing the relationship between expectations and realizations across a range of outcomes including: retirement savings; fertility behavior; wage rates and income levels; job insecurity; investment decisions and voting behavior, etc. (see the references cited in Manski, 2004 and Benítez-Silva and Dwyer, 2003). Manski (2004) argues that econometric analyses of decision making under incomplete information cannot rely on choice data alone and should be supplemented by additional data on expectations.

factors are not the predominate driver of retirement patterns in Australia. Rather, retirement behavior is more closely linked to those factors influencing individuals' labor supply decisions. In particular, health concerns are often closely related to Australians' employment decisions. For example, in studies using HILDA data, Cai and Kalb (2004; 2005) and Wilkins (2004) find that disability or poor health is associated with a lower probability of participating in the labor market, while Gill, et al. (2005) find that Australians who retire at relatively young ages have worse mental health relative than their counterparts still in the work force. This mental health gap largely disappears by the time early retirees reach the standard retirement age, leading the authors to speculate that by deviating from an important social norm regarding the conventional retirement age, young retirees may experience psychological distress.

Retirement expectations amongst middle-aged Australians are almost certainly shaped by current institutional arrangements for providing income security to retirees. Specifically, retired Australians receive income through a combination of: 1) the Age Pension (funded from general tax revenues); 2) compulsory pension savings; and 3) other forms of voluntary savings (Gong, et al., 2006). The receipt of the Age Pension is subject to both income and asset tests. In particular, individuals who are past the retirement age (currently men over the age of 65 and women over the age of 63), but earn more than the allowable limit have their Age Pension entitlement reduced by the taper rate. The resulting high effective marginal tax rate on post-retirement age earnings creates a strong disincentive for older Australians to continue working. At the same time, a number of policy initiatives including reduced taper rates, compulsory pension programs, and favorable tax arrangements have been introduced in an effort to encourage older Australians to continue working past the standard retirement age (see Gong, et al., 2006 for a review).

3. The Household Income and Labour Dynamics Survey

We use the first three waves of the Household Income and Labour Dynamics in Australia (HILDA) survey, covering the years 2001 to 2003, to examine the retirement plans of middle-aged men (aged 45 to 55) and women (aged 45 to 50) in their prime working ages. Unlike many international surveys that sample only from the population of older individuals, HILDA is a representative sample of Australians aged 15 and older. Thus, very few individuals retire during the existing waves of the survey making it not particularly useful for studying actual retirement behavior. However, HILDA does ask all individuals aged 45 and older at what age they plan to retire. Other surveys, such as the U.S. Health and Retirement Survey, ask only individuals currently in the labour force or only those employed about retirement. As partial retirement is becoming a common occurrence for older workers, it is useful to also consider individuals temporarily out of the labor force in any analysis of retirement behavior.

3.1 Patterns in Actual and Expected Retirement

We begin by comparing actual retirement patterns for retired men and women with the retirement expectations for those who have not yet retired from the labor market in order to put our remaining analysis in the proper perspective. The first panel of Table 1 shows the retirement status of all HILDA respondents. Approximately, 55 percent of men and women are under the age of 45 and consequently are not asked the retirement questions. Overall, one in four men (26.9 percent) are over the age of 45 and report that they have not yet retired, while 15.8 percent of men indicate that they have retired.⁸ Retirement is somewhat more common among women.

Table 1 here

It is interesting to compare the actual age of retirement as reported by those individuals who have already retired with the expected age of retirement for individuals who have not yet

⁸ Note that “permanently disabled” individuals were only identified in wave 1 of the survey. Approximately, 6.1 percent of men and 4.8 percent of women reported being permanently disabled in wave 1.

retired. As the propensity to be retired is closely related to age, we need to consider the effect of sample selection on both retirement patterns and retirement expectations in those age ranges in which some – but not all – individuals have already retired. For example, the mean age at retirement across all retired men (aged 45 plus) is 59.2 years old (see panel 2). This is an underestimate of the eventual retirement age of this group of men because many of them who will eventually retire at older ages are not yet in our sample of retirees. When we focus on a cohort of men over the age of 80, in which retirement is essentially universal, we find that the actual mean age of retirement rises to 65 (see panel 3). Similarly, the expected age of retirement is overstated across the total sample of non-retirees because some individuals expecting to retire at younger ages have already left the sample. Amongst middle-aged men and women who have not yet begun to retire we find that, in wave 1, men expect to retire at age 60.9, while women expect to retire somewhat earlier at age 58.4.

Figure 1 highlights the variation at wave 1 in expected retirement ages amongst middle-aged, non-retired men (aged 45 – 55) and women aged (45 – 50),⁹ while Figure 2 shows the variation in actual retirement ages for older retirees. Expected retirement ages are highly clustered at five-year age intervals, i.e., at ages 55, 60, and 65. A small proportion of individuals also report expecting to retire at ages 50 and 70, however almost no one reports expecting to retire at intermediate ages. Some non-retired men (7 percent) and women (5 percent) report that they “never” expect to retire, while in wave 1 as many as one in four men and one in three women report that they “do not know” when they expect to retire. In contrast, the ages at which individuals report having retired are distributed much more continuously (see Figure 2). Although there are certainly spikes at common retirement ages, specifically ages 55, 60 and 65, many people in fact retire at intermediate ages despite their expectations.

⁹ We focus on these age ranges because the vast majority of men and women at these ages have not yet begun to retire (see Cobb-Clark and Stillman, 2005).

Figures 1 and 2 here

Finally, using data from wave 3 of HILDA we can compare individuals' expected retirement ages to their desired retirement ages.¹⁰ On average, middle-aged men report wanting to retire at age 57.5, while women would like to retire somewhat earlier at age 55.4 (see panel 5 of Table 1). Approximately one in three middle-aged Australians anticipate retiring when they would like to, while approximately 60 percent expect to retire later than they desire. Less than five percent of this age group expects to retire earlier than they would like suggesting that few people see labor market or health factors as a constraint on their continued employment.

4. Understanding the Retirement Plans of Middle-Aged Australians

Our goal is to understand the factors underlying middle-aged individuals' expectations about the age at which they will retire. Many respondents, however, do not specify the age at which they expect to retire, saying instead that they either do not know (or have not begun to plan) or that they never intend to retire. These non-numeric answers are unlikely to be random and instead convey important information about the way in which individuals are forming their retirement plans. Consequently, these answers must also be explicitly accounted for in the analysis. We approach this problem by first using this complexity to classify individuals into four subgroups whose retirement plans we believe we can interpret. We then move on to consider the retirement plans of each separate subgroup in more depth.

4.1 Classifying Individuals' Retirement Plans

As discussed above, we focus our analysis on men aged 45 - 55 and women aged 45 - 50 in the first year of HILDA to reduce concerns about sample selection (we refer to these individuals as middle-aged in the remainder of the paper). Information about a person's expected retirement age was collected for all individuals over age 45 in waves 1 and 3 of

¹⁰ The question on desired retirement age is only asked in the special retirement supplement that is included in wave 3 of HILDA.

HILDA. Individuals could respond to this question by: 1) reporting a specific expected retirement age; 2) saying “never”; or 3) replying “do not know”.¹¹ We use the variation in responses across waves to classify individuals into different subgroups. Consequently, we drop all individuals who do not report one of these three types of responses in both waves 1 and 3.¹² Finally, we drop a small number of individuals who are Aboriginal or Torres Strait Islanders, are employed as an unpaid worker in a family-owned establishment in either wave, or are missing data on key analysis variables.¹³ These restrictions result in a sample of 809 men and 433 women on which we focus the remainder of our analysis.

Between wave 1 and 3, there was a change in the wording of the response categories for the expected retirement age question. In wave 1, individuals could respond that they “do not know/have not started to plan” when asked about their expected retirement age, while, in wave 3, this response category was changed to simply “do not know”. There is a sharp drop in the proportion of men and women reporting that they do not know when they expect to retire between these waves, which likely occurs because of this change in wording. For example, while more than one in three women report “do not know” in wave 1, this falls to one in ten in wave 3.

We use this variation in responses across waves to classify individuals into the following four subgroups: 1) those with uncertain plans (i.e., those reporting “do not know” in both waves 1 and 3); 2) those who do not plan to retire at all (i.e., those reporting “never” in both waves 1 and 3); 3) those who have delayed retirement planning (i.e., those reporting “do not know/have not started to plan” in wave 1 and something else in wave 3); and 4) those

¹¹ For obvious reasons, we drop all individuals with the remaining valid responses which include i) already retired (6.6 percent of middle-aged individuals), ii) permanently unable to work (2.9 percent), iii) never worked (0.6 percent), and iv) did not answer the question (0.8 percent).

¹² Thus, we drop middle-aged individuals that attrit from HILDA, as well as, those who retire between waves 1 and 3. This further reduces the sample size by approximately 25 percent.

¹³ A further 5.8 percent of individuals are dropped because of these restrictions, the majority of whom are missing household wealth data that is only collected in wave 2. A significant number of individuals are missing self-reported health status because they failed to fill-out the separate self-completion questionnaire in which this information is collected. These individuals are included in all analyses and we control for this missing information.

with standard retirement plans (i.e., those reporting an expected age in both waves 1 and 3). These subgroups, while *ad hoc*, nonetheless seem to us to be a sensible categorization of the complex patterns of retirement expectations we observe in the underlying data.

The distribution of our sample across these four subgroups is given in Table 2. Fully two-thirds of men (67.5 percent) and more than half of women (56.8 percent) fit what we will call the standard case by reporting an expected retirement age in both waves 1 and 3. At the same time, our results indicate that many middle-aged individuals may have delayed their retirement planning. Overall, 26.6 percent of women and 17.4 percent of men change their wave 1 “do not know/have not started to plan” response when the failure to plan option is eliminated in wave 3. Uncertainty about ones retirement plans and expectations of never retiring are much less common, though almost one in ten middle-aged Australians fall into one of these two categories. Interestingly, women are approximately twice as likely as men to be uncertain about then they expect to retire (7.6 percent vs. 3.5 percent), and half as likely to expect never to retire (1.6 percent vs. 3.8 percent). Finally, approximately 7 percent of our sample cannot be classified into one of these four groups.¹⁴

Table 2 here

In order to understand the underlying characteristics of these groups, we estimate a multinomial logit model of subgroup membership. Specifically,

$$\Pr(Y_i = j) = \frac{e^{\beta_j' x_i}}{1 + \sum_{k=1}^J e^{\beta_k' x_i}} \quad \text{for } j = 1, 2, \dots, 4 \quad (1)$$

where $\Pr(Y_i = j)$ is the probability that individual i belongs to subgroup j and the four subgroups are defined as above. Moreover, x_i is a vector of factors assumed to be related to an individual’s retirement plans including demographic characteristics (age, gender, foreign-

¹⁴ This includes individuals who responded “never” in one wave and reported either an age or said “do not know” in the other wave as well as those who gave an age in wave 1 and said “do not know” in wave 3. These individuals are excluded from the following subgroup analysis.

born status),¹⁵ education,¹⁶ family situation (marital status and household composition),¹⁷ labor market position,¹⁸ self-assessed health status,¹⁹ household income,²⁰ and wealth (home equity, household net worth, pension wealth)²¹ and β_j are vectors of parameters to be estimated. These factors are all measured in wave 1 of HILDA except for household wealth which, as noted, is only collected in wave 2.²² We also include a series of indicator variables to control for metropolitan area and urban/rural status, but do not report the coefficients for these variables. Unconditional marginal effects along with the associated standard errors for these marginal effects are reported in Table 3.

Unfortunately, small sample sizes preclude estimating the model separately for men and women. Controlling for gender, however, we find that women are 3.5 percentage points more likely than otherwise similar men to be uncertain about the age at which they expect to retire and they are 8.1 percentage points more likely to have not yet begun to plan for retirement. Together, these results point to a great deal of uncertainty in women's retirement planning, which is perhaps not surprising given the complexity of women's labor supply decisions more generally.

Table 3 here

¹⁵ Age is entered linearly because of the small age range examined in this paper. Foreign-born status is controlled for by an indicator variable equalling one for respondents born in an English speaking country other than Australia and an indicator variable equalling one for individuals born in a non-English speaking country.

¹⁶ We include a series of indicator variables for finishing high school, having a vocational certificate, and having a college degree, with the excluded group being individuals with less than 12 years of education.

¹⁷ We control for whether an individual is currently married or cohabitating, whether this relationship has been ongoing for 0-10, 10-25, or more than 25 years as well as for the number of individuals aged 0-15, 16-20 and 21 plus in the household.

¹⁸ We control for whether an individual is self-employed or not currently employed. The default category is wage/salary employees.

¹⁹ Individuals reported their self-assessed health on a five-point scale. We combine the lowest two categories (poor and fair) and then include a dummy variable for each group (good, average, fair/poor), excluding excellent health. We also include an indicator variable for whether an individual failed to respond to this question.

²⁰ This includes income from all sources and is in real 2001 Australian dollars.

²¹ These are all measured in the comprehensive wealth supplement included in wave 2. These are continuous variables measured in real 2001 Australian dollars. "Do not know" is a valid response for pension wealth and we include an indicator variable for this response setting pension wealth to zero. Net worth exclusive of housing equity and pension wealth is controlled for in the regression model.

²² Appendix table 1 reports summary statistics for all of the variables included in this analysis separately for individuals in the four well-defined subgroups as well as those who are unclassified.

Other demographic and human capital characteristics are less closely related to whether or not individuals have begun to plan for retirement and, if so, what form those plans take. Specifically, neither education nor age is closely related to an individual's subgroup membership. The failure of age to predict the nature of individuals' expectations regarding retirement is not surprising given the relative youth and limited age range of the men and women in our sample. A fuller understanding of the effect of age on retirement planning will require more waves of HILDA in which we can begin to observe the completed retirement behavior of more cohorts of Australians. The lack of a relationship between education and retirement expectations is more surprising and seems to suggest that education matters only indirectly through its effects on labor market status, income, and wealth position.

At the same time, immigrants from English-speaking backgrounds are much more likely (12.6 percentage points) to be uncertain about the age at which they expect to retire and much less likely (13.2 percentage points) to be formulating standard retirement plans. Immigrants from non-English-speaking backgrounds are also less likely (7.8 percentage points) to be formulating standard retirement plans, and are more to expect to never retire. Thus, foreign-born status has large and direct effects on individuals' expectations regarding retirement. Additional research on the actual retirement behavior of immigrants would be useful in understanding the extent to which these expectations are likely to reflect differences in eventual retirement behavior.

Although the number and age structure of children in the household are not related to retirement planning, there are substantial differences in the retirement expectations of individuals in single- and couple-headed households. Specifically, married or cohabiting individuals are much more likely (11.1 percentage points) to have specific expectations regarding the age at which they will retire. They are much less likely to have failed to begin

planning for retirement or to expect to never retire. Interestingly, the effects of being in a couple do not depend on the length of the relationship.

Although Dwyer and Mitchell (1999) find that among HRS respondents in the United States poor health is associated with earlier retirement plans, we find no evidence that the way in which middle-aged Australians are forming their retirement plans depends on their health status. In particular, those who say they are in excellent health are just as likely as those in fair/poor health to be to have failed to plan, to be uncertain about their plans, or to expect to never retire. A number of things might explain these differences. First, the HRS is a sample of much older individuals for whom health issues may be generally more pressing. Second, the Australian public health system implies that continued employment is not a prerequisite for access to health care as is so often the case in the United States. Finally, the analysis here considers broad forms of retirement plans, but does not specifically address the question of whether one's health status is related to an expectation of retiring at a younger or an older age. When the age at which one expects to retire is also explicitly considered, there is some evidence that Australians in better health expect to retire earlier (Cobb-Clark and Stillman, 2005).

Retirement expectations, on the other hand, are strongly related to current labor market position. Middle-aged Australians who are either not employed or are self-employed are approximately 50 percent more likely to have delayed their retirement planning and are about 70 percent more likely to be uncertain about their retirement expectations. Wage and salary workers, on the other hand, are much more likely to have formed expectations about the age at which they will leave the labor market. At the same time, the age at which individuals expect to retire is not related to current household income. Thus, anticipating the age at which one will leave the labor market may be easier for workers in jobs with well-defined pension benefits and standard retirement ages. Consistent with Disney and Tanner

(1999), middle-aged individuals who report that they do not know when they expect to retire do appear to experience greater uncertainty in their retirement planning.

Real household net worth (net of pension and housing wealth) is related to retirement expectations, with higher net worth associated with a higher probability of failing to plan for retirement and a correspondingly lower probability of consistently reporting an expected retirement age. However, the effects are fairly small, with a \$100,000 increase in net worth resulting in a 3.6 percent increase in the probability of failing to plan and a 1.2 percent reduction in the probability of consistently forming retirement expectations. Retirement expectations are more closely related to real pension wealth, with higher pension wealth associated with an increased probability of forming standard retirement expectations.

4.2 Understanding the Nature of “Uncertain”, “Never”, “Delayed”, and “Standard” Retirement Plans

While the above analysis highlights the characteristics that predict membership in our four retirement subgroups, it tells us little about how the nature of retirement plans themselves might differ across groups. Specifically, do some people expect to keep working forever because they enjoy their jobs or because they feel they cannot afford to stop? What leads some middle-aged individuals to delay retirement planning?

We turn now to comparing the retirement plans of individuals in different subgroups in more depth. In particular, we assess individuals’ retirement goals, as well as, their expectations. We also consider individuals’ current savings habits and attitudes towards risk. In Table 4, we report summary statistics for each subgroup, as well as, p-values from Wald-tests for significant differences between the mean or pattern of responses for each subgroup relative to the standard retirement plan case given in column 4.²³

²³ These Wald-tests are estimated from either a linear regression model for continuous outcomes or an ordered probit model for ordered outcomes controlling only for subgroup membership. For the continuous outcomes, this is equivalent to a paired t-test. Where available, data is used from both wave 1 and wave 3 and the test is adjusted for individual specific heteroskedastic of unknown form.

Table 4 here

More than half of middle-aged individuals with no plans to retire expect to be in paid work after the age of 65, and almost one-quarter expect to be in the labor force after the age of 75. Thus, the anticipated employment rate of this group at age 65 is approximately double that of other groups, and at age 75 is approximately five times higher than that of other individuals. Although men and women who have delayed retirement planning or who have uncertain retirement plans are also more likely than those with standard retirement plans to expect to continue working into old age, the differences – though generally significant – are not as dramatic. Approximately thirty percent of those with uncertain retirement plans and one-quarter of those who have delayed planning expect to continue working after age 65 in comparison with 21.2 percent of those who have standard retirement plans.

These differences are particularly striking in light of the fact that the age at which individuals would like to retire does not differ significantly across groups. Irrespective of the type of retirement plans they are formulating, middle-aged Australians consistently report wanting to retire between the ages of 57 and 58, on average. Those who expect to never retire, for example, also say that they would like to leave the labor market when they reach 57.2 years old. A substantial number of these individuals, however, anticipate that they will be working fully two decades longer than they would like to be.

Interestingly, retirement planning is not significantly related to one's job satisfaction. Individuals who are uncertain about their retirement plans or who never expect to retire are not significantly happier in their jobs than are the majority of middle-aged individuals who are forming standard retirement plans. Moreover, the level of satisfaction with one's finances is lower amongst these individuals than amongst those planning to retire at standard ages. Although those expecting to never retire are significantly more satisfied with their health, those who have delayed their retirement planning have significantly lower levels of health

satisfaction, as well as, lower life satisfaction, more generally. Thus, our results imply that delays in retirement planning, uncertainty about the retirement process, and the anticipation of never retiring are not, in general, due to higher levels of job, financial, health or life satisfaction that might serve to reduce the impetus for standard retirement planning.

Middle-aged individuals who are uncertain about when they expect to retire are more likely to be spending more than their income and are less likely to be saving regularly than are individuals forming standard retirement plans. Those facing uncertain retirement plans are also more likely to find next week – rather than ten years ahead – to be the most important period when making their savings and spending decisions. Although there are no significant differences in the savings habits of individuals who have delayed retirement planning or who expect to never retire, the savings and spending goals of these groups are significantly more short-term than are those of respondents with standard retirement plans. Clearly, the ability to form consistent expectations about ones future retirement age is related to regular savings habits and long-range savings goals.

Given these differences, it is perhaps not surprising that the main source of retirement funding also differs across subgroups. More than one-third of those with uncertain plans or who never expect to retire anticipate that their main source of retirement income will be either an age, service or widow pension. In contrast, only 20.3 percent of individuals with standard retirement plans anticipate being mainly reliant on these forms of income. More than half report that their main source of income will come from a pension.

Optimism about the adequacy of retirement income is remarkably consistent across groups despite differences in its source. Two-thirds of middle-aged individuals with standard retirement plans believe that their retirement income will be sufficient or more than sufficient to maintain their current living standard. Levels of optimism are equally high amongst those who are uncertain about their retirement plans, and only slightly lower (61.2 percent)

amongst those who have not yet begun to plan their retirement. Only those expecting to never retire are noticeably more pessimistic with fully 78.6 percent saying that they believe that their retirement income will not be enough to maintain current living standards.

On the face of it, the level of optimism amongst some groups is somewhat surprising. Those who are uncertain about their retirement plans are nonetheless quite optimistic that their retirement income will be enough to prevent a fall in living standards despite the fact that they in general do not save regularly have only short-term savings goals and expect to be relatively dependent on a government pension in retirement. One possibility is that these individuals do not anticipate (or do not require) a particularly high standard of living in old age. Alternatively, individuals may be uninformed about the resources necessary to maintain their current standard of living after retirement.

4.3 The Effect of Demographic, Health and Job Shocks on Retirement Expectations

Despite the complexities inherent in retirement planning, the vast majority of middle-aged individuals do appear to be formulating standard retirement plans. In particular, fully 67.5 percent of men (aged 45 – 55) and 56.8 percent of women (aged 45 – 50) reported an expected retirement age in both waves 1 and 3 of HILDA. Consequently, it is useful to examine how the retirement plans of these individuals change over time in response to changes in economic circumstances.

Specifically, let the expected retirement age of individual i in wave t (A_{it}) be given by

$$A_{it} = a_i + x_{it}b_i + \gamma_i + \varepsilon_{it} \quad (2)$$

where x_{it} is a vector of time-varying characteristics affecting expectations regarding retirement, γ_i captures both observed and unobserved time-invariant effects, and ε_{it} is a random error term. Formulating this model in first differences results in

$$\Delta A_i = A_{i3} - A_{i1} = \alpha + \Delta x_i \beta + n_i \quad (3)$$

where $\Delta x_i = x_{i3} - x_{i1}$ is the change in individual i 's economic circumstances – in particular, in marital status, number of children, employment status,²⁴ health status,²⁵ household income, and household location²⁶ between waves 1 and 3, $\alpha = a_3 - a_1$, β is a vector of parameters to be estimated and η_i is a random error term.²⁷ Equation (3) is estimated using the subsample of individuals who reported expected retirement ages in both waves 1 and 3. Estimation results (OLS coefficients and associated standard errors) are presented in Table 5.

The expected age of retirement amongst middle-aged men and women formulating standard retirement plans increased by just under 1.5 years on average in the two-year period between waves 1 and 3 (Table 5). Men's retirement plans are more sensitive to labor market shocks, while women appear to alter their expectations regarding retirement in response to negative health shocks that they – or their partners – have experienced. In particular, men who were fired or made redundant in this period respond by increasing their expected retirement age by 1.4 years on average. This is inconsistent with the international literature suggesting that displaced workers in the United States retire at substantially higher rates than non-displaced workers (Chan and Stevens, 2002). Chan and Stevens (2002) argue that an increased propensity to retire following displacement occurs because the gain in pension wealth from continued employment falls following displacement.²⁸ Institutional differences between Australia and the United States in labor market opportunities or benefits for

²⁴ We attempt to isolate exogenous changes in employment status by only including a measure of whether an individual reports in wave 3 being fired or made redundant since the first wave. If the individual is married or cohabitating, we also include controls for whether an individual's partner has been fired or made redundant or has changed retirement status in a second specification. We find similar results if we instead control for changes in actual employment status.

²⁵ We account for the ordered nature of the self-assessed health status variables by controlling for whether an individual's health status has improved or has declined between waves. We also include a separate indicator variable for whether their health status is missing in either wave. In the second specification, additional control variables are added for these same changes in partner's health status for married/cohabiting individuals.

²⁶ To simplify interpretation, we control for whether the household has moved to a new metropolitan area or changed urban/rural status.

²⁷ This model is consistent with preliminary estimation that showed that baseline characteristics are generally unrelated to changes in retirement expectations over time.

²⁸ At the same time, they note that employment barriers, high search costs, or other barriers to reemployment may also be important explanations for the patterns they observe.

displaced workers may lead displaced Australian men to expect to prolong rather than shorten their working lives. Positive income changes also result in a significant delay in Australian men's expected retirement age, although the effect is small in magnitude. At the same time, men do not adjust their retirement plans in response to health shocks or to changes in household structure.

Table 5 Here

Women's retirement plans, on the other hand, are much more closely linked to their health and that of their partners. Relative to women whose health status does not change, middle-aged women who report a decline in their health between waves 1 and 3 bring forward their expected retirement age by an average of 1.9 years. This effect is almost identical to the way in which women change their retirement plans when their partners – rather than themselves – experience worsening health. Middle-aged women may modify their employment plans in anticipation of the need to provide care for their partners. At the same time, women whose partners experience an improvement in their health also decrease the age at which they expect to retire by more than three years. Overall, these results are consistent with the international literature which suggests that changes in health status are very important in triggering changes in both expected and actual employment behavior (Dwyer, 2001; Anderson, et al, 1986).

5. Conclusions

This paper uses the first three waves of the Household, Income and Labor Dynamics in Australia (HILDA) data to survey to examine the retirement plans of middle-aged men (aged 45–55) and women (aged 45–50). Most individuals will gradually transition to retirement and understanding how workers formulate their expectations about retirement allows us to assess whether or not this transition process reflects voluntary or involuntary behavior. Moreover, there are likely to be costs associated with “not getting it right” and retirees who

plan to retire will most likely be financially better off than those who retire unexpectedly (Dwyer, 2001).

Despite the importance of the issue, there are methodological challenges in analyzing individuals' subjective expectations about retirement. Retirement is a complex process that often takes place decades into the future. Not surprisingly, many individuals have difficulty articulating their expectations about their retirement plans. Non-random non-response generates data that are hard to interpret and difficult to analyze. Our approach to this problem is to use the underlying complexity in the data to categorize respondents into four separate groups with retirement plans we believe we can interpret. This allows us to assess the factors predicting the type of retirement plan each individual has and to develop a deeper understanding of how retirement plans differ across groups.

Our results indicate that approximately two-thirds of men and more than half of women appear to be making standard retirement plans. At the same time, more than one in five middle-aged individuals seem to have delayed their retirement planning and approximately one in ten either do not know when they expect to retire or expect to never retire. Retirement plans are closely related to current labor market position. Specifically, formulating expectations about the age at which one will leave the labor market may be easier for workers in jobs with well-defined pension benefits and standard retirement ages. Moreover, those who report that they do not know when they expect to retire do in fact appear to be face greater uncertainty in their retirement planning, while concerns about the adequacy of ones retirement income seem to result in some individuals expecting to be employed forever. Finally, men alter their retirement plans in response to being made redundant, while women are more sensitive to their own and their partners' health changes.

This research leaves open a number of important issues for the future. In particular, we know very little about the particular challenges that women face in making retirement

plans. The changing nature of women's labor market attachment has important implications for their retirement decisions and has led to a literature that examines the retirement behavior of married couples in a household framework (see Coile, 2004 for a review). However, comparable models for understanding the way in which expectations are formed within households do not yet exist. This is unfortunate as our results point to large gender differences, with women being approximately twice as likely as men to be uncertain about when they expect to retire and half as likely to expect never to retire.

It would also be useful to know more about the standard of living individuals feel they require in retirement, as some individuals appear to be surprisingly optimistic about retirement. In particular, those who are uncertain about their retirement plans are nonetheless optimistic about their post-retirement standard of living even though they are not regularly saving to fund their own retirement and expect to be primarily dependent on a government pension. These individuals may be optimistic because they do not require a particularly high standard of living in old age. Alternatively, they may be uninformed about the resources necessary to fund the retirement they desire.

References:

- Anderson, Kathryn H., Richard V. Burkhauser, and Joseph F. Quinn, 1986. "Do Retirement Dreams Come True? The Effect of Unanticipated Events on Retirement Plans", *Industrial and Labor Relations Review*, Vol. 39(4), July, pp. 518-526.
- Australian Bureau of Statistics (ABS), 1998. *Retirement and Retirement Intentions Australia*, Catalogue 6238.0.
- Benítez-Silva, Hugo and Debra S. Dwyer. 2002. "Retirement Expectations Formation Using the Health and Retirement Study" *SUNY-Stony Brook Department of Economics Working Paper 02-04*.
- Benítez-Silva, Hugo and Debra S. Dwyer,. 2003. "Expectation Formation of Older Married Couples and the Rational Expectations Hypothesis," *Michigan Retirement Research Center WP 2003-062*.
- Bernheim, B.D. 1989. "The timing of retirement: A comparison of expectations and realizations." In *The Economics of Aging*. Ed. D. Wise. Chicago: University of Chicago Press, 335-355.
- Borland, Jeff, 2005. "Transitions to Retirement: A Review", Melbourne Institute Working Paper Series Working Paper No. 3/05.
- Cai, Lixin and Guyonne Kalb, 2005. "Health Status and Labour Force Status of Older Working-Age Australian Men", Melbourne Institute Working Paper Series Working Paper No. 9/05.
- Cai, Lixin and Guyonne Kalb, 2004. "Health Status and Labour Force Participation: Evidence from the HILDA Data", Melbourne Institute Working Paper Series Working Paper No. 4/04, forthcoming in *Health Economics*.
- Chan, Sewin, Ann Huff Stevens. 2002. "How Does Job Loss Affect the Timing of Retirement?" *NBER Working Paper W8780* (February).
- Cobb-Clark, Deborah A. and Steven Stillman, 2005. "The Effect of Economic Shocks on Retirement", report to the Department of Family, Community Services, and Indigenous Affairs, 20 December 2005.
- Coile, Courtney, 2004. "Topics in Economic Analysis and Policy", Vol. 4, No. 1, Article 17, pp. 1- 28.
- Disney, Richard and Sarah Tanner, 1999. "What Can We Learn from Retirement Expectations Data?", IFS Working Paper Series No. W99/17.
- Dwyer, Debra S. and J. Hu. 1999. "The Relationship Between Retirement Expectations and Realizations: The Role of Health Shocks," in *Forecasting Retirement Needs and Retirement Wealth*. Olivia Mitchell, P. Brett Hammond, and Anna M. Rappaport (eds.). University of Pennsylvania Press.

- Dwyer, Debra S. 2001. "Planning for Retirement: The Accuracy of Expected Retirement Dates and the Role of Health Shocks," *Center for Retirement Research at Boston College WP 2001-08*.
- Dwyer, Debra S. and Olivia S. Mitchell. 1999. "Health problems as determinants of retirement: Are self-rated measures endogenous?" *Journal of Health Economics* 18 (April). no. 2: 141-57.
- Gill, Sarah C., Butterworth, Peter, Bryan Rodgers, Kaarin J. Anstey, Elena Villamil and David Melzer, 2005. "Mental Health and the Timing of Retirement", unpublished working paper. Centre for Mental Health Research, Australian National University.
- Gong, Xiadong, Ryan, Chris, and Stephen Whelan, 2006. *Senior Australians in the Workforce*, SPEAR Centre Report to the Department of Family, Communities Services, and Indigenous Affairs, 30 June 2006.
- Gustman, Alan L. and Thomas L. Steinmeier, 2001. "Imperfect Knowledge, Retirement and Saving", NBER Working Paper 8406, August 2001.
- Honig, Marjorie, 1998. "Married Women's Retirement Expectations: Do Pensions and Social Security Matter?" *American Economic Review*, Vol. 88 (2), pp. 202 – 206.
- Kleijnans, Kristin J. and Jinkook Lee, 2006. "The Link Between Individual Expectations and Savings: Do Nursing Home Expectations matter?", unpublished working paper.
- McGarry, Kathleen, 2002, "Health and Retirement: Do Changes in Health Affect Retirement Expectations?" NBER Working Paper W 9317.
- Maestas, Nicole, 2005. "Back to Work: Expectations and Realizations of Work After Retirement", paper presented at the Annual Meeting of the Society of Labor Economists, San Francisco, June 2005.
- Manski, Charles F., 2004. "Measuring Expectations", *Econometrica*, Vol. 72, No. 5., pp. 1329 – 1376.
- Munnell, Alicia, Jivan, Natalia A., and Triest, Robert K., 2004. "How Do Pensions Affect Expected and Actual Retirement Ages" Center for Retirement Research WP 2004-27, Boston College.
- Van Soest, Arthur and Michael Hurd, 2004a. "A Test for Anchoring and Yea-Saying in Experimental Consumption Data", NBER Working Paper 10462, April 2004.
- , 2004b. "Models for Anchoring and Acquiescence Bias in Consumption Data", NBER Working Paper 10461, April 2004.
- Wilkins, Roger, 2004. "The Effects of Disability on Labour Force Status in Australia", *Australian Economic Review*, Vol. 37(4), pp. 359-382.

Figure 1: The Distribution of Age at Declared Retirement

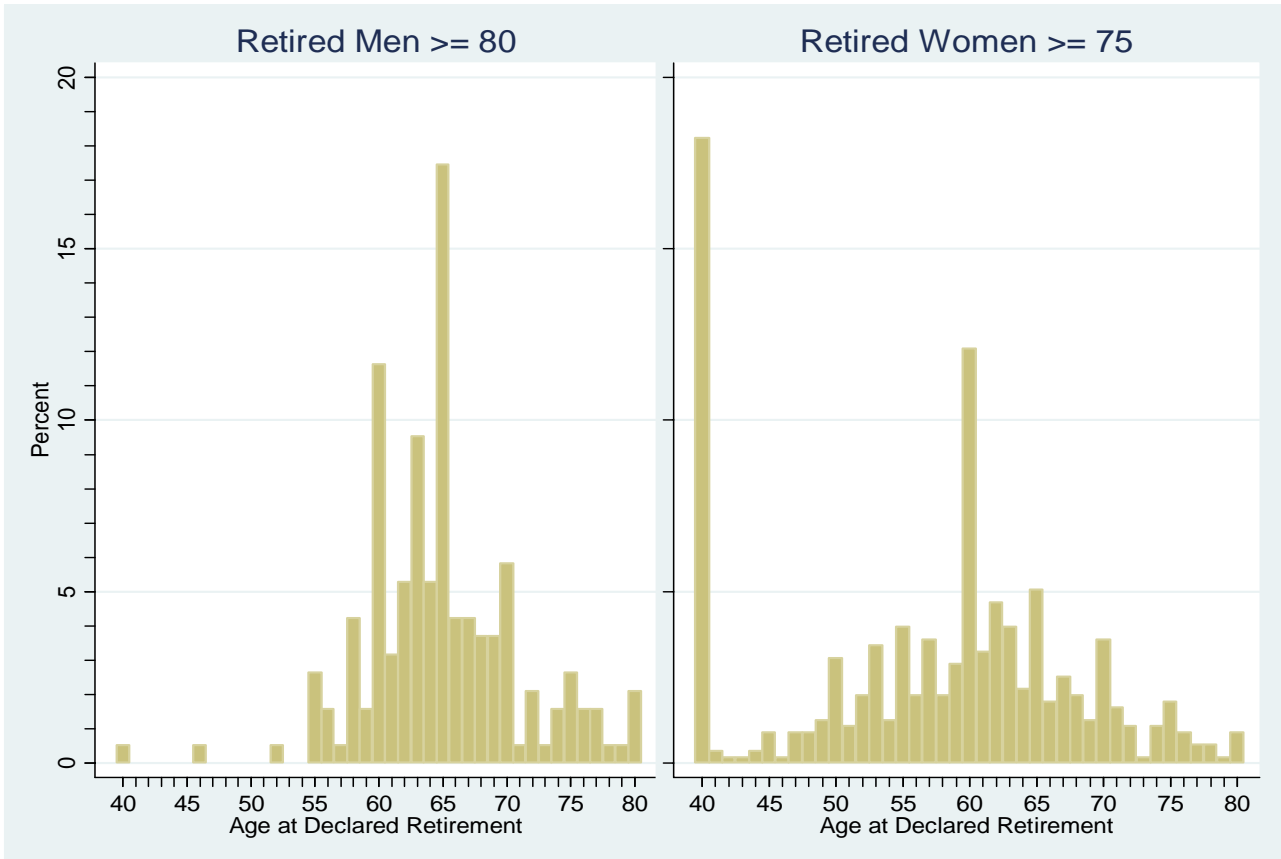


Figure 2: The Distribution of Expected Retirement Age in Wave 1

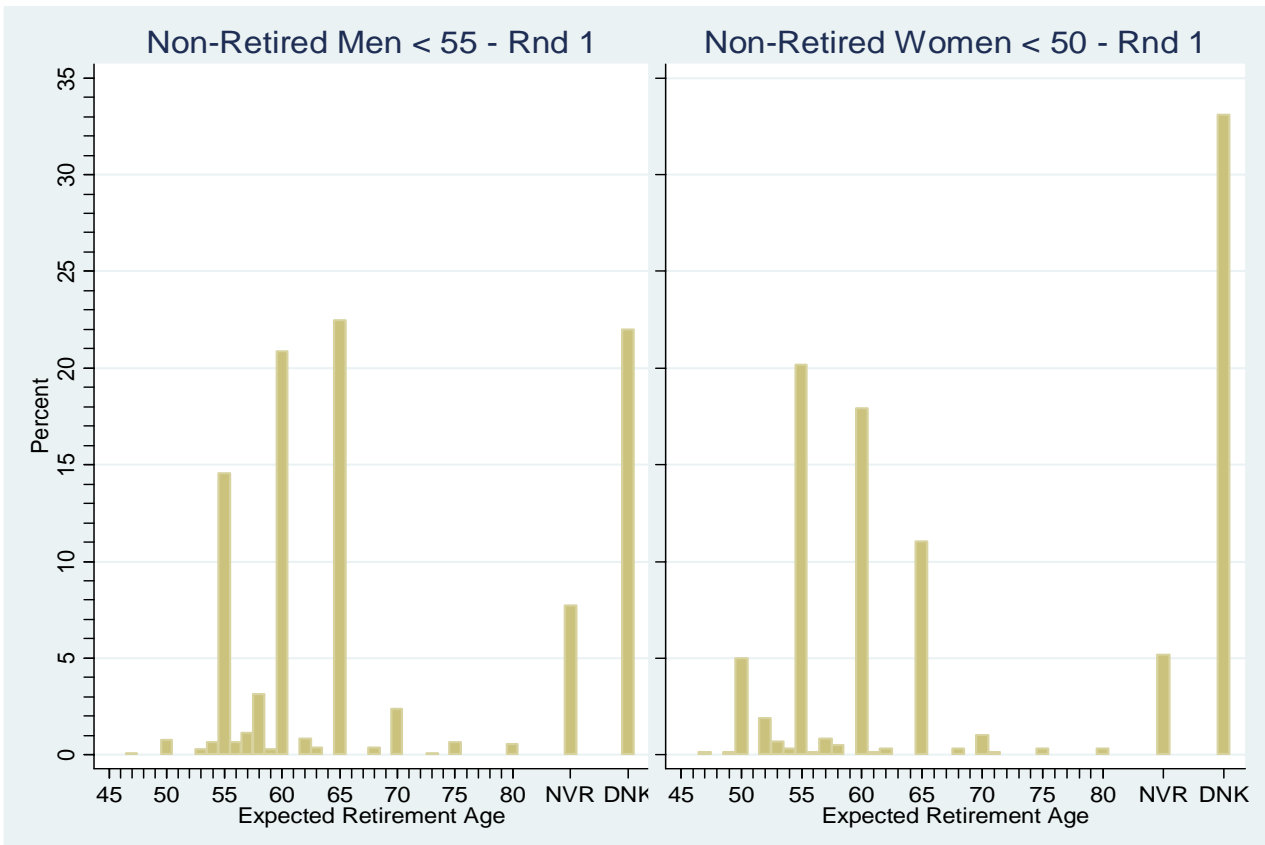


Table 1: Retirement Expectations, Desires, and Behaviours

	Men	Women
Panel 1: All Individuals in HILDA		
Age <45	54.9%	54.7%
Not Retired	26.9%	21.2%
Retired	15.8%	20.5%
Permanently Disabled	2.1%	1.7%
Never Worked	0.1%	1.5%
DNK / Did Not Answer	0.3%	0.4%
Observations	18,891	20,847
Panel 2: All Retired Individuals in HILDA		
Actual Retirement Age (Mean)	59.2	51.5
Actual Retirement Age (Median)	60.0	55.0
Actual Retirement Age (SD)	8.3	13.4
Individuals	1,333	1,876
Panel 3: Retired Men ≥ 80 or Retired Women ≥ 75		
Actual Retirement Age (Mean)	65.0	54.7
Actual Retirement Age (Median)	65.0	60.0
Actual Retirement Age (SD)	6.4	15.2
Individuals	189	554
Panel 4: All Non-Retired Individuals in HILDA		
Expected Retirement Age in Rnd 1 (Mean)	62.4	60.2
Expected Retirement Age in Rnd 1 (Median)	63.0	60.0
Expected Retirement Age in Rnd 1 (SD)	5.3	5.4
Expected Retirement Age in Rnd 3 (Mean)	63.7	61.5
Expected Retirement Age in Rnd 3 (Median)	65.0	60.0
Expected Retirement Age in Rnd 3 (SD)	5.3	5.4
Desired Retirement Age in Rnd 3 (Mean)	59.9	58.3
Desired Retirement Age in Rnd 3 (Median)	60.0	58.0
Desired Retirement Age in Rnd 3 (SD)	7.0	6.7
Expected < Desired Retirement Age in Rnd 3	4.1%	4.3%
Expected = Desired Retirement Age in Rnd 3	40.0%	42.6%
Expected > Desired Retirement Age in Rnd 3	55.9%	53.2%
Overall Observations	2,591	2,132
Panel 5: Non-Retired Men <55 or Non-Retired Women <50		
Expected Retirement Age in Rnd 1 (Mean)	60.9	58.4
Expected Retirement Age in Rnd 1 (Median)	60.0	60.0
Expected Retirement Age in Rnd 1 (SD)	5.1	5.3
Expected Retirement Age in Rnd 3 (Mean)	62.5	59.6
Expected Retirement Age in Rnd 3 (Median)	65.0	60.0
Expected Retirement Age in Rnd 3 (SD)	5.0	5.4
Desired Retirement Age in Rnd 3 (Mean)	57.5	55.4
Desired Retirement Age in Rnd 3 (Median)	55.0	55.0
Desired Retirement Age in Rnd 3 (SD)	6.5	6.7
Expected < Desired Retirement Age in Rnd 3	2.7%	4.7%
Expected = Desired Retirement Age in Rnd 3	33.5%	35.5%
Expected > Desired Retirement Age in Rnd 3	63.9%	59.8%
Overall Observations	1,634	861

Note: All non-numeric responses to expected and desired retirement age are excluded from the summary statistics

Table 2: Retirement Expectations Patterns

	Men	Women
DNK in Rnd 1 and Rnd 3	3.5%	7.6%
DNK in Rnd 1 and something else in Rnd 2	17.4%	26.6%
Never in both Rnd 1 and Rnd 3	3.8%	1.6%
Gives an Age in both Rnd 1 and Rnd 3	67.5%	56.8%
Other (dropped from remaining analysis)	7.8%	7.4%
Individuals	809	433

Note: The sample is restricted to men between age 45 and 55 and women between age 45 and 50 in wave 1 that are not retired in either wave 1 or 3. Other restrictions on the sample are discussed in the paper

Table 3: Determinants of Retirement Expectations
(Multinomial Logit Model of Expected Retirement Age Group)

	Marginal Effects (Standard Errors of Marginal Effects)			
	DNK/DNK	DNK/~DNK	Nvr/Nvr	Age/Age
Age	0.002 (0.003)	-0.003 (0.006)	0.001** (0.000)	0.000 (0.006)
Female	0.035** (0.015)	0.081*** (0.029)	-0.003 (0.003)	-0.113*** (0.032)
Ed = Year 12	-0.017 (0.027)	-0.015 (0.047)	0.002 (0.004)	0.030 (0.053)
v. Ed = Year 11 or less				
Ed = Certificate	-0.009 (0.014)	-0.017 (0.032)	-0.001 (0.003)	0.027 (0.034)
v. Ed = Year 11 or less				
Ed = Tertiary	0.002 (0.014)	-0.032 (0.039)	0.005 (0.003)	0.025 (0.041)
v. Ed = Year 11 or less				
Foreign / English Born	0.007 (0.016)	0.126*** (0.036)	-0.001 (0.004)	-0.132*** (0.039)
v. OZ Born				
Foreign / Non-Eng Born	0.017 (0.017)	0.053 (0.042)	0.007** (0.003)	-0.078* (0.045)
v. OZ Born				
Married/Cohab	-0.003 (0.023)	-0.097** (0.049)	-0.011** (0.006)	0.111** (0.053)
v. Non-Couple				
Married/Cohab 10-25 Yrs	0.000 (0.018)	0.007 (0.044)	-0.003 (0.004)	-0.004 (0.046)
v. Married/Cohab < 10 Yrs				
Married/Cohab 25+ Yrs	-0.009 (0.020)	0.044 (0.047)	0.002 (0.004)	-0.037 (0.049)
v. Married/Cohab < 10 Yrs				
Number Kids 0-15	-0.002 (0.006)	0.014 (0.014)	0.002 (0.002)	-0.014 (0.015)
Number Kids 16-20	0.003 (0.007)	0.002 (0.021)	-0.001 (0.002)	-0.004 (0.022)
Number Adults 21+	-0.003 (0.009)	-0.007 (0.026)	0.000 (0.003)	0.009 (0.027)
Not Employed	0.038** (0.018)	0.110** (0.043)	0.001 (0.004)	-0.148*** (0.047)
v. Wage / Salary				
Self-Employed	0.039** (0.016)	0.092** (0.037)	0.006** (0.003)	-0.137*** (0.040)
v. Wage / Salary				
Good Health	0.000 (0.017)	0.038 (0.043)	-0.001 (0.003)	-0.037 (0.045)
v. Excellent Health				
Average Health	-0.007 (0.018)	0.064 (0.045)	-0.003 (0.003)	-0.055 (0.047)
v. Excellent Health				
Fair / Poor Health	0.019 (0.019)	0.040 (0.053)	-0.007 (0.007)	-0.052 (0.056)
v. Excellent Health				
Missing Health / SCQ	0.009 (0.027)	0.055 (0.077)	-0.020*** (0.006)	-0.044 (0.083)
Real Hse Income / 10000	0.0010 (0.0006)	-0.0030 (0.0035)	-0.0001 (0.0002)	0.0021 (0.0034)
Real Hse Net Worth / 10000 (w/o housing and pension)	0.0000 (0.0002)	0.0008*** (0.0003)	0.00004* (0.00002)	-0.0008** (0.0003)
Real Hse Home Equity / 10000	0.0001 (0.0002)	-0.0001 (0.0008)	-0.0001 (0.0001)	0.0001 (0.0008)
Real Pension Income/10000	-0.002** (0.001)	-0.003** (0.001)	0.000 (0.000)	0.005*** (0.002)
DNK Pension Amount	-0.001 (0.017)	-0.032 (0.050)	0.004 (0.004)	0.029 (0.053)
Percent Each Category	5.3%	22.3%	3.3%	69.1%
Individuals	1,152			

Note: All control variables are measured in the first round. The regression includes additional control variables for metropolitan area and rurality. Standard errors account for clustering within households.

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4: Characteristics of Individuals with Different Retirement Expectations

	DNK/DNK	DNK/~DNK	Nvr/Nvr	Age/Age
Mean Desired Retirement Age	57.74	58.00	57.23	57.30
(standard deviation)	(7.42)	(6.19)	(6.10)	(5.65)
{p-value for differences between groups 1-3 and group 4}	{0.72}	{0.12}	{0.97}	
Mean Probability in Paid Work after Age 65	29.47	26.03	57.50	21.22
(standard deviation)	(30.35)	(31.04)	(29.14)	(29.88)
{p-value for differences between groups 1-3 and group 4}	{0.05}	{0.04}	{0.00}	
Mean Probability in Paid Work after Age 75	5.30	5.47	23.71	2.52
(standard deviation)	(12.64)	(15.34)	(34.90)	(9.84)
{p-value for differences between groups 1-3 and group 4}	{0.11}	{0.01}	{0.02}	
Mean Job Satisfaction (0-10 Scale)				
	7.56	7.85	7.62	7.65
(standard deviation)	(2.12)	(1.81)	(2.15)	(1.77)
{p-value for differences between groups 1-3 and group 4}	{0.71}	{0.08}	{0.93}	
Mean Financial Satisfaction (0-10 Scale)				
	5.97	6.11	5.87	6.60
(standard deviation)	(2.63)	(2.41)	(2.90)	(2.12)
{p-value for differences between groups 1-3 and group 4}	{0.04}	{0.00}	{0.10}	
Mean Health Satisfaction (0-10 Scale)				
	7.27	7.36	8.22	7.57
(standard deviation)	(1.93)	(1.82)	(1.13)	(1.74)
{p-value for differences between groups 1-3 and group 4}	{0.16}	{0.09}	{0.00}	
Mean Life Satisfaction (0-10 Scale)				
	7.88	7.70	7.95	7.94
(standard deviation)	(1.59)	(1.58)	(1.61)	(1.40)
{p-value for differences between groups 1-3 and group 4}	{0.74}	{0.02}	{0.97}	
Savings Habits				
Dont save - spend more than income	6.0%	4.3%	2.7%	4.4%
Dont save - spend as much as income	32.8%	21.2%	25.7%	19.0%
Save whatever is left over - no plan	38.8%	45.9%	46.0%	43.8%
Spend regular income, save other income	6.9%	8.2%	5.4%	8.5%
Save regularly by putting money aside	15.5%	20.4%	20.3%	24.3%
{p-value for differences between groups 1-3 and group 4}	{0.01}	{0.21}	{0.41}	
Most important when planning savings and spendings				
The next week	26.6%	17.7%	16.4%	13.7%
The next few months	23.9%	30.9%	31.5%	25.0%
The next year	19.5%	16.3%	16.4%	14.3%
The next 2 to 4 years	8.9%	9.7%	12.3%	12.2%
The next 5 to 10 years	11.5%	16.3%	16.4%	22.9%
More than 10 years ahead	9.7%	9.1%	6.9%	11.9%
{p-value for differences between groups 1-3 and group 4}	{0.01}	{0.00}	{0.08}	
Financial risk prepared to take				
Substantial	2.6%	1.7%	2.7%	1.2%
Above average	7.0%	7.0%	9.5%	9.5%
Average	33.3%	41.6%	41.9%	46.5%
Not any	31.6%	31.7%	25.7%	29.1%
Never have spare cash	25.4%	18.1%	20.3%	13.7%
{p-value for differences between groups 1-3 and group 4}	{0.03}	{0.03}	{0.65}	
Main source of funding for Retirement				
Age pension / Service pension / Widows pension	36.8%	28.3%	35.7%	20.3%
Other government pension or allowance	0.0%	5.9%	0.0%	3.2%
Lump sum superannuation payout	21.1%	24.1%	14.3%	27.5%
A pension or annuity purchased with super or other funds	14.0%	16.0%	14.3%	27.3%
Income from savings and investments	14.0%	16.9%	14.3%	15.2%
Income from a business	8.8%	3.4%	14.3%	3.2%
Income or pension from your spouse / partner	1.8%	4.2%	0.0%	2.4%
Financial support from family	3.5%	0.8%	0.0%	0.4%
Other source (Specify)	0.0%	0.4%	7.1%	0.6%
Do you expect your retirement income to be enough to maintain your current standard of living?				
More than sufficient	12.0%	7.3%	0.0%	9.3%
Just enough	54.0%	53.9%	21.4%	57.3%
Not Enough	34.0%	38.9%	78.6%	33.4%
{p-value for differences between groups 1-3 and group 4}	{0.82}	{0.10}	{0.00}	
Individuals	61	256	38	792

Note: All non-numeric responses to probability in paid work and desired retirement age are excluded from the summary statistics. P-values are wald-tests for significant differences between the mean or pattern of response for each subgroup relative to the standard retirement plan case given in column 4 estimated from either a linear regression model for continuous outcomes or an ordered probit model for ordered outcomes controlling only for subgroup membership. When available, data is used from both wave 1 and wave 3 and the wald-test is adjusted for individual specific heteroskedastic of unknown form.

Table 5: Determinants of Changes in Retirement Expectations
(First Difference Regression of Change Between Waves 1 and 3)

	Men		Women	
Changed Married Status	-0.607 (0.902)	-0.493 (0.964)	-1.869 (1.316)	-1.557 (1.348)
Changed Number Kids 0-15	-0.249 (0.371)	-0.270 (0.374)	0.324 (0.668)	-0.037 (0.678)
Fired or Made Redundant	1.355* (0.728)	1.365* (0.735)	-0.601 (1.479)	-1.241 (1.495)
Partner Fired or Made Redundant		-0.022 (0.729)		0.770 (1.129)
Change Whether Partner Retired		0.112 (0.748)		-0.706 (3.378)
Health Status Improved	-0.086 (0.569)	-0.110 (0.571)	0.216 (0.831)	0.316 (0.838)
Health Status Declined	-0.642 (0.461)	-0.616 (0.462)	-1.932** (0.755)	-1.760** (0.754)
SCQ Miss in Either Rnd	-0.644 (0.767)	-0.798 (0.805)	1.090 (1.063)	1.218 (1.109)
Partner Health Status Improved		0.982 (0.654)		-3.011*** (1.119)
Partner Health Status Declined		0.159 (0.516)		-1.900** (0.952)
Partner SCQ Miss in Either Rnd		0.586 (0.710)		-1.367 (1.183)
Change Real Hse Income / 10000	-0.056** (0.026)	-0.057** (0.026)	-0.011 (0.058)	-0.013 (0.058)
Change MSR or Remoteness	0.266 (0.621)	0.321 (0.624)	-0.172 (1.067)	0.047 (1.063)
Constant	1.443*** (0.294)	1.140*** (0.381)	1.834*** (0.481)	2.583*** (0.632)
R-Squared	0.02	0.03	0.06	0.10
Mean Dependent Variable (standard deviation)		1.35 (4.52)		1.44 (4.81)
Observations		546		246

Note: The regression is restricted to individuals reporting a numeric expected retirement age in both rounds.

* significant at 10%; ** significant at 5%; *** significant at 1%

Appedix Table 1: Characteristics of Individuals in the Regression Sample

	In Four Main Subgroups		Non-Classified, but with covariates	
	Mean	Std. Dev.	Mean	Std. Dev.
Age	48.4	(2.7)	48.4	(2.7)
Female	35.0%	(0.48)	33.7%	(0.48)
Ed = Year 11 or less	23.5%	(0.42)	24.2%	(0.43)
Ed = Year 12	7.9%	(0.27)	11.6%	(0.32)
Ed = Certificate	41.7%	(0.49)	44.2%	(0.50)
Ed = Tertiary	26.9%	(0.44)	20.0%	(0.40)
OZ Born	73.1%	(0.44)	77.9%	(0.42)
Foreign / English Born	14.5%	(0.35)	10.5%	(0.31)
Foreign / Non-Eng Born	12.5%	(0.33)	11.6%	(0.32)
Married	80.9%	(0.39)	82.1%	(0.39)
Married/Cohab 0-9 Yrs	31.1%	(0.46)	32.6%	(0.47)
Married/Cohab 10-25 Yrs	36.4%	(0.48)	41.1%	(0.49)
Married/Cohab 25+ Yrs	32.5%	(0.47)	26.3%	(0.44)
Number Kids 0-15	0.70	(1.01)	0.84	(1.11)
Number Kids 16-20	0.41	(0.67)	0.35	(0.58)
Number Adults 21+	2.03	(0.64)	1.98	(0.56)
Not Employed	8.4%	(0.28)	12.6%	(0.33)
Wage / Salary	81.8%	(0.39)	63.2%	(0.48)
Self-Employed/Employer	14.4%	(0.35)	24.2%	(0.43)
Excellent Health	13.6%	(0.34)	16.8%	(0.38)
Good Health	37.3%	(0.48)	28.4%	(0.45)
Average Health	34.5%	(0.48)	42.1%	(0.50)
Fair / Poor Health	10.9%	(0.31)	7.4%	(0.26)
Missing Health / SCQ	3.7%	(0.19)	5.3%	(0.22)
Real Hse Income / 10000	8.44	(6.56)	7.16	(4.44)
Real Hse Net Worth / 10000	26.66	(47.15)	35.28	(70.46)
Real Hse Home Equity / 10000	22.05	(23.26)	21.25	(23.26)
Real Pension Income / 10000	9.16	(13.23)	6.47	(10.80)
DNK Pension Amount	7.5%	(0.26)	8.4%	(0.28)
Observations	1,147		95	

Note: All variables are defined in the paper.