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ABSTRACT

The Determinants of Retirement Planning within Couples in Ireland[1]

Financial literacy is higher for men than for women and high financial literacy has been linked to higher wealth and better retirement planning. However, relatively little is known about the decision making process for retirement savings within couples and about how the gap or interaction between the financial literacy of members of a couple influences their preparation for retirement. This paper investigates the relationship between the financial literacy of members of pre-retirement couples and their level of wealth and financial stress using TILDA data for Ireland. We find that joint financial literacy is more highly correlated with household wealth, particularly real estate, than the financial literacy of individual members of the couple but that, where individual level financial literacy is associated with wealth, it is the financial literacy of the man in the couple which plays the most important role.

JEL Classification: J32, E21, D14

Keywords: retirement, financial literacy, wealth, couples

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1. Introduction

Financial literacy is higher for men than for women and higher financial literacy has been linked to increased preparedness for retirement through better planning and higher savings (Lusardi and Mitchell 2007; van Rooij, Lusardi et al. 2012). The bulk of the analysis in this literature has been at the individual level and has shown that individuals who are more financially literate plan more for retirement and have more adequate incomes in retirement. However, less attention has been paid to the within-couple dynamic in retirement planning. This aspect of planning for retirement is an important factor. In Ireland, over two-thirds of 50-65 year-olds are in couple households. Equally, the bulk of the literature shows that couples pool a large proportion of their income and there is no reason to expect this to differ in retirement (Watson 2013). Indeed, standard analyses of income distribution are generally carried out at the household level. The assumption is that income is fully shared or 'pooled' so that all household members enjoy the same standard of living. The question, therefore, of who decides on retirement savings, which are likely to be mostly pooled, is an important one. Is financial preparedness for retirement determined by member of the couple who is most financially literate or is it systematically determined by one or the other of the couple members, regardless of who is more financially literate? Furthermore, for optimal retirement planning, should both members of a couple be financially literate or is it enough to have one member financially literate.

This paper addresses these questions for Ireland, a country with a strong cultural history of traditional gender divisions between work and caring roles and a country in which most wealth is held in the form of housing. Recent figures from the Household Finance and Consumption Survey show that, in 2013, almost 90% of household wealth in Ireland was held in the form of real estate, one of the highest figures among the European countries surveyed (HFCN 2016).

In this paper, we investigate to what extent the financial literacy of each member of a couple matters for financial adequacy in retirement for couples in Ireland. Additionally, we add to the broader literature on this topic by investigating how much the *interaction* between the financial literacy of the two members of a couple matters. Does a large gap in financial literacy between members of a couple affect their financial standing? Alternatively, do couples in which both have high financial literacy fare better than those in which just one has high financial literacy? The contribution of this paper will be to go some way to answering

these questions by focusing on the relationship between joint financial literacy and financial preparedness for retirement among couples in Ireland.

The rest of this paper is structured as follows. Section 2 reviews the international literature related to financial literacy and retirement planning. Section 3 describes the data used to investigate this relationship for couples in Ireland. Section 4 sets out the model used while Section 5 presents the results. Section 6 concludes with a discussion.

2. Related literature

This question of who determines retirement savings within couples is especially salient as there is a sizable literature which shows that men are more financially literate than women. Bucher-Koenen, Lusardi et al. (2017) study this question in a cross-country perspective and show that in standardised tests of financial literacy, compared to men, women answer fewer questions correctly and are also more likely to respond "I don't know". They also find that the gender gap in financial literacy emerges early in life and is, therefore, not purely driven by a cohort effect associated with traditional gender roles among older women. Looking at financial literacy differences within couples, they find that even when women are the financial decision-maker, they display lower levels of financial literacy than men.

Fonseca, Mullen et al. (2012), using data from the American Life Panel attempt to tease out mechanisms behind the gender gap in financial literacy. They find that men gain more financial literacy from education than women do while marriage tends to increase the financial literacy of women. They suggest that this may be due to the division of labour for financial decisions within couples. Smith, McArdle et al. (2010) also suggest that the gender gap in financial literacy may be due to the division of labour within couples. Using data on married couples from the Health and Retirement Survey (HRS) in the US, they assess the association between household wealth and the cognitive abilities of both spouses, including numeracy.[2] They find that numeracy, as measured by answers to three simple mathematical questions, is by far the most predictive of wealth among all cognitive variables available in

[2] The cognitive abilities they examine are: memory (immediate and delayed recall); mental status (from the telephone interview of cognitive status, which incorporates both crystallised and fluid intelligence); and numeracy.

the HRS. They also find that financial wealth is higher when the financial respondent has the higher numeracy score.

McArdle, Smith et al. (2011), using data from the HRS, also use the spousal information in HRS to assess whether cognitive abilities of both spouses predict wealth holdings, and whether cognition of one spouse is more important than the other for financial outcomes. Similar to Smith, McArdle et al. (2010), they show that all measures of wealth are more strongly related with the numeracy of the financial respondent, rather than the non-financial respondent. Banks and Oldfield (2007) also show that the association between numeracy and wealth is stronger when numeracy reflects the maximum of the values for the two individuals in a benefit unit.

Overall, the literature points to women having lower financial literacy than men and this is true, on average, even for those who designate themselves the financial respondent (i.e., the person whom the couple agrees knows more about their financial situation). The accumulation of financial literacy seems to differ between men and women with men gaining more financial literacy from education than women. The financial literacy of the financial respondent has been found to be positively associated with the level of wealth the couple holds with the financial literacy of the other member of the couple mattering less. To date, however, no research has addressed how the *interaction* between the financial literacy scores of members of a couple influences their wealth or retirement planning.

3. Data

3.1 The Irish Longitudinal Study on Ageing

We use data from the Irish Longitudinal Study on Ageing (TILDA) in our study. TILDA is a nationally representative sample of community-dwelling individuals aged 50 years and over, and their spouses or partners of any age (individuals living in nursing homes or other institutions were excluded). The study is harmonised with other international longitudinal studies of ageing, such as the US Health and Retirement Study (HRS), the Survey of Health, Ageing and Retirement in Europe (SHARE) and the English Longitudinal Study on Ageing (ELSA). Data collection for the first wave took place over the period October 2009 to February 2011, when 8,504 individuals were sampled, of which 8,175 were aged 50+ years (Barrett, Savva et al. 2011).[3] Further waves have been conducted every two years, with

[3] Further information on the sample design is available in Whelan and Savva (2013)

fieldwork for wave 5 ongoing in 2018. The dataset contains a rich set of variables on the demographic, health and socio-economic circumstances of older people in Ireland. Data are collected primarily via computer-aided personal interviewing (CAPI). As data on numeracy/financial literacy is available in wave 3 of TILDA only, the analysis in this paper focuses on wave 3, which was conducted between March 2014 and October 2015 (McGarrigle, Donohue et al. 2017).

We further restrict the sample by focusing on couple[4] households with at least one respondent who is employed or self-employed and with no member already retired, i.e., those couples who may be considered 'pre-retired'. This results in a final sample size of 774 individuals or 387 couples. A further sub-group of couple households is defined in which both respondents are employed or self-employed (n=416 individuals). This latter group is arguably more representative of the "modern" pre-retirement couple and will make up a larger share of pre-retirement households in the future due to the rising trend in female labour force participation.

The key outcome variables examined in this paper are levels of wealth, by component, and financial stress. Wealth data in TILDA are captured as part of the CAPI and are collected only from the person termed the "financial respondent". The financial respondent is nominated by members of the household as the individual with the best knowledge of their financial circumstances and who is comfortable answering on behalf of the household.

Net housing wealth is derived by subtracting mortgage debt from the value of the principal residence. Net financial wealth is derived by aggregating data on savings, stocks/shares, investment property, other assets and cars, and subtracting non-mortgage debt. Financial and housing wealth are summed to generate total net household wealth.

A major problem with wealth data is the level of non-response. To reduce non-response to the income and wealth questions, the technique of 'unfolding brackets' was used in the survey. Those who refused or claimed not to know the relevant amount in relation to an income or wealth question were asked a follow-up question which gave the option of providing a banded answer rather than a point estimate. O'Sullivan, Nolan et al. (2014) show that the use of unfolding brackets was relatively successful in reducing non-response, especially for

[4] While we include couple households with other household members (e.g., dependent children), a sizeable number of couple households are excluded due to the non-participation of one partner (approximately 1,800).

housing wealth. We use the mid-points of the unfolding brackets as the values for those who did not answer the original questions.

Financial stress at the household level is proxied using an individual level question from the TILDA survey: “shortage of money stops me from doing the things I want to do”. Responses are “always”, “sometimes”, “rarely” and “never”. Within a couple household, if at least one member of the couple responds “always” to this questions, we denote the household as experiencing financial stress.

Wave 3 of TILDA also included a module on “numeracy/financial literacy”. This module contained three questions:

1. If the chance of getting a disease is 10 percent, how many people out of 1,000 would be expected to get the disease?
2. If 5 people all have the winning numbers in the lottery and the prize is two million euro, how much will each of them get?

If the respondent answered Question 1 and/or Question 2 correctly, they are also asked Question 3:

3. Let’s say you have €200 in a savings account. The account earns 10 percent interest per year. How much would you have in the account at the end of two years?

We construct a measure of financial literacy from the responses to these questions which indicates the number of correct responses, ranging from 0 to 3.

3.2 Descriptive statistics

Table 1 presents statistics relating to the characteristics of each household member which will later be used in the regression model. The full sample consists of all pre-retirement households (Column 1). A further sub-sample is also presented in Column 2 which considers only two-earner pre-retirement households.

Total wealth is lower in all pre-retirement households (€603,143) than in two-earner pre-retirement households (€745,897). Wealth is split relatively evenly between own housing wealth and other financial wealth. Within other financial wealth, savings; stocks; investment property and other assets (such as own businesses and farms) are the major components. Cars make up a small proportion of overall wealth. Debt is composed of mortgages on own

housing and other debt with other debt making up a larger proportion of the overall debt figure.

Financial stress at the household level is proxied using an individual level question from the TILDA survey: "shortage of money stops me from doing the things I want to do". Within a couple household, if at least one member of the couple responds "always" to this questions, we denote the household as experiencing financial stress. By this measure, around 20% of pre-retirement households experience financial stress and this figure is slightly higher for all pre-retirement households (23%) than for two-earner pre-retirement households (17%).

Table 1 also shows the geographic distribution of households in our sample. Just over one-fifth are located in Dublin, another one-fifth are located in another urban area and the remaining three-fifths are located in a rural area. Household weekly income is higher for two-earner pre-retirement households (€1,458) compared to all pre-retirement households (€1,159).[5] Most pre-retirement households in our sample have no young children living with them. Within pre-retirement couples, the financial respondent is, on average, more educated than the non-financial respondent. The financial respondent is also slightly more likely to be employed than the non-financial respondent. The "Big 5" personality traits of the financial respondent and the non-financial respondent are standardised using the z-score to aid comparability.[6] There are small differences between the average personality traits of financial respondents compared to non-financial respondents. Financial respondents score slightly higher for extraversion, openness to experience, agreeableness and conscientiousness while non-financial respondents score slightly higher on neuroticism.

Table 2 shows average statistics on how financial literacy compares between members of couples in our main sample. In line with the international literature on the topic, men have higher financial literacy than women, scoring an average of 1.96 out of 3, compared to 1.60 for women. A similar but less pronounced pattern is observed when comparing the financial literacy scores of financial respondents (1.86) to non-financial respondents (1.70). The

[5] Information on detailed income components is collected from every respondent, and summed over all sources and respondents in the household to generate a total household income variable. Income comprises labour and asset income, pension income (including state pension income) and other state benefit income.

[6] In TILDA personality traits are measured using the NEO-FFI-3 which yields scores for each of the Big 5 personality dimensions: Neutoticism, Extraversion, Openness to Experience, Agreeableness and Conscientiousness. The z-score can be positive or negative, with a positive value indicating the score is above the mean and a negative score indicating it is below the mean. Positive and negative scores also reveal the number of standard deviations that the score is either above or below the mean.. Further information on the measurement and stability of these traits can be found in Costa and McCrae (2004).

average absolute difference between the financial literacy score of the financial respondent and the non-financial respondent is 0.76.

The gender pattern to financial literacy occurs even within the sample of financial respondents. Male financial respondents score an average of 2.07 while female financial respondents score an average of 1.66. Male non-financial respondents score 1.85 which is lower than male financial respondents but still higher than female financial respondents. Female non-financial respondents have the lowest financial literacy score at 1.54.

The financial literacy of members of two earner households is, on average, higher than that of the sample of one and two-earner couples combined households. However, the gender and financial respondent patterns of financial literacy are very similar for both groups.

Despite this gender pattern to financial literacy, women are equally as likely as men in our sample of pre-retirement couples to be designated the financial respondent to the survey and, therefore, the individual with the most knowledge of the family's finances.

Table 3 shows the detail of the financial literacy score for each member of the couples in our main sample. Men in couples are less likely to answer no questions correctly and more likely to answer all questions correctly compared to women in couples. This pattern is repeated when we compare financial respondents to non-financial respondents.[7]

3.3 Financial literacy scores, wealth and financial stress

Figure 1 shows how total wealth and its two broad components (own housing and other financial wealth) vary by the financial literacy score of the financial respondent and the non-financial respondent. A detailed breakdown of the level of each component of wealth by financial literacy score of each member of the couple is also shown in Table 3. Figure 1 shows a clear positive correlation with higher levels of financial literacy of both the financial respondent and the non-financial respondent associated with higher levels of total wealth. This correlation is particularly strong for own housing wealth.

[7] Data not presented here show that nearly two-thirds of those answering Q3 incorrectly actually answered as if the question referred to a simple interest calculation.

Figure 1: Wealth levels by financial literacy score in pre-retirement couples

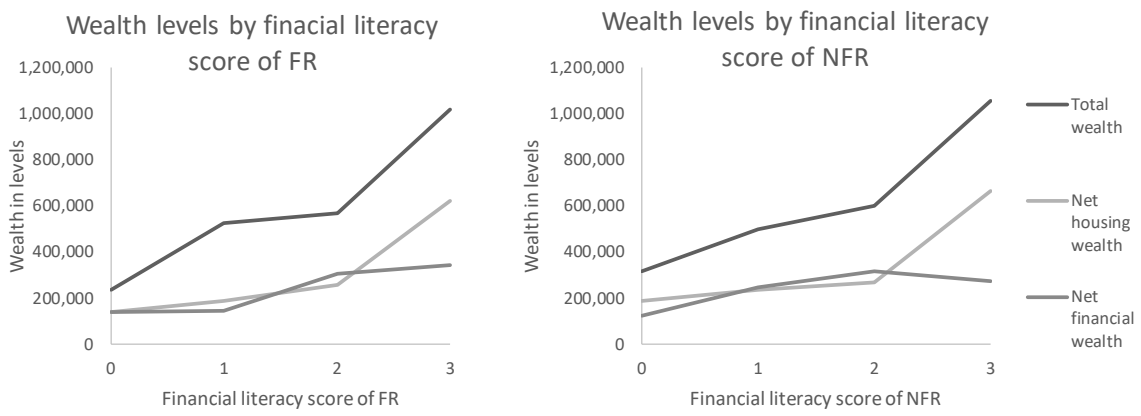

Figure 2: Financial stress by financial literacy score in pre-retirement couples

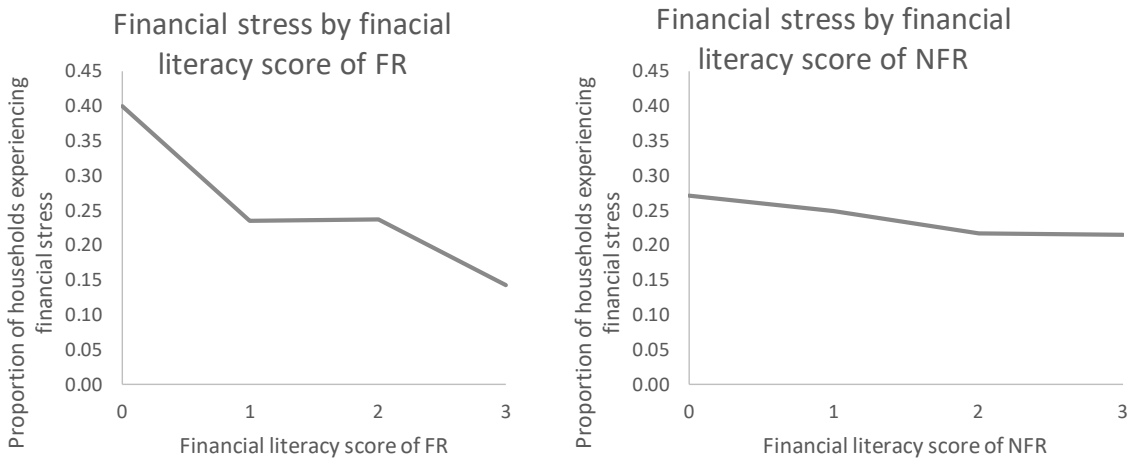

Figure 2 shows how financial stress varies with the financial literacy of the financial respondent and the non-financial respondent. Here, a slightly different picture emerges. The financial literacy of the financial respondent is strongly negatively correlated with the level of financial stress experienced by the household. However, there is a much weaker negative correlation between the financial literacy of the non-financial respondent and the financial stress of the household.

4 Model

In line with most of the literature on this topic, we use an Ordinary Least Squares (OLS) model for our analysis. However, financial literacy is not exogenously determined and, as such, the OLS model may suffer from reverse causality if financial success increases financial literacy. Some authors have dealt with this by using an Instrumental Variables (IV) model to identify the causal effect of financial literacy on wealth or retirement planning (Christiansen, Joensen et al. (2008)[8]; Lusardi and Mitchell (2011)[9], Behrman, Mitchell et al. (2012)[10] and van Rooij, Lusardi et al. (2012)). Unfortunately, we were unable to find a robust instrument for financial literacy to use in the current study but we note the Lusardi, Mitchell et al. (2014) finding that IV analyses generally show that OLS estimates tend to underestimate the true effect of financial literacy on financial outcomes.

We begin by fitting an OLS model of the outcome variables of interest: household financial stress and the inverse hyperbolic sine of household wealth. Because wealth variables tend to be highly skewed, we use the inverse hyperbolic sine of wealth, rather than its level to limit the influence of outliers and to retain zero and negative values in the regression models (Mosca and McCrory 2016). We control for the financial literacy of both members of a couple; an interaction between the financial literacy of the financial respondent and a male dummy; the interaction between the financial literacy of each member of the couple and the absolute difference between the financial literacy of each member of the couple.

We also include a range of other control variables which have been shown to be associated with wealth accumulation, both at the individual level for each member of the couple and at the household level.

The educational attainment of each spouse is accounted for by the age at which the respondent left full-time education. We also control for whether the respondent is currently in employment (either as an employee or self-employed) or 'other'. The 'other' category includes individuals who are permanently sick and disabled, unemployed, home makers and

[8] The authors employ the opening of a new university (Aalborg University in 1974) as an instrument for financial literacy.

[9] The authors use state-level variation in mandated high school financial education as an instrument for financial literacy and find that the IV measure of the impact of financial literacy on retirement planning in the US is large (larger than the OLS effect) and significant.

[10] The authors isolate the causal effects of financial literacy and schooling on wealth accumulation in Chile using a number of instruments, some of which are age-related (e.g., exposure to a 1981 school voucher reform). Financial literacy and schooling attainment are both strongly positively associated with wealth outcomes in OLS models, while the IV estimates reveal a larger role for financial literacy.

in education or training. We include a household-level variable for geographic location to control for regional differences in house prices. Three dummy variables are used according to whether the couple lives in Dublin, in an urban area outside Dublin or in a rural area. In a sensitivity analysis in Section 5.3, we also include the big-5 personality traits of each member of the couple, which have been shown to determine wealth levels (Mosca and McCrory 2016).

Denoting Y the outcome of interest, $f_{fr}$and f_{nfr} the financial literacy scores of men and women respectively, X_{fr} and X_{nfr} the other individual level variables mentioned above, $male$ a dummy variable indicating that the financial respondent is male and X_{hh} the household level variables, the model can be written:

$$Y = \alpha + \beta_{fr}f_{fr} + \beta_{nfr}f_{nfr} + \beta_{fr\_male}f_{fr} * male + \gamma f_{fr}f_{nfr} + \mu|f_{fr} - f_{nfr}| + \theta_{fr}X_{nfr} + \theta_{fr}X_{nfr} + \delta X_{hh} \quad (1)$$

5 Model results

5.1 All pre-retirement couples

Table 5 shows results from the OLS model described in Section 4 for the full sample of pre-retirement couples. Results for four different outcome variables at the household level are shown: Total Net Wealth, Housing Wealth (own home net of mortgages), Other Financial Wealth and Financial Stress. Column (1) in each model shows coefficients from a model without the interaction between the financial literacy of the financial respondent and a dummy variable for a male financial respondent. Both models in column (1) and (2) include covariates such as geographic region, age, education and employment status of the spouses

Results for total wealth and its two broad components (housing and other financial wealth) indicate no statistically significant relationship between wealth levels and the financial literacy of the financial respondent or the non-financial respondent. Equally, there is no association between the gender of the financial respondent and the level of wealth. However, we do note a positive relationship between the interaction of the financial literacy of both spouses and the level of total wealth which indicates that spouses who both have high (low) financial literacy have higher (lower) Total Wealth. This association becomes statistically insignificant when we include the interaction between the financial literacy of the financial respondent and a male financial respondent (Column (2)).

Table 6 shows the determinants of the components of other Financial Wealth (Savings, Stocks, Investment Property, Other Assets, Cars and Other Debt) and also shows results for Mortgage Debt. Among these components of wealth, the only statistically significant association with financial literacy that we note is for investment property. Our model indicates that the joint financial literacy of spouses is significantly associated with the level of investment property. Both the absolute distance between the financial literacy scores of spouses and the product of the financial literacy scores of spouses are positively correlated with the level of investment property. This indicates that spouses who both have high (low) financial literacy have higher (lower) levels of investment property. It also indicates that if one spouse has significantly higher financial literacy than the other, this is also positively correlated with the level of investment property held by the household. Our interpretation of these results is that joint financial literacy is positively correlated with investment property holdings but that, in the absence of joint financial literacy, a very high level of financial literacy for one spouse has the same effect.

5.2 Two-earner pre-retirement couples

We move next to investigating the determinants of wealth and financial stress for a subsample of the pre-retirement population – two-earner couples. This sub-sample is arguably more representative of the future population of pre-retired couples as female labour force participation has been trending upwards for the last number of decades. Given that labour force participation and the relative income of spouses has also been linked to bargaining power within couples (Browning, Bourguignon et al. 1994; Lundberg, Pollak et al. 1997; Cantillon and Nolan 2001), we might also expect a higher correlation between joint financial literacy and wealth within this this sub-sample.

Looking firstly at total wealth, our most flexible specification in column 2 shows a positive correlation between the interaction of the financial literacy scores of the spouses and total wealth. This relationship becomes weaker at very high levels of financial literacy, evidenced by the accompanying negative coefficients on the individual financial literacy scores of the financial respondent and the non-financial respondent. There is also a positive relationship between the financial literacy of male financial respondents and total wealth. Taken together, these results indicate that joint financial literacy is associated with higher wealth and that the financial literacy of male financial respondents is more important in this relationship than that of other types of couple member.

Splitting total wealth into housing wealth and other financial wealth, it is clear that most of the relationship between total wealth and financial literacy comes from the determinants of housing wealth. In this wealth category, the interaction between the financial literacy scores of spouses is positively associated with the level of housing wealth and this effect is reduced for very high levels of financial literacy of either the financial or non-financial respondent. Similar to the case of total wealth, the financial literacy of male financial respondents is more predictive of housing wealth than that of other types of couple member.

There is a negative correlation between the joint financial literacy of members of a couple and financial stress. This becomes marginally statistically insignificant when we increase the flexibility of the model in column (2). However, a negative relationship between the financial literacy of male financial respondents and financial stress remains in this model indicating that the financial literacy of male financial respondents influences household levels of financial stress more than that of female financial respondents.

While the sign and magnitude of the coefficients on the determinants of financial wealth are similar to those on the determinants of housing and total wealth, they are statistically insignificant so we refrain from drawing conclusions regarding the determinants of financial wealth as a whole. However, models of the components of financial wealth are shown in Table 8 for the sub-sample of two-earner pre-retirement couples. As with the whole sample of pre-retirement couples, the strongest correlations are found between financial literacy and investment property. Both the absolute difference between the financial literacy scores of spouses and the interaction between the financial literacy scores of spouses are positively associated with the level of investment property, even when controlling for other household characteristics.

5.3 Sensitivity analysis

We first investigate the sensitivity of our results to the addition of more control variables. Mosca & McCrory (2016) show that wealth levels of Irish households are correlated with the personality traits of household members. Therefore, we specify one further model which also controls for the big 5 personality traits of both the financial respondent and the non-financial respondent in case these are correlated with financial literacy. Our results (available from authors on request) show that including personality traits does not alter the estimated effect of joint financial literacy on wealth levels or financial stress.

Secondly, we investigate the sensitivity of our results to the definition of the outcome variables. In our main analysis, wealth levels are transformed using the inverse hyperbolic sine. In this check, we also adjust all of these measures of wealth to account for the size and composition of the household using the using the national equivalence scale.[11] Our main results are very robust to this change in outcome variable (full results available from authors on request).

6 Discussion

This paper documented the gender pattern in financial literacy among pre-retired couples using TILDA data for the over-50 population. In line with international findings, men in couples in Ireland tend to be more financially literate than women in couples. However, this finding does not necessarily translate into more male financial decision makers. Within couples, the financial respondent designated by the couple as the most knowledgeable about the family finances is as likely to be the man as the woman (191 husbands vs. 196 wives in our sample), indicating that the most financially literate member of the couple is not always designated as the financial respondent. Although financial respondents tend to have higher financial literacy scores than non-financial respondents, the financial respondent is not systematically the individual with the highest financial literacy score. Perhaps surprisingly, we find male non-financial respondents to even have higher financial literacy, on average, than female financial respondents. This makes the question of who the financial respondent is and how financially literate they are especially salient to the determination of wealth and retirement adequacy among older couples.

Looking at raw correlations, we document a positive relationship between the financial literacy of both members of a couple and their wealth holdings, particularly housing wealth. We also document a negative relationship between the financial literacy of both members of a couple and the financial stress experienced by the household. However, this latter relationship is stronger for the financial literacy of the financial respondent than for the financial literacy of the non-financial respondent.

[11] The national equivalence scale assigns a value of 1 to the first adult in a household, 0.66 to all other adults aged 14+ and 0.33 to all children under the age of 14.
See https://www.cso.ie/en/methods/surveybackgroundnotes/surveyonincomeandlivingconditions/ [last accessed 21 September 2018].

Using regression models for wealth and financial stress which control for the financial literacy of both members of the couple as well measures of their interaction, we find a strong positive relationship between joint financial literacy and housing wealth – both homeownership and investment real estate. This relationship is especially strong for two-earner pre-retirement couples who are likely to have more equal bargaining power over household decisions than one-earner pre-retirement couples. We find some evidence of a negative correlation between the joint financial literacy of members of a couple and financial stress. There is also evidence that the financial literacy of male financial respondents is particularly negatively associated with financial stress.

A limitation of our analysis is that we document associations rather than any causal relationship between financial literacy and wealth or financial stress. This is due to the small sample size available for our study and the absence of a suitable Instrumental Variable. However, the international literature which has documented both associations and causal relationships has generally concluded that the associations between financial literacy and wealth or retirement planning represent a lower bound of the magnitude of the causal relationship between the same variables.

The wider literature on the topic indicates that financial literacy is strongly associated with wealth and retirement planning. Our research adds to this literature by investigating the mechanisms behind this relationship within couple households. We find that joint financial literacy is more strongly related to levels of wealth (particularly housing wealth) among pre-retirement couples in Ireland than the individual financial literacy scores of spouses. This indicates that, within couples, decisions about wealth holdings are at least partly joint ones. To ensure good retirement planning, it is therefore not sufficient that one member of a couple has an adequate level of financial literacy. The ideal situation would see both members of a couple with some degree of financial literacy. This poses a challenge for policy makers as there is limited evidence of the effectiveness of educational programmes designed to increase financial literacy (Entorf and Hou (2018), Lunn (2012), Fernandes, Lynch et al. (2014). Indeed, Skagerlund, Lind et al. (2018; 23) suggest that interventions to increase general numeracy, including the ability to do simple calculations, to understand ratios and percentages, and to reduce mathematics anxiety, may be more effective in raising levels of financial literacy across the population.

There is evidence in the international literature that at least part of the gender gap in financial literacy scores can be attributed to traditional gender divisions of work, caring roles and financial decision making. Other potential explanations include differences in perceived mathematical skills between men and women (Farrell, Fry et al. 2016) and early differences in financial socialisation between boys and girls (Agnew and Cameron-Agnew 2015; Agnew, Maras et al. 2018). As these divisions become more blurred due to the increasing labour force participation rates of women, a declining gender pay gap and increased parental benefits for fathers, it is likely that in the future (i) the financial literacy scores of both spouses will become more influential in investment decisions taken at the household level and ii) the gender gap in financial literacy scores will decrease. These developments are likely to have positive implications for the level of wealth held by households approaching retirement.

7 Bibliography

Agnew, S. and T. Cameron-Agnew (2015). "The influence of consumer socialisation in the home on gender differences in financial literacy." International Journal of Consumer Studies **39**(6): 630-638.

Agnew, S., P. Maras, et al. (2018). "Gender differences in financial socialization in the home—An exploratory study." International Journal of Consumer Studies **42**(3): 275-282.

Banks, J. and Z. Oldfield (2007). "Understanding Pensions: Cognitive Function, Numerical Ability and Retirement Saving." Fiscal Studies **28**(2): 143-170.

Barrett, A., G. Savva, et al. (2011). Fifty Plus in Ireland 2011. First results from the Irish Longitudinal Study on Ageing (TILDA). Dublin, The Irish Longitudinal Study on Ageing.

Behrman, J., O. Mitchell, et al. (2012). "How Financial Literacy Affects Household Wealth Accumulation." The American Economic Review **102**(3): 300-304.

Browning, M., F. Bourguignon, et al. (1994). "Incomes and Outcomes: a Structural Model of Intrahousehold Allocation." Journal of Political Economy **102**: 1067-1096.

Bucher-Koenen, T., A. Lusardi, et al. (2017). "How Financially Literate Are Women? An Overview and New Insights." Journal of Consumer Affairs **51**(2): 255-283.

Cantillon, S. and B. Nolan (2001). "Poverty Within Households: Measuring Gender Differences Using Nonmonetary Indicators." Feminist Economics **7**(1): 5-23.

Christiansen, C., J. Joensen, et al. (2008). "Are Economists More Likely to Hold Stocks?" Review of Finance **12**(3): 465-496.

Costa, P. T. and R. R. McCrae (2004). "A contemplated revision of the NEO five factor inventory." Personality and Individual Differences **36**(3): 587-596.

Entorf, H. and J. Hou (2018). Financial Education for the Disadvantaged? A Review. IZA Discussion Paper No. 11515. Bonn, IZA.

Farrell, L., T. Fry, et al. (2016). "The significance of financial self-efficacy in explaining women's personal finance behaviour." Journal of Economic Psychology **54**: 85-99.

Fernandes, D., J. Lynch, et al. (2014). "Financial Literacy, Financial Education, and Downstream Financial Behaviors." Management Science **60**(8): 1861-1883.

Fonseca, R., K. Mullen, et al. (2012). "What Explains the Gender Gap in Financial Literacy? The Role of Household Decision Making." Journal of Consumer Affairs **46**(1): 90-106.

HFCN (2016) The Household Finance and Consumption Survey: results from the second wave. Statistics Paper Series

Lundberg, S. J., R. A. Pollak, et al. (1997). "Do Husbands and Wives Pool Their Resources? Evidence from the United Kingdom Child Benefit." The Journal of Human Resources **32**(3): 463-480.

Lunn, P. (2012). Can Policy Improve Our Financial Decision-Making? ESRI Renewal Series Paper No. 8. Dublin, Economic and Social Research Institute.

Lusardi, A. and O. Mitchell (2007). "Baby Boomer retirement security: The roles of planning, financial literacy, and housing wealth." Journal of Monetary Economics **54**(1): 205-224.

Lusardi, A. and O. Mitchell (2011). "Financial literacy and retirement planning in the United States." Journal of Pension Economics and Finance **10**(4): 509-525.

Lusardi, A., O. Mitchell, et al. (2014). "Financial literacy and financial sophistication in the older population." Journal of Pension Economics and Finance **13**(4): 347-366.

McArdle, J., J. Smith, et al. (2011). Cognition and Economic Outcomes in the Health and Retirement Survey. Explorations in the Economics of Ageing. D. Wise. Chicago, University of Chicago Press.

McGarrigle, C., O. Donohue, et al. (2017). Health and Wellbeing: Active Ageing for Older Adults in Ireland. Evidence from The Irish Longitudinal Study on Ageing. Dublin, The Irish Longitudinal Study on Ageing.

Mosca, I. and C. McCrory (2016). "Personality and wealth accumulation among older couples: Do dispositional characteristics pay dividends?" Journal of Economic Psychology **56**: 1-19.

O'Sullivan, V., B. Nolan, et al. (2014). "Income and Wealth in The Irish Longitudinal Study on Ageing." 2014 **45**(3): 20.

Skagerlund, K., T. Lind, et al. (2018). "Financial literacy and the role of numeracy–How individuals' attitude and affinity with numbers influence financial literacy." Journal of Behavioral and Experimental Economics **74**: 18-25.

Smith, J., J. McArdle, et al. (2010). "Financial Decision Making and Cognition in a Family Context." The Economic Journal **120**(548): F363-F380.

van Rooij, M., A. Lusardi, et al. (2012). "Financial Literacy, Retirement Planning and Household Wealth." The Economic Journal **122**(560): 449-478.

Watson, D. M., B.; Cantillon, S. (2013). Implications of income pooling and household decision-making for poverty and deprivation: an analysis of the SILC 2010 Special Module for Ireland. D. o. S. Protection. Dublin.

Whelan, B. J. and G. M. Savva (2013). "Design and methodology of the Irish Longitudinal Study on Ageing." Journal of the American Geriatrics Society.

8 Tables

Table 1. Descriptive statistics

	All pre-retirement households			Two-earner pre-retirement households		
	N	Mean	S.D.	N	Mean	S.D.
Wealth						
Total wealth	275	603,143	1,074,827	147	745,897	1,357,661
Net housing wealth	344	301,989	775,297	187	370,812	1,025,657
Net financial wealth	294	275,005	539,690	158	331,955	623,870
Savings	326	43,746	114,759	173	51,158	132,649
Stocks	337	39,638	122,627	182	52,607	149,451
Investment Property	381	49,240	184,895	204	67,723	236,714
Other Assets	349	134,803	376,984	187	153,059	439,830
Cars	364	9,893	13,498	197	11,800	14,701
Other Debt	364	-24,033	115,527	197	-35,354	138,559
Mortgage	360	-12,594	41,618	194	-12,815	40,103
Financial stress	374	0.23	0.42	205	0.17	0.38
Other Household characteristics						
Dublin	387	0.20	0.40	208	0.23	0.42
Other town	387	0.20	0.40	208	0.22	0.41
Rural location	387	0.61	0.49	208	0.56	0.50
Household weekly income	294	1,159	1,040	141	1,458	1,003
No. children	387	0.02	0.18	208	0.03	0.21
Age FR	387	60.68	4.99	208	59.81	4.08
Age NFR	387	60.90	5.35	208	59.79	4.18
No secondary education FR	387	0.14	0.35	208	0.11	0.31
No secondary education NFR	387	0.20	0.40	208	0.14	0.35
Secondary education FR	387	0.49	0.50	208	0.44	0.50
Secondary education NFR	387	0.47	0.50	208	0.40	0.49
Tertiary education FR	387	0.47	0.50	208	0.40	0.49
Tertiary education NFR	387	0.33	0.47	208	0.45	0.50
Employed FR	387	0.49	0.50	208	0.68	0.47
Employed NFR	387	0.45	0.50	208	0.68	0.47
Self-employed FR	387	0.26	0.44	208	0.32	0.47
Self-employed NFR	387	0.27	0.44	208	0.32	0.47
Not working FR	387	0.26	0.44	208	0.00	0.00
Not working NFR	387	0.28	0.45	208	0.00	0.00
Neurotic FR	387	-0.06	0.99	208	-0.12	0.97
Neurotic NFR	387	-0.01	1.03	208	-0.17	0.99
Extravert FR	387	0.15	0.94	208	0.26	0.97
Extravert NFR	387	0.13	0.98	208	0.30	0.96
Open FR	387	0.05	1.02	208	0.12	1.03
Open NFR	387	-0.03	0.95	208	0.05	0.95
Agreeable FR	387	-0.01	0.97	208	0.03	0.98
Agreeable NFR	387	-0.08	1.04	208	-0.02	1.06
Conscientious FR	387	0.10	0.95	208	0.04	0.90
Conscientious NFR	387	0.06	1.03	208	0.14	1.11

Note: Calculations from TILDA wave 3. Pre-retirement households include all households with at least one member employed or self-employed and no member retired. FR (NFR) denotes the (non) financial respondent.

Table 2. Financial literacy

Male	387	1.96	0.75
Female	387	1.60	0.79
Financial respondent (FR)	387	1.86	0.75
non Financial respondent (NFR)	387	1.70	0.82
|FR-NFR|	387	0.76	0.74
Male FR	191	2.07	0.68
Male NFR	196	1.85	0.79
Female FR	196	1.66	0.75
Female NFR	191	1.54	0.83

Note: Calculations from TILDA wave 3. Sample is all pre-retirement couples. Financial literacy is calculated according to the number (0-3) of correct answers provided to questions in the financial literacy module of the survey.

Table 3. Detailed financial literacy

	Correct reponses			
	0	1	2	3
Percentage of husbands	5.17	14.47	59.69	20.67
Percentage of wives	10.34	28.17	52.45	9.04
Percentage of Financial Respondents	5.43	19.38	58.66	16.54
Percentage of non Financial Respondents	10.08	23.26	53.49	13.18

Note: Calculations from TILDA wave 3. Sample is all pre-retirement couples.

Table 4 Mean (and standard deviation) of wealth and financial stress by financial literacy score of financial respondent (FR) and non-financial respondent (NFR)

	Financial literacy FR =							
	0		1		2		3	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Total wealth	238,323	(215872)	527,101	-(19700)	572,406	(742906)	1,020,978	(1958606)
Net housing wealth	142,389	(96670)	188,188	(130102)	257,199	(422802)	622,048	(1652819)
Net financial wealth	141,963	(242080)	146,425	(450266)	305,776	(511571)	342,852	(717538)
Savings	12,825	(20839)	19,124	(26171)	43,280	(94293)	83,817	(210132)
Stocks	10,450	(25492)	10,261	(32754)	45,607	(130128)	62,969	(167293)
Investment Property	12,857	(36351)	19,878	(70023)	54,887	(222800)	75,645	(148814)
Other Assets	59,211	(177218)	70,873	(344350)	166,395	(384087)	128,983	(428178)
Cars	4,905	(7141)	10,706	(15808)	10,361	(13842)	8,810	(10198)
Other Debt	-1,811	(7052)	-3,453	(6562)	-29,696	(131474)	-34,325	(134844)
Mortgage	-5,111	(17001)	-9,343	(29147)	-10,769	(38548)	-24,552	(62003)
Financial stress	0.40	(0.50)	0.24	(0.43)	0.24	(0.43)	0.14	(0.35)

	Financial literacy NFR =							
	0		1		2		3	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Total wealth	316,945	(352491)	498,966	(589437)	602,527	(894265)	1,058,215	(2237891)
Net housing wealth	189,444	(175681)	235,871	(245347)	270,203	(505663)	668,429	(1894589)
Net financial wealth	124,399	(218811)	251,234	(449953)	316,109	(624284)	275,258	(492971)
Savings	34,779	(85818)	27,784	(45354)	48,530	(129605)	61,163	(153547)
Stocks	8,767	(22286)	39,293	(105304)	41,096	(125667)	61,346	(181186)
Investment Property	28,026	(69911)	26,667	(64369)	58,224	(239647)	68,039	(117810)
Other Assets	70,056	(131014)	128,349	(341234)	157,568	(427402)	103,238	(351108)
Cars	6,463	(9025)	8,648	(7610)	11,219	(16540)	9,517	(10206)
Other Debt	-36,134	(164905)	-9,143	(32137)	-28,072	(136005)	-25,611	(61967)
Mortgage	-11,111	(43080)	-16,126	(51065)	-8,235	(28184)	-25,348	(61680)
Financial stress	0.27	(0.45)	0.25	(0.44)	0.22	(0.41)	0.22	(0.42)

Note: Calculations from TILDA wave 3. Sample is all pre-retirement couples.Net housing wealth is derived by subtracting mortgage debt from the value of the principal residence. Net financial wealth is derived by aggregating data on savings, stocks/shares, investment property, other assets and cars, and subtracting non-mortgage debt. Financial and housing wealth are summed to generate total net household wealth. Financial stress at the household level is proxied using an individual level question from the TILDA survey: "shortage of money stops me from doing the things I want to do".

Table 5. OLS model of Total Wealth, Housing Wealth, Financial Wealth and Financial Stress for pre-retirement couples

	Total Wealth		Housing Wealth		Financial Wealth		Financial Stress	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Financial literacy FR	-1.09	-1.18	-0.82	-0.94	-0.77	-0.80	-0.01	0.00
	(0.95)	(0.95)	(0.70)	(0.71)	(1.36)	(1.37)	(0.08)	(0.08)
Financial literacy NFR	-1.07	-0.90	-0.92	-0.82	-1.77	-1.72	0.01	0.01
	(0.98)	(1.00)	(0.71)	(0.72)	(1.39)	(1.42)	(0.08)	(0.08)
|Financial literacy FR - Financial literacy NFR|	-0.59	-0.69	-0.25	-0.33	0.06	0.04	0.00	0.01
	(0.47)	(0.48)	(0.34)	(0.35)	(0.66)	(0.68)	(0.04)	(0.04)
Financial literacy FR * Financial literacy NFR	0.89 *	0.81	0.58	0.54	0.87	0.84	-0.02	-0.01
	(0.52)	(0.52)	(0.38)	(0.38)	(0.74)	(0.75)	(0.04)	(0.04)
Financial literacy FR * FR is male		0.31		0.27		0.10		-0.03
		(0.33)		(0.25)		(0.46)		(0.03)
N	*275*	*275*	*344*	*344*	*294*	*294*	*374*	*374*
R2	*0.17*	*0.17*	*0.08*	*0.08*	*0.12*	*0.12*	*0.13*	*0.13*

Note: Models use sample of all pre-retirement couples from TILDA wave 3. Net housing wealth is derived by subtracting mortgage debt from the value of the principal residence. Net financial wealth is derived by aggregating data on savings, stocks/shares, investment property, other assets and cars, and subtracting non-mortgage debt. Financial and housing wealth are summed to generate total net household wealth. Financial stress at the household level is proxied using an individual level question from the TILDA survey: "shortage of money stops me from doing the things I want to do". Models include controls for region of residence, age, education and employment status of FR and NFR. Significance levels are indicated at the 1% (***), the 5% (**) and the 10% (*) level.

Table 6. OLS model of the components of Financial Wealth and Mortgage Debt for pre-retirement couples

	Savings		Stocks		Investment Property				Other Assets	
	(1)	(2)	(1)	(2)	(1)		(2)		(1)	(2)
Financial literacy FR	0.47	0.44	-0.13	-0.29	-0.73		-0.63		0.68	0.69
	(0.74)	(0.75)	(1.05)	(1.06)	(0.94)		(0.95)		(1.05)	(1.06)
Financial literacy NFR	0.38	0.41	-1.22	-1.03	-1.31		-1.38		-0.69	-0.70
	(0.75)	(0.76)	(1.07)	(1.08)	(0.94)		(0.94)		(1.06)	(1.08)
|Financial literacy FR - Financial literacy NFR|	0.02	0.01	-0.41	-0.53	0.91	**	0.96	**	-0.12	-0.12
	(0.37)	(0.38)	(0.53)	(0.54)	(0.46)		(0.46)		(0.52)	(0.53)
Financial literacy FR * Financial literacy NFR	-0.07	-0.08	0.34	0.26	0.91	*	0.93	*	-0.09	-0.08
	(0.41)	(0.41)	(0.58)	(0.58)	(0.50)		(0.51)		(0.58)	(0.58)
Financial literacy FR * FR is male		0.06		0.42			-0.21			-0.03
		(0.27)		(0.38)			(0.33)			(0.38)
N	*326*	*326*	*337*	*337*	*381*		*381*		*349*	*349*
R2	*0.11*	*0.11*	*0.11*	*0.12*	*0.14*		*0.14*		*0.27*	*0.27*

	Cars		Mortgage		Other Debt	
	(1)	(2)	(1)	(2)	(1)	(2)
Financial literacy FR	0.22	0.14	0.94	0.92	1.08	1.23
	(0.68)	(0.69)	(0.88)	(0.90)	(0.97)	(0.98)
Financial literacy NFR	0.23	0.30	0.67	0.68	0.41	0.26
	(0.69)	(0.69)	(0.89)	(0.90)	(0.97)	(0.98)
|Financial literacy FR - Financial literacy NFR|	-0.25	-0.30	0.20	0.19	-0.33	-0.23
	(0.33)	(0.34)	(0.42)	(0.43)	(0.46)	(0.47)
Financial literacy FR * Financial literacy NFR	-0.10	-0.12	-0.29	-0.30	-0.53	-0.47
	(0.37)	(0.37)	(0.47)	(0.48)	(0.52)	(0.53)
Financial literacy FR * FR is male		0.18		0.04		-0.36
		(0.24)		(0.31)		(0.33)
N	*364*	*364*	*360*	*360*	*364*	*364*
R2	*0.07*	*0.07*	*0.08*	*0.08*	*0.09*	*0.09*

Note: Models use sample of all pre-retirement couples from TILDA wave 3. Models include controls for region of residence, age, education and employment status of FR and NFR. Significance levels are indicated at the 1% (***), the 5% (**) and the 10% (*) level.

Table 7. OLS model of Total Wealth, Housing Wealth, Financial Wealth and Financial Stress for pre-retirement two-earner couples

	Total Wealth		Housing Wealth		Financial Wealth		Financial Stress	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Financial literacy FR	-3.12	-3.30 ***	-2.87 **	-3.14 ***	-0.82	-0.89	0.15	0.19
	-(2.69)	(1.18)	(1.12)	(1.11)	(1.85)	(1.86)	(0.12)	(0.12)
Financial literacy NFR	-2.69 **	-2.05	-2.35 **	-1.96 *	-2.71	-2.53	0.14	0.12
	(1.29)	(1.27)	(1.16)	(1.16)	(1.93)	(1.97)	(0.12)	(0.12)
|Financial literacy FR - Financial literacy NFR|	-0.27	-0.59	-0.05	-0.31	0.42	0.33	-0.07	-0.05
	(0.55)	(0.55)	(0.49)	(0.49)	(0.85)	(0.87)	(0.05)	(0.05)
Financial literacy FR * Financial literacy NFR	1.77 ***	1.50 **	1.46 **	1.30 **	0.91	0.83	-0.10 *	-0.10
	(0.63)	(0.62)	(0.58)	(0.57)	(0.97)	(0.98)	(0.06)	(0.06)
Financial literacy FR * FR is male		0.95 ***		0.79 **		0.31		-0.06 *
		(0.34)		(0.32)		(0.53)		(0.03)
N	*147*	*147*	*187*	*187*	*158*	*158*	*205*	*205*
R2	*0.19*	*0.23*	*0.11*	*0.14*	*0.16*	*0.16*	*0.09*	*0.11*

Note: Models use sample of all two-earner pre-retirement couples from TILDA wave 3. Net housing wealth is derived by subtracting mortgage debt from the value of the principal residence. Net financial wealth is derived by aggregating data on savings, stocks/shares, investment property, other assets and cars, and subtracting non-mortgage debt. Financial and housing wealth are summed to generate total net household wealth. Financial stress at the household level is proxied using an individual level question from the TILDA survey: "shortage of money stops me from doing the things I want to do". Models include controls for region of residence, age, education and employment status of FR and NFR. Significance levels are indicated at the 1% (***), the 5% (**) and the 10% (*) level.

Table 8. OLS model of the components of Financial Wealth and Mortgage Debt for pre-retirement two-earner couples

	Savings		Stocks		Investment Property		Other Assets	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
Financial literacy FR	-0.19	-0.21	-0.22	-0.41	-2.18	-2.12	0.13	0.20
	(1.02)	(1.02)	(1.73)	(1.74)	(1.62)	(1.63)	(1.68)	(1.69)
Financial literacy NFR	0.56	0.62	-1.44	-1.15	-3.31 **	-3.38 **	-1.00	-1.12
	(1.06)	(1.07)	(1.80)	(1.82)	(1.64)	(1.66)	(1.73)	(1.76)
|Financial literacy FR - Financial literacy NFR|	0.79 *	0.77 *	-0.87	-1.05	1.46 **	1.50 **	-0.23	-0.16
	(0.44)	(0.45)	(0.79)	(0.80)	(0.69)	(0.70)	(0.72)	(0.74)
Financial literacy FR * Financial literacy NFR	0.12	0.09	0.26	0.14	1.64 **	1.66 **	0.07	0.12
	(0.53)	(0.54)	(0.90)	(0.91)	(0.83)	(0.84)	(0.87)	(0.88)
Financial literacy FR * FR is male		0.09		0.59		-0.15		-0.23
		(0.29)		(0.51)		(0.46)		(0.49)
N	*173*	*173*	*182*	*182*	*204*	*204*	*187*	*187*
R2	*0.14*	*0.14*	*0.10*	*0.11*	*0.18*	*0.18*	*0.25*	*0.25*

	Cars		Mortgage		Other Debt	
	(1)	(2)	(1)	(2)	(1)	(2)
Financial literacy FR	0.07	0.14	0.94	0.92	0.44	0.68
	(1.00)	(1.00)	(1.35)	(1.37)	(1.51)	(1.52)
Financial literacy NFR	0.40	0.32	-0.36	-0.33	-0.44	-0.71
	(1.02)	(1.03)	(1.41)	(1.43)	(1.54)	(1.55)
|Financial literacy FR - Financial literacy NFR|	-0.11	-0.07	0.73	0.72	-1.10	-0.94
	(0.43)	(0.44)	(0.58)	(0.59)	(0.66)	(0.67)
Financial literacy FR * Financial literacy NFR	-0.19	-0.16	-0.06	-0.07	-0.11	0.00
	(0.52)	(0.52)	(0.70)	(0.71)	(0.78)	(0.78)
Financial literacy FR * FR is male		-0.18		0.05		-0.61
		(0.29)		(0.39)		(0.43)
N	*197*	*197*	*194*	*194*	*197*	*197*
R2	*0.07*	*0.07*	*0.13*	*0.13*	*0.15*	*0.16*

Note: Models use sample of all pre-retirement couples from TILDA wave 3. Models include controls for region of residence, age, education and employment status of FR and NFR. Significance levels are indicated at the 1% (***), the 5% (**) and the 10% (*) leve