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Gender, financial literacy, and pre-retirement planning in the UK

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ABSTRACT

This study uses a two-stage logistic regression model to explore the determinants of retirement planning behaviour. A survey of 516 UK women and men of pre-state retirement age was used to establish interrelationships between gender, retirement planning and financial literacy, taking account of attitudinal and expectational variables. Findings confirm lower levels of planning amongst women but contrary to previous studies, this study reveals that financial literacy is not significantly related to planning. Furthermore, when attitudinal and expectational variables are incorporated as independent variables, gender becomes statistically insignificant as a determinant of planning.

KEYWORDS

Gender, retirement planning, financial literacy, attitudinal variables, expectational variables.

Introduction

Financial provision in old age has received attention in recent years. Concerns about the sustainability of public and private pension provision have arisen as a result of financial deficits in pension schemes. A lack of saving, coupled with an ageing demographic is generating higher pension liabilities resulting in the risk that many pensioners would not have the financial means to support themselves in old age (Gough & Sozou, 2005; Poterba, 2014). This is a

particularly pertinent problem for women. Women's experience of the transition to retirement is heterogeneous and may differ significantly from that of men (Duberley, Carmichael, & Szmigin, 2014; Kojola & Moen, 2016). Since women often have more discontinuous employment records with lower pension contributions and longer life expectancies, they are likely to face a smaller retirement income to fund their living costs over a longer retirement (Foster, Irving, Ramia, & Farnsworth, 2014; Trewin, 2010). Furthermore, gender bias has been recognised within the state (Ginn & MacIntyre, 2013) and private pension systems, particularly schemes that require the purchase of an annuity; women pay higher contributions than men to receive the same retirement income as annuities reflect projected life expectancies (Fredricks, Knijn & Maier, 2009). Further, women are less likely to work for employers offering pension schemes (Dietz, Carrozza & Ritchey, 2003). 'Gender blindness' in pension provision fails to recognise adequately the contribution women make through work outside the formal economy (Grady, 2015). The outcome of variations in life course and bias within pensions systems is such that women are more likely to face lower living standards in old age (Noone, Alpass & Stephens, 2010; Prudential, 2015). A further factor in the UK that impacts women's retirement income is the move to equalise state pension age (SPA) for men and women. Under the provisions of the *Pensions Act 1995* a phased increase in women's SPA from age 60 to 65, matching that of men, was planned to take place between 2010 and 2020. The *Pensions Act 2011* accelerated this process with women's SPA reaching 65 by 2018, with further planned increases for both sexes. Consequently, many women born during the 1950s are not eligible for the state pension (SP) as early as they anticipated and may have insufficient time to make alternative plans.

Studies have explored the differential financial outcomes of men and women in retirement with reference to retirement planning behaviour. Evidence indicates that financial outcomes in old age are significantly enhanced through retirement planning (Taylor & Doverspike, 2003;

Ameriks, Caplin & Leahy, 2002; Stawski, Hershey & Jacobs-Lawson, 2007). Better planning can reduce women's disadvantage in retirement provision. Other research identifies financial literacy as a determinant of retirement planning (for example Lusardi & Mitchell, 2007; van Rooij, Lusardi & Alessie, 2011)). Some studies find variations in both retirement planning and financial literacy between genders (Quick & Moen, 1998; Moen, Erickson, Argawal, Fields & Todd, 2000), whilst others find that these effects are either not significant or are reducing over time (Noone et al., 2010; Petkoska & Earl, 2009). The inconsistency of these findings may reflect the absence of variables that capture other key aspects of planning behaviour.

As financial literacy is a determinant of pension planning activities and pension planning leads to improved wealth and income security in older age, financial literacy is expected to be associated with these improved outcomes. Since studies indicate that women are less financially literate than men and engage less in financial planning for old age, initiatives aimed at improving women's financial literacy can be justified as socially worthwhile. However, existing studies do not incorporate variables that may affect planning behaviour; in particular, expectations and attitudes based on life history and employment patterns that are not gender-neutral. This study aims to provide insights into the importance of attitudinal and expectational variables as determinants of financial planning for retirement and, in so doing, to enhance understanding of the interrelationships between gender, retirement planning and other key variables. The study analyses the determinants of pension planning in the UK context, where there are relatively few existing studies and where SP entitlement has been subject to rapid recent changes, particularly for women, with an associated mismatch between pension expectations and outcomes.

This article is structured as follows. First, we review the literature pertaining to women's retirement provision before proceeding to examine the antecedents of retirement planning. Next, the methodological approach employed in this study is outlined. This is followed by an

analysis of the results, leading to a discussion of the implications of the study findings along with suggested future research.

Literature

Studies of financial planning for retirement in industrialised countries have indicated a lack of preparedness (Hershey & Mowen, 2000; van Dalen, 2010). For instance, Lusardi & Mitchell (2011) analysing data from the US *Health and Retirement Study* found that less than a third of respondents had developed a savings plan for retirement. There is also evidence of variability in propensity to plan for retirement across societal groups, including between genders (Aegon Center for Longevity & Retirement, 2016). A general lack of planning, alongside high levels of variability in planning behaviour, is of concern given the link between retirement planning and retirement wealth. It is therefore important to understand what factors determine individuals' level of engagement in retirement planning. These factors are examined alongside other commonly cited determinants of retirement planning.

Gender

The evidence regarding gender and retirement planning is mixed and has also evolved over time. Several studies find that men have a greater propensity to plan (Kilty & Behling, 1985; Jacobs-Lawson, Hershey & Neukam, 2004; Moen, Sweet & Swisher., 2005). More recently, Chatterjee & Zahirovic-Herbert (2010), in their survey of the uptake of financial planning services by 'baby boomers' in the US, find women are less likely than men to self-organise their retirement plans and are instead more likely to consult a financial planner.

Seeking to explain variations in general retirement planning, Moen (1996) adopts a life course perspective (as developed by Elder, 1995) to argue that differences in occupational pathways affect saving opportunities, thereby influencing the range of retirement strategies

available. Hence, women can be financially disadvantaged in retirement planning because of a greater number of disruptive events in their employment history, fewer years working and lower pay (Orel, Ford & Brock, 2004). Grace, Weaven & Ross (2010), in a study of retirement planning in Australia, find that women's approach to planning is strongly affected by the uncertain circumstances that might impede their financial position when they retire. Conversely, men generally expect more continuity in their financial position and therefore adopt an individual choice perspective, selecting rational options to maintain their lifestyle in retirement. In this sense, women's propensity to plan is bounded by the constraints of their life experience and their expectations of retirement. Quick & Moen (1998) argue that women's lack of planning reflects a perception of retirement as a life event that represents a further discontinuity amongst many others in their lives. In contrast, men see retirement as a more momentous event, and therefore take a more considered approach to retirement planning.

Other studies explore women's lack of retirement planning with reference to relationship status and social role. Drawing on social role theory, Griffin, Loe & Hesketh (2012) argue that men have been socialised into taking a more dominant role in retirement planning. Moen et al. (2005) find that women's key retirement decisions are strongly influenced by their spouse's plans. There is clearly a level of financial interdependence in relationships; however, societal trends such as higher divorce rates, more cohabitation, later marriage and more single households have implications for retirement planning and the need for women to be more independent in their financial preparation for retirement.

Some studies identify a narrowing over time between women's and men's financial planning for retirement (Noone et al., 2010; Helman, Adams, Copeland & van Derhei, 2013). This is likely to reflect both societal shifts towards more independence for women and the growing and significant role of women in the economy. Kojola & Moen (2016) find that 'boomer' women in more well paid professions responded to work and retirement planning in similar

ways to men. Importantly, van Rooij et al. (2011) find that while descriptive data indicates that women think less about retirement planning than men, gender effects are not significant in a multivariate analysis. Despite these findings, the balance of evidence suggests that differences in retirement planning behaviour persist between men and women. One final reason for this may be an observed variation in financial literacy between men and women, which is discussed below.

Financial literacy

A number of studies find that financial literacy has been shown to influence retirement planning behaviour, which consequently affects retirement wealth, and also that many people have limited understanding of key financial concepts (for example Lusardi & Mitchell, 2007, 2011; van Rooij, Lusardi & Alessie, 2012). This is of concern given that responsibility for pension provision has progressively shifted away from government, institutions and employers towards individuals, many of whom are ill equipped to plan for retirement.

A series of survey-based studies edited by Lusardi & Mitchell (2011) across eight industrialised countries affirms the importance of financial literacy as a determinant of retirement planning. The financial literacy measures in these studies test ability to deal with interest rates, inflation and risk. Higher scoring respondents are found to be significantly more likely to plan for retirement (for example Alessie et al., 2011). Similar findings are reported by Agnew, Bateman & Thorp (2013). An exception to this general finding is the New Zealand study by Crossan, Feslier & Hurnard (2011) which finds no evidence financial literacy is a determinant of financial planning for retirement, possibly reflecting the retirement income security provided by the New Zealand public pension system. The consensus findings across these country studies is that those who are middle-aged, well-educated and in employment have a higher level of financial literacy, while women are less likely to answer financial literacy questions correctly and are more likely to select the 'don't know' option (Lusardi & Mitchell,

2011). More recent studies show similar results (Agnew & Harrison, 2015; Boisclair, Lusardi & Michaud., 2017). Such findings may indicate lower levels of enthusiasm by women for learning about personal finance issues compared to men (Chen & Volpe, 2002). Fonseca, Mullen, Zamarro & Zissimopoulos. (2012), when analysing the *RAND American Life Panel*, find that men are more likely to focus on financial decisions within couples, necessitating more financial knowledge.

Qualifications

Using data from the US *Health and Retirement Study*, Kosloski, Ekerdt & DeViney (2001), find those with higher levels of education are more likely to plan for retirement. Crossan et al.'s 2011 study in New Zealand linked higher levels of education with thinking about financial planning for retirement. Achievement of a bachelor degree or higher has been found to be associated both with using a financial planner and self-planning for retirement (Chatterjee & Zahirovic-Herbert, 2010). Agnew et al. (2013) find that having a bachelors or a graduate degree increases the probability of planning by between 12-14%. Conversely, studies in Germany, Sweden and the Netherlands fail to find associations between level of education and retirement planning (Bucher-Koenen & Lusardi, 2011; Almenberg & Säve-Söderbergh, 2011; van Rooij et al., 2001; Lusardi & Alessie, 2011).

Employment status

Studies from Germany, Japan and the Netherlands find that self-employed individuals are more likely to plan for retirement (Bucher-Koenen & Lusardi, 2011; Sekita, 2011; van Rooij et al. 2011). The latter of these studies suggests that this results from the lack of cover from mandatory retirement schemes. Other studies that use employment status as a variable do not report any significant associations with retirement planning (Fornero & Monticone, 2011; Almenberg & Säve-Söderbergh, 2011).

Age

Although Bucher-Koenen & Lusardi (2011) find no significant differences in retirement planning by age, other studies indicate that older people tend to plan or think more about planning for retirement (Petkoska & Earl, 2009; Almenberg & Säve-Söderbergh, 2011; Crossan et al, 2011) as their finances tend to be more robust due to factors such as higher income and lower child care expenses (Adams & Rau, 2011). Age is also associated with increased retirement goal clarity, preparation efforts and investment awareness (Stawski et al., 2007; Hershey, Henkens & van Dalen, 2010). Griffin, Loe & Hesketh (2012) also report that those closest to retirement are more likely to plan and relate this to the closure of many defined benefit pension schemes.

Despite more planning for retirement, there is still a lack of financial preparedness amongst those closer to retirement. Findings from *Frank Templeton UK's second annual Retirement Income Strategies and Expectations (RISE)* survey revealed that in the UK over a quarter of the public have no retirement provisions and specifically, 21% of 45-54 year olds have not planned for retirement (Wealthadvisor, 2016).

Type of housing

For many, their home is a major asset and so home ownership can be an important consideration in retirement planning (Lusardi & Mitchell, 2007). Although evidence is mixed, studies by both van Rooij et al. (2011) & Sekita (2011) show that home ownership is positively associated with retirement planning. Reporting similar results, Agnew et al. (2013) suggest that this relationship results from not only a higher level of wealth but also competence in managing financial assets and liabilities which could be transferrable to a retirement planning context.

The importance of attitudinal and expectational variables

Relatively few studies consider attitudinal and expectational variables that may affect the behaviour of individuals around retirement planning. Such factors may be important influences on retirement planning. Gough & Sozou (2005) find that individuals can be clustered according to their attitudes towards pensions and retirement saving. Although cluster membership is not gender neutral, attitudes are not driven purely by gender, and both men and women are represented in each cluster.

Examples of attitudes that might influence retirement planning behaviour include those relating to government support, whereby those expecting more support may not perceive a need to plan. Governments increasingly expect citizens to take more responsibility for financial planning for old age (Kemp, Rosenthal & Denton, 2005) and attempt to modify pension savings behaviour. An example of this is the introduction of automatic enrolment in employer pension schemes in the UK. In recent years the UK SP has been increasing in real terms as a result of the 'triple lock' system whereby payments rise by a minimum of 2.5 per cent per annum or in line with earnings or prices, whichever is greater. However, it is likely that this arrangement will ultimately be unsustainable (House of Commons Work and Pensions Committee, 2016). It would be expected that independent financial planning activities are more likely where individuals are more sceptical about future government support. Whilst a qualitative study by Grace et al. (2010) reports an expectation amongst many women that government would step in to provide support if they do not have sufficient retirement funds, a recent Employee Benefit Research Institute (2016) survey indicates that married men have greater confidence regarding retirement benefits compared to married women. Expectations regarding full SP entitlement may affect planning behaviour (Orenstein, 2011). These are dependent on contributions that determine entitlement. Quick & Moen (1998) identify that those with less fragmented

participation in the labour force (more typically men) are more likely to have undertaken substantial planning for retirement.

Finally, there is evidence that subjective life expectancy informs decisions and preferences regarding when people plan to retire (Griffin, Hesketh & Loh, 2012; van Solinge & Henkens, 2009). It is therefore likely that such expectations will influence retirement planning decisions more generally. Issues such as cost of living and health care provision over a long retirement are important considerations in planning for an adequate retirement income. For instance, data from the *US Household Survey*, analysed by Spaenjers & Spira (2015) shows that those with higher subjective life expectancies held more stocks and shares. Doerr & Schulte (2012) examining the German *SAVE 2005* survey data on savings and old-age provision, identified a positive relationship between subjective life expectancy and the probability of holding supplementary private pension insurance.

In summary, whilst previous research provides important insights into the determinants of financial planning for retirement, conflicting evidence persists and the absence of potentially important attitudinal and expectational variables from much analysis limits current understanding. In the context of the increasing significance of changes in the pensions environment for women, this study seeks to gain a fuller appreciation of the role of gender in financial planning for retirement through inclusion of attitudinal and expectational variables.

Methodology

An online survey was administered through *SurveyMonkey Audience*, targeting a population who were within six years of their UK state retirement age and resident in the UK. A pilot survey of 100 responses was launched to test the functionality of the survey instrument. Based on evaluation of responses, some minor modifications were made prior to the full survey launch. For the full survey, a panel of 8,193 potential participants who met the necessary criteria were

contacted. The survey was closed once the number of respondents reached above 600. A total of 607 responses were returned, of which 516 were deemed to be valid responses.

Dependent and independent variables

The dichotomous dependent variable is determined by the response to the statement 'I have planned carefully for my financial situation in retirement'. Planners are assumed to be those who agree or strongly agree with this statement, non-planners those who disagree. The independent variables are gender, financial literacy and expectational variables. A number of control variables are also included.

Five questions relating to financial literacy were included in the questionnaire, as follows:

1. *Suppose you have £100 in a savings account earning 2% compound interest a year. After 5 years, how much in total would you have in the account? (More than £110; Exactly £110; Less than £110; Don't know)*
2. *Imagine now that the interest rate on your savings account is 1% a year and inflation is 2% a year. After one year, would the money in the account buy more than it does today, exactly the same or less than today? (More; Same; Less; Don't know)*
3. *True or false: Buying shares in a single company usually provides a safer return than an investment trust. (True; False; Don't know)*
4. *If interest rates rise, what will typically happen to bond prices? Rise, fall, stay the same or is there no relationship? (Rise; Fall; Stay the same; No relationship; Don't know)*
5. *True or false: A 15 year mortgage typically requires higher monthly payments than a 30 year mortgage for the same loan amount, but the total interest over the life of the loan will be less. (True; False; Don't know)*

These are derived from the set of financial literacy questions formulated by Lusardi & Mitchell (2011) and developed by van Rooij et al. (2012) with adjustments to reflect the UK context. Three of these questions (Questions 1, 2 and 3) test understanding of compound interest, inflation and risk/diversification. The additional two questions test the ability to make rational decisions on personal borrowing and investment. Question 4 tests understanding of a concept that is relevant to investment strategies generally and in this context, specifically relevant to pension fund choices, while Question 5 tests understanding of the cost of servicing an important long-term financial commitment. Several independent variables capture the effect of expectations and attitudes on pension planning. These are derived from responses to the following questions:

1. *To what extent do you agree with the following statement? ‘There is a lot of uncertainty about how much I will receive as a State Pension when I reach State Pension Age.’ (Strongly agree; Agree; Neither agree nor disagree; Disagree; Disagree strongly)*
2. *To what extent do you agree with the following statement? ‘The government will provide me with enough to live on when I retire.’ (Strongly agree; Agree; Neither agree nor disagree; Disagree; Disagree strongly)*
3. *Do you expect to be entitled to the full basic state pension on reaching State Pension Age based on your National Insurance¹ contributions? (Yes; No; Don’t know)*
4. *Taking into account your family health history and your own personal health, in your view, how likely is it that you will live to the following ages: 70 or older; 80 or older; 90 or older; 100 or older? (Very likely; Quite likely; Neither likely nor unlikely; Quite unlikely; Very unlikely)*

¹ In the UK, National Insurance or NI comprises mandatory payments from employees and employers to provide state financial support for people who are sick, unemployed, or retired.

It would be expected that perceived uncertainty or inadequacy around state pension provision are associated with a greater propensity to engage in pension planning activities within the individual's control. On this basis, it would be expected that agreement with Question 1, and disagreement with Questions 2 and 3, would have a positive relationship with planning.

A perception of high future life expectancy, with the associated cost of financing this longevity would also be expected to be positively related to planning. Responses were categorised on the basis of the oldest age that respondents indicated it was very likely, or quite likely, they would achieve. Further independent variables control for qualifications (Chatterjee & Zahirovic-Herbert, 2010; Agnew et al., 2013), home ownership (van Rooij et al., 2011; Sekita, 2011), relationship status (Moen et al., 2005; Mock & Cornelius, 2007), employment status (Bucher-Koenen & Lusardi, 2011; Fornero & Monticone, 2011) and age group (Petkoska & Earl, 2009; Almenberg & Säve-Söderbergh, 2011). Home ownership and relationship status are included as measures of security and personal support that may influence financial planning opportunities.

Although the survey focuses on a relatively narrow age range, we also control for age in terms of the number of years remaining before reaching SPA, on the basis that as individuals progress towards the SPA they may be more likely to engage in particular financial retirement planning activities.

Results

The characteristics of the respondents are provided in Table 1.

Table 1. Responses: Descriptive statistics

	Male (%) N = 249	Female (%) N = 267	Planner (%) N=218	Non- planner (%) N=297
Qualifications				
No qualifications	12.0	11.2	7.3	14.8
O level	22.1	25.8	13.8	31.3
A level	7.6	12.4	11.5	9.1
Vocational	22.9	18.4	22.5	19.2
Bachelor degree	24.5	24.3	32.6	18.5
PG degree	10.8	7.9	12.4	7.1
Employment status				
Retired	40.2	28.8	47.7	24.6
Not working	19.7	28.8	11.5	33.7
Self employed	11.2	8.2	9.2	10.1
Employed PT	8.4	18.0	11.9	14.5
Employed FT	20.5	16.1	19.7	17.2
Age group				
4 to 6 years before SPA	35.3	43.8	38.5	40.4
2 to 4 years before SPA	30.1	37.8	34.4	34.0
0 to 2 years before SPA	34.5	18.4	27.1	25.6
Type of housing				
Own home outright	51.8	58.1	75.2	40.1
Own with mortgage	22.5	19.5	15.6	24.9
Rent/other	25.7	22.5	9.2	35.0
Relationship status				
Married or civil partnership	68.3	61.0	68.8	61.3
Not married or civil partnership	31.7	39.0	31.2	38.7
Financial literacy				
Question 1 correct	68.7	50.6	67.4	53.5
Question 2 correct	87.1	74.9	86.7	76.4
Question 3 correct	71.5	52.4	72.0	54.2
Question 4 correct	78.7	61.8	76.1	65.7
Question 5 correct	14.1	14.2	17.4	11.8
Uncertainty of SP income				
Strongly disagree that SP income is uncertain	16.9	6.0	17.9	6.4
Disagree that SP income is uncertain	24.5	20.6	33.5	14.5
Neither agree nor disagree that SP income is uncertain	30.5	33.3	23.9	38.0
Agree that SP income is uncertain	20.1	25.5	18.3	26.3
Strongly agree that SP income is uncertain	8.0	14.6	6.4	14.8
Government will provide enough to live on				
Strongly disagree that government will provide	21.7	27.3	33.9	17.5
Disagree that government will provide	43.0	40.8	44.5	40.1

Neither agree nor disagree that government will provide	21.3	24.0	15.1	28.3
Agree that government will provide	11.2	6.7	5.5	11.4
Strongly agree that government will provide	2.8	1.1	0.9	2.7
Life expectancy variable				
Age 80 or less	22.5	21.7	16.1	26.6
Age 80-90	39.0	46.1	40.4	44.1
Age 90-100	35.3	29.6	40.8	26.3
Age 100 +	3.2	2.6	2.8	3.0
Expectation of full SP based on own NI contributions				
Expect full SP	91.6	69.7	90.4	73.1
Do not expect full SP	8.4	30.3	9.6	26.9
I have planned carefully for my financial situ. in retirement				
Yes	48.2	36.7		
No	51.8	63.3		
Gender				
Male			55.0	43.4
Female			45.0	56.6

Respondents who agreed with the statement ‘I have planned carefully for my financial situation in retirement’ were better educated than those who did not agree with the statement. Planners were more likely to be educated to degree level or above, to own their own home outright, to be already retired from their occupation or otherwise non-employed, and to answer each of the five financial literacy questions correctly. In terms of expectations, planners perceived less uncertainty about SP income and were more likely to expect a full SP based on their own National Insurance contributions (NICs). They were more likely to disagree that the government will provide enough for them to live on in retirement and to have a higher perceived life expectancy compared to non-planners.

Women were more likely to be in the younger age group with between four and six years until their SPA, and men correspondingly more likely to have between zero and two years before that age. Men were more likely to be already retired from employment and women more likely to be ‘not working’ or working part time. In terms of expectations, women’s responses indicate greater uncertainty regarding their SP income, with women less likely to expect a full SP based on their own NICs. Women were also significantly less likely to be

planners, with only 36.7% of women agreeing with the statement 'I have planned carefully for my financial situation in retirement' compared with 48.2% of men.

Chi squared analysis shows significant differences between male and female financial literacy (Questions 1, 2, 3 and 4), age group, employment status, uncertainty of SP income and expectation of a full SP, and planning. It is evident that female respondents are less financially literate. Although Question 5 was correctly answered by only a small minority of both males and females, men were more likely to answer each of the other questions correctly. In terms of overall scores, men averaged 3.20 correct responses out of the five questions, with a standard deviation of 1.24; for women the average number of correct responses was 2.54 with standard deviation of 1.40. This is consistent with a wide range of existing studies (See for instance Lusardi & Mitchell, 2011; Agnew & Harrison, 2015; Fonseca et al., 2012).

Regression analysis

Our logistic regression analysis follows a two-stage process. We firstly analyse the questionnaire responses to clarify whether findings are consistent with those of earlier studies, using planning as the dichotomous dependent variable and gender and financial literacy as independent variables, with additional control variables relating to individuals' background, education, socio-economic status, and employment status (Model 1). The anticipated finding here is that financial literacy has a positive relationship with pension planning (Lusardi & Mitchell, 2007; van Rooij et al., 2012). If women plan less than men because they have lower financial literacy, initiatives to help women improve financial knowledge and skills would be justified, since planning leads to better pension outcomes (Stawski et al., 2007; Taylor & Doverspike, 2003).

However, it is plausible that pension planning is also determined by expectations and attitudes that arise from the individual's life course (Quick & Moen, 1998) in terms of

employment and SP contribution record, with associated entitlements to income from these sources in retirement. Expectations of longevity may also be a determinant of long-term financial planning (Spaenjers & Spira, 2015; Doerr & Schulte, 2012). The situation of many women regarding paid work, consistency of NIC record and the pace of change in their SPA may well lead to differing expectations of pension income and security in comparison to men. Hence, in the second stage of the analysis (Model 2) we incorporate additional variables relating to such attitudes and expectations to examine whether the findings from the first model remain robust.

Regression results

Model 1: Examining the relationship between gender, pension planning and measures of financial literacy

The first regression analysis incorporates measures for retirement planning and gender alongside a range of financial literacy measures derived from the responses to the set of five financial literacy questions. Specifically, these are: the overall number of questions answered correctly; the binary responses to each individual question; a binary variable representing whether or not all three of the ‘Big Three’ basic financial literacy questions were answered correctly; and the total number of ‘don’t know’ responses for the set of five questions. The overall correct answer score provides a broad measure of financial literacy, while the binary responses to the separate questions indicate whether any specific questions act as strong indicators of retirement planning. Achieving correct answers to all three basic financial literacy questions can be regarded as an indicator of basic competence in the financial skills involved in planning, while the number of ‘don’t know’ responses provides an indicator of self-awareness of lack of financial literacy skills. Results are presented in Table 2 below.

Table 2. Model 1 results

Independent variable	Individual questions correct	Overall financial literacy score	All basic questions correct	Number of 'don't know' responses
	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Gender				
Female	0.608*	0.627*	0.638*	0.649*
Age group				
2 to 4 years before SPA	0.903	0.910	0.920	0.903
0 to 2 years before SPA	1.002	0.967	0.996	0.956
Qualifications				
'O' level	0.849	0.809	0.797	0.780
'A' level	1.981	1.903	1.891	1.832
Vocational	2.099	1.982	1.938	1.921
Bachelor degree	2.660*	2.570*	2.507*	2.570*
PG degree	1.889	1.699	1.648	1.708
Employment status				
Not working	0.220***	0.212***	0.216***	0.215***
Self employed	0.367**	0.366**	0.366**	0.358**
Employed part time	0.364**	0.369**	0.370**	0.378**
Employed full time	0.665	0.643	0.646	0.642
Type of housing				
Own home outright	6.764***	6.308***	6.348***	6.102***
Own with mortgage	2.309*	2.260*	2.263*	2.228*
Married/civil partnership	1.114	1.106	1.094	1.094
Financial literacy				
Question 1 correct	0.980			
Question 2 correct	1.005			
Question 3 correct	0.767			
Question 4 correct	1.142			
Question 5 correct	0.625			
Overall financial lit. score		1.107		
All basic questions correct			0.721	
Total 'Don't know' rspns.				0.852
Constant	3.041*	1.459	2.367	2.293
R ² (Cox and Snell)	0.245	0.241		0.242

Notes:

Significance levels: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

Reference group: Male, No qualifications, Retired, 4 to 6 yrs before SPA, Rent/other housing, Not married or civil partnership, Financial literacy questions 1-5 not correct.

Exp (B) = the odds ratio estimating the likelihood of planner status for every unit change in the value of the independent variable

Significance levels: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

Key findings of Model 1

Surprisingly, none of the financial literacy variables has any significance in this analysis at the 5% level. Even at the 10% level (not shown in the table), the only financial literacy measure that is significant is the total number of 'Don't know' responses which shows a negative relationship with planning. This may reflect a lower level of self-efficacy in those who are aware of their lack of financial capability. The overall lack of influence of financial literacy on planning contrasts with the general findings of the literature in this area (for example, Lusardi & Mitchell (2011), Alessie et al. (2011), Agnew et al. (2013)). It is, however consistent with the finding of Crossan et al. (2011) in New Zealand. The finding may reflect a perception of retirement income security to be provided by the UK SP system and the availability of means-tested top-up income provision where SP entitlement is inadequate. If this is the case, individuals will be less motivated to plan for their own income provision in retirement, showing less self-reliance in planning.

Considering the case where the financial literacy variable is the overall correct score, a number of variables do emerge as significant determinants of planning. Women are significantly less likely to have planned carefully for their retirement (odds ratio 0.627), as seen in a number of previous studies (see for example Moen et al., 2005; Jacobs-Lawson, Hershey & Neukam, 2004). Qualifications, home ownership and employment status are also significant. Individuals with a bachelor's degree are 2.57 times as likely to be planners, compared to those with no qualifications. This is consistent with the findings of other studies linking pension planning and educational level (for example Crossan et al., 2011). However, no significant relationship was found between having a postgraduate qualification and being a planner, possibly due to generous employer pension provision for very highly qualified individuals. Unsurprisingly, in terms of employment status, those who are already retired (from their occupation) are more likely to report being planners. Respondents who were 'not working',

self-employed, or employed part time were significantly less likely to be planners compared to those who were already retired. Lending support to the findings of Agnew et al. (2013), home ownership is found to be significantly positively related to planning, with an odds ratio of 6.31 for full home ownership and 2.26 for owning with a mortgage as compared to renting or other housing status. Age group and marital/partnership status are not significant.

The insignificance of the overall financial literacy score with regard to retirement planning, although unexpected, is robust to changes in the representation of this factor as an explanatory variable. The additional regressions in Table 2 show that the overall number of questions answered correctly, the binary responses to each individual question, and the correct answering of all three of the ‘basic’ financial literacy questions are all insignificant in the analysis, while the total number of ‘don’t know’ responses for the set of five questions is significant only at the 10% level. These additional regressions present a highly consistent picture of the significance and odds ratios of the explanatory variables and the R^2 values. Generally, it appears that financial literacy, whatever proxy is used, has very little influence on pension planning.

Model 2: Examining the relationship between gender, pension planning, measures of financial literacy and expectations

Key findings of Model 2

Here we incorporate variables to measure attitudes to life expectancy, the expectation that the government will provide enough to live on in old age, uncertainty regarding future SP income, and the expectation of a full SP based on the individual’s entitlement from their own NICs. Results are presented in Table 3 below. As in Model 1, financial literacy is not significant, and age group and marital status are also not significant.

Table 3. Model 2 results

	Individual questions correct	Overall financial literacy score	All basic questions correct	Number of 'don't know' responses
	Exp(B)	Exp(B)	Exp(B)	Exp(B)
Gender				
Female	1.47	1.424	1.39	1.396
Age group				
2 to 4 years before SPA	0.877	0.875	0.884	0.872
0 to 2 years before SPA	0.853	0.817	0.835	0.813
Qualifications				
'O' level	0.684	0.662	0.65	0.655
'A' level	1.798	1.726	1.681	1.675
Vocational	1.74	1.658	1.592	1.619
Bachelor degree	2.05	1.979	1.885	1.967
PG degree	1.064	0.973	0.921	0.971
Employment status				
Not working	0.301***	0.291***	0.295***	0.290***
Self employed	0.391**	0.392**	0.387**	0.380**
Employed part time	0.384**	0.391**	0.390**	0.395**
Employed full time	0.639	0.626	0.622	0.625
Type of housing				
Own home outright	5.287***	4.978***	4.977***	4.820***
Own with mortgage	1.574	1.55	1.539	1.517
Married/civil partnership	1.06	1.048	1.039	1.038
Financial literacy				
Question 1 correct	0.952			
Question 2 correct	1.121			
Question 3 correct	0.853			
Question 4 correct	1.095			
Question 5 correct	0.67			
Overall financial lit. score		1.063		
All basic questions correct			1.312	
Total 'Don't know' rspns.				0.893
Life expectancy (age)				
Age 80-90	1.157	1.169	1.189	1.173
Age 90-100	2.109*	2.163**	2.155**	2.200**
Age 100 +	1.45	1.438	1.443	1.437
Govt. prvd. enough to live on				
Disagree	0.742	0.723	0.724	0.71
Neither agree nor disagree	0.54	0.524	0.532	0.512
Agree	0.285**	0.270**	0.267**	0.266**
Strongly agree	0.158*	0.158*	0.167	0.149*
SP income is uncertain				
Disagree	0.88	0.84	0.825	0.823
Neither agree nor disagree	0.329**	0.323**	0.316**	0.330**
Agree	0.392*	0.383*	0.379*	0.389*
Strongly agree	0.31*	0.301*	0.305*	0.304*

Expect. full SP from NICs	2.377*	2.358*	2.342*	2.259*
Constant	0.444	0.301	0.337	0.443
R ² (Cox and Snell)	0.308	0.309	0.309	0.312

Notes:

Significance levels: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

Reference group: Male, No qualifications, Retired, 4 to 6 years before SPA, Rent/other housing, Not married or in civil partnership, financial literacy questions 1-5 not correct, Strongly disagree that state pension income uncertain, Strongly disagree that government will provide, Do not expect full SP from own NI contributions, Life expectancy less than 75 years.

Exp (B) = the odds ratio estimating the likelihood of planner status for every unit change in the value of the independent variable.

Significance levels: * $p \leq 0.05$, ** $p \leq 0.01$, *** $p \leq 0.001$.

The key finding from this analysis is that gender is no longer significant when variables that measure attitudes and expectations are included. This suggests that it is not gender per se that leads to lower levels of retirement planning. Rather, the results of this second model point towards individuals' attitudes and expectations playing an important role in driving planning behaviour. Such attitudes and expectations, which are likely to be built on various life course experiences, may be more prevalent amongst women but exist amongst both sexes. Thus, a deeper understanding of the attitudes and expectations driving planning behaviour becomes important if the objective is to increase levels of financial retirement planning amongst those approaching SPA.

The results from Model 2 show a positive relationship between life expectancy and planning, although the level of significance is not consistent across the four Model 2 runs. Where the financial literacy indicator is the overall correct score, the odds ratio shows that those who expect to live into their nineties are 2.163 times more likely to be planners, compared to those who expect to live only into their seventies. Those who expect to live longer are likely to perceive a greater need for planning. This is partly because a longer expected lifespan will require a larger total amount of finance and partly because of increasing uncertainty at longer planning horizons around future SP levels and social care provision. These results are

consistent with the higher levels of investment in financial products amongst those with higher subjective life expectancy identified by Spaenjers & Spira (2015) and Doerr & Schulte (2012).

There is a significant negative relationship between the response to ‘The Government will provide enough to live on’ and planning. Those who perceive their expected income from the SP and any additional means-tested benefits to be inadequate are more likely to have planned for their retirement. This underlines the importance of clear government policy and supporting information on SP provision in planning behaviour.

Respondents who agreed with the statement ‘I expect a full state pension, based on my own national insurance contributions’ are significantly more likely to be planners. This finding may reflect the greater probability that planners have obtained their NIC record and confirmed what their SP entitlement is likely to be, while non-planners remain uncertain about this. Of note here is that women are more likely to have incomplete pension contribution records due to interruptions to their working lives (Orel et al., 2004), and this is likely to affect their expectations regarding SP provision.

There is a significant negative relationship between agreeing with this statement ‘There is a lot of uncertainty around my SP income’ and planning. This question explores a different aspect of retirement expectations to the previous one, since there is a difference between knowing the degree of SP entitlement based on employment track record and knowing what that entitlement will ‘buy’ in terms of future income, which depends upon future government policy. Such knowledge could be considered a pre-requisite to planning and so planners are less likely to perceive uncertainty around their SP income. The result may reflect the age group of the sample and the proximity to their SPA: the respondents would be aware of the current amount of the SP and the UK ‘triple lock’ system.

Conclusion

Through employing a two-stage logistic regression analysis approach, this study has provided new insights into the debate on the role of gender in financial retirement planning. Like other studies, we find that women plan less for retirement. However, this study challenges the view emerging from earlier research that women plan less for their retirement because of their lower level of financial literacy. The findings of this study indicate that financial literacy has no impact on retirement planning. Further, when attitudinal and expectational variables are introduced as independent variables in the analysis, gender ceases to be a significant explanatory factor in relation to planning. Clearly, certain attitudes and expectations held by both sexes have an important influence on planning behaviour. The effects of factors such as discontinuous employment histories, lower pay, lower lifetime savings and pension entitlement on attitudes and expectations regarding pensions are borne out by the study findings. Attitudes towards state support for retirees and subjective life expectancy appear to play a significant role in engagement with financial planning for retirement.

The study findings have important policy implications for women. Evidence from this study suggests that commonly recommended prescriptions targeted towards enhancing financial literacy through education may have a limited impact on planning behaviour. Instead, the results support actions (by government, the financial services industry and employers) that will provide the pre-retirement population with clear information about the pension environment, including pension entitlements and policy changes. Through providing timely and accessible information, those facing important decisions relating to planning will be able to assess their options in a more informed way and with a greater level of certainty. This should support women in making better financial choices around retirement preparation. Specifically, government agencies and bodies could help with this process by:

1. Providing a state pension entitlement forecast for individuals by proactively contacting all UK residents who hold a national insurance number on an annual basis.
2. As employment based pension auto-enrolment is now in place in the UK, employers should be required to provide employees with an occupational pension forecast also on an annual basis.
3. Nudging women at certain age thresholds to contact the Pension advisory Service to seek pension advice from an appointed consultant.
4. Considering policy to enact additional second state pension entitlement for women who have caring responsibilities in addition to the existing arrangements that allow basic state pension contributions to be made by the state on behalf of carers; to help ensure that such women do not endure a subsistence level of living standard in old age.

The limitations of this study relate primarily to the target sample and study context. The research focused on individuals approaching the state retirement age, and so findings may not be applicable to younger people. The UK setting of the study is also important to note given that all national pension systems have different features and policy contexts. International comparative studies (see Lusardi, 2011) have highlighted that the results of pension planning research are likely to vary from country to country, even across broadly comparable economies. Further research adopting the same analytical approach across different countries would therefore provide important insights. In addition, qualitative research aimed at exploring the attitudes and expectations of the pre-retirement population and why they are held would help to develop more nuanced policy actions to address the persistent problem of low levels of financial planning for retirement, particularly amongst women. Alongside this there is merit in investigating how people, particularly women in this age group access information to inform

their financial retirement planning, and how their information needs might be better supported by government agencies such as in the UK, the Pension Advisory Service.

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