

Life Insurance: Decision States, Financial Literacy, and the role of personal values

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Abstract

A life insurance policy is a long-term, complicated financial contract with terms and features that many consumers find difficult to evaluate, covering an event that most do not want to contemplate. We designed and administered an online survey to collect data on consumer decision states relating to purchases of life insurance, in a setting of both choice and default arrangements. We examined personal values and personal characteristics including financial literacy as predictors of consumer decision states. Our analysis of a sample of 1,709 working Australians aged 18-54 years put 28% in a “Pre-Aware” state, 27% “Aware but not interested”, 6% “Interested but not capable,” and 38% “Capable” of deciding whether to purchase or not. Financial knowledge (literacy) is associated with being in higher decision states, as is financial experience or expertise. Attitudes and personal values are also relevant to decision states suggesting that approaches to move people towards a capable state need to account for both knowledge and underlying motivation.

Keywords: Life insurance, financial literacy, decision states, personal values

JEL Codes: G22, G53, G41, A13, D14, G10, G19

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1 Introduction

The ability to absorb financial shocks is one of the four constituents of consumer financial well-being, alongside day-to-day financial control, tracking towards financial goals and enjoying some financial freedom (CFPB 2015). Since the 18th Century, life insurance has helped households weather the loss of an income when a family member and provider dies prematurely or becomes permanently disabled. The benefits of life insurance also go beyond the affected household, extending to wider society when insured households demand less publicly-funded social support after a loss. However, a life insurance policy is a long-term, complicated financial contract with terms and features that many consumers find difficult to evaluate, covering an event that most do not want to contemplate. The combination of complicated policies, consumers' limited financial capability arising from deficient knowledge, behavioural biases and cognitive, time and energy limitations, mean that many households do not choose suitable life insurance cover (Campbell, Jackson, Madrian, & Tufano, 2011). The goal of this study is to expose the factors that influence life insurance choices, to identify vulnerable consumers, and hence direct the focus of financial regulation and education.

There is a large body of literature that establishes theory and empirical evidence relating to the determinants of life insurance demand. Our investigation shows that almost all earlier studies have overlooked an important influence on life insurance choice, that is, personal values. The theoretical framework of Yaari (1965), Fischer (1973), Campbell (1980) and Bernheim (1991) shows that people purchase life insurance to manage income uncertainty so that they can maximise the expected utility of consumption and bequests. The theoretical models predict that life insurance demand should be positively related to risk aversion, bequest intentions, household formation (having a spouse and dependents) and human capital, and negatively

related to life expectancy, time preference, net assets (including homeownership) and age.¹ A range of empirical studies confirm and extend these theoretical results by linking demographics, socioeconomic status, and psychological traits to insurance demand (see, for example, Browne and Kim, 1993; Lewis, 1989; Beck and Webb, 2003; Luciano et al., 2016; Outreville, 2014, 2015). Likewise, Lin et al. (2017) establish a positive relationship between objective financial literacy and life insurance participation and Allgood and Walstad (2016) report that both objective and subjective financial literacy are influential.

Our consideration of personal values adds to an emerging literature that examines factors beyond the expected utility paradigm (Kumar, 2019) in the purchase of financial products and services. Theoretical arguments suggest personal values have played influential roles in the development of life insurance markets but the empirical evidence of a role at an individual level is sparse. Furthermore, we analyse the evolution of demand, rather than just the purchase decision: we can isolate the varying influence of standard factors, financial literacy and personal values by breaking the life insurance decision into a sequence of consumer states, ranging from awareness to capability.

The setting for our study is Australia, which has a long-standing life insurance industry dating back to the middle of the 19th Century. However, a unique feature, since the early 1990s, is that pension (superannuation) plans automatically cover their members for life insurance (death and total and permanent disability – TPD) under group insurance arrangements. As a result, over 90% of Australian workers receive life insurance² automatically on joining a pension (superannuation) plan (ASIC, 2014) but have the discretion to adjust their coverage or opt-out. Recent analysis shows that many pension (superannuation) plan participants are unaware and/or have little understanding of the life insurance provided automatically by their

¹ Some argue that as people age, more human capital is transferred to the realised financial capital, therefore decreasing the maximum human capital that should be insured (Chen et al., 2006). However, others suggest that the demand for life insurance should be humped-shaped by age (Showers and Shotick, 1994).

² Usually without standard underwriting or a medical test.

pension (superannuation) plan and less than 5% of members opt-out (Ali et al., 2015; ANZ, 2015; ASFA, 2016; Productivity Commission, 2018).³⁴ This raises questions of suitability of coverage that matter to a large majority of Australian workers.

We approach the complex life insurance choice using the Decision States Model (DSM). The DSM does not expect all consumers to be immediately ready to make decisions, and thus categorises consumers to a level of market evolution that matches their behaviour. Using the DSM as a framework, we designed and implemented an online survey and collected data on life insurance awareness, interest, knowledge and decisions; personal values (Schwartz, 1992; Lee et al., 2019); and personal characteristics including demographics, socioeconomics, psychological traits and financial literacy.

We find that personal values of benevolence and openness to change significantly explain consumers' awareness of, and capacity for, choices of life insurance cover alongside the expected influences of standard economic factors such as responsibility for dependents, age and bequest intentions, and in addition to the influence of financial literacy and experience with financial management. We further show that respondents with these values are more likely to have made real choices about life insurance, such as checking that they have cover, or adjusting their policies.

³ The data we analyse here was collected in July/August 2017. Since that time there have been changes introduced and others proposed to the default life insurance provisions in Australia. The Treasury Laws Amendment (Protecting Your Superannuation Package) Act 2019 now prevents superannuation funds from providing default coverage where the account has not received contributions for 16-months, and therefore deemed "inactive". The Treasury Laws Amendment (Putting Members' Interests First) Bill 2019 proposed to no longer require superannuation funds to provide default death, total and permanent disability and income protection cover to members under age 25, to those with balances under \$6,000, or for inactive accounts, unless the member opts in. The Bill lapsed, however, with an election and hasn't been re-introduced.

⁴ The life insurance industry, aware of concerns with default life insurance (with opt-out), consumer understanding (MetLife & FSC, 2014; Zurich, 2014; ICA, 2015) and the associated claims process (ISA & AIST, 2016; ASIC, 2016a,b), established the Insurance in Superannuation Working Group to identify and develop industry-wide responses, including a Life Insurance Code of Practice (FSC, 2017; ISWG, 2017a,b).

The paper is set out as follows: Section 2 provides a background to the DSM, personal values and defaults. Section 3 reports summary statistics for the sample and section 4 reports the analysis and estimated results. The final section provides concluding comments.

2 Background – decision states, personal values and defaults

If a choice is complex, not all consumers will be immediately ready to make utility maximising decisions. The Decision States Model (DSM) provides a framework to categorise consumers into different states of market evolution to help understand their behaviour.⁵ The DSM comes from the ‘hierarchy-of-effect approaches’ or ‘consumer funnels’ of research into advertising and customer relationship management (Kireyev et al., 2016; Wijaya, 2015). It follows that the DSM allows greater refinement of the insurance purchase/participation decision beyond the simple yes/no categorisation usually considered. The simple standard choice dichotomy may not reflect the richness of issues at play when considering life insurance, including consumer awareness, interest, as well as financial and life insurance literacy, and personal values. This section provides background to the default life insurance arrangements operating in Australia, outlines the DSM and the role of personal values in the life insurance choices.

2.1 Defaults

A default simplifies complex choice situations, especially for unsophisticated consumers, nudging people in a desired direction (Keane & Thorp, 2016; Thaler & Sunstein, 1975). Consumers can stick with defaults because of status quo bias, if they judge that the effort needed to opt-out is too costly (Choi et al., 2005b). Or, consumers can take defaults to be implicit advice (Butt, Donald, Foster, Thorp, & Warren, 2018), as conforming to the choices of others (Henrich et al., 2001), or as creating an endowment that is costly to lose (Kahneman, Knetsch, & Thaler, 1991; Samuelson & Zeckhauser, 1988; Sunstein & Thaler, 2003). The

⁵ Discussed in the context of financial services in Bateman, Louviere, and Thorp (2014).

alternative of a mandatory active decision can require higher levels of literacy, skills and effort (Choi, Laibson, Madrian, & Metrick, 2005a).

In Australia, there are two complementary distribution channels that supply life insurance cover to consumers (FSC, 2016). Consumers can purchase policies through direct retail channels, often with the help of advisors and brokers. And group insurance is offered, by default, in retirement saving plans to ensure a minimum level of cover irrespective of a consumers' engagement or capability.

Default life and permanent disability cover offered by pension plans (superannuation funds) is set by the fund trustees and employers, usually with reference to basic demographics, including age, gender, occupation rating and income, and the size of the plan. Most funds offer level premiums with the amount insured decreasing with age (Rice Warner, 2016b). Plan participants have the discretion to amend or opt-out of the default although standard underwriting or other restrictions might apply. The objective of this type of default life insurance is to provide “a safety net to members who are least likely to give consideration to their insurance needs” and can be unsuitable. Rice Warner (2014, p. 7) argue that the average family, especially families with young children, are at the risk of being underinsured if relying on default life cover, whereas, young single plan participants without children are likely to be over-insured in terms of life while underinsured for total and permanent disability cover.

Although plan participants have the freedom to adjust or cancel out the default life cover, most stay with what is given by their funds. The Australian regulators estimate that group insurance covers over 90% of working Australians (ASIC, 2014, p. 49) and suggests less than 5% members opt-out (ASFA 2016). Default insurance saves government spending on social security costs of around AUD\$403 million annually (Rice Warner, 2014) and is delivering good value to many plan participants. Statistics from APRA (2016) illustrates that 81% of premiums collected have been paid in claims during the period from 2011 to 2016. Group

insurance is generally cheaper than comparable retail cover (ASFA, 2016; Rice Warner, 2016b) especially for some high-risk populations. However, several government reports find that disclosure and communications about default life insurance are inadequate and inappropriate. People's low level of financial literacy, especially about superannuation and life insurance, and the prevalence of poor-quality advice, could probably worsen the situation. All these factors might lead to poor member and market outcomes.

Many Australian retirement plan participants do not make active choices about their retirement savings (Productivity Commission, 2018), so it is natural to question participants' awareness of, and engagement with, default life insurance. However, participants' experience of life insurance is an area that is under-researched. Industry studies report that a large proportion of members are unaware that they have life insurance cover, so it is likely that the proportion of members who are actively engaged in decision making would be much lower than those who say they are aware of their life insurance. A range of data sources confirm low levels of active choice. For example, Zurich's (2014) study shows that about 80% of surveyed Australians never think about the level and type of life insurance that may meet their own needs. In addition, many participants are paying for insurance in duplicate or inactive retirement savings accounts (Rice Warner 2016a). While default life cover provides a safety net for many Australians, unsuitable cover, redundant premiums and duplicate policies are undesirable side-effects. The limitations of defaults are exposed in financial products such as life insurance, where "one size" does not fit all, and informed, active decisions can greatly improve outcomes.

Australia's default life insurance arrangements co-exist with voluntary life insurance. In the context of the current study this raises the question as to whether progression through the decision states for life insurance purchase differs between consumers with default and/or voluntary cover.

2.2 Decision states in the demand for life insurance

The DSM (Figure 1) demonstrates how people move through a series of states from Pre-Aware, to Aware, to Interested, to Capable, where they are able to choose whether and if so when to make a purchase decision.

<insert Figure 1 about here>

In the purchase of life insurance, people are typically initially unaware of specific life insurance products or the entire category. Subsequently, they may become aware through advertising, marketing materials or information disclosure. People stay in the aware state until they find that the product offered is of interest - that is, the product could be useful to satisfy their needs. For life insurance products this could occur when they understand the potential risk of death or disability to human capital and have beneficiaries to protect from financial hardship should an unfortunate event happen (Zelizer, 1978) and/or through social pressure (Williams, 1966). Interest then motivates potential consumers to learn more about life insurance policies and their features and how they could benefit from life insurance cover.

Life insurance decisions are far from simple. Consumers in the interested state may face constraints and barriers that prevent them from making capable decisions, such as skill deficits, affordability, opinions from peers, and lack of accessible and understandable information resources. As a result, if people consider themselves as incapable of taking advantage of life insurance products, they will avoid making purchase decisions and instead delay a purchase or reject the product. Capable consumers come to the final state to make a choice. At this point, they must choose decision timing – now, later or never.

Previous research has shown that the speed and probability with which consumers progress through each state depends on their personal traits, market-related factors and informational factors, such as their socioeconomic and demographic features. In addition, the nature of the product and how it is offered to consumers, information sources and how information is

dispersed (Bateman et al., 2014) are important to progression through states. We extend this set of factors to include personal values.

2.3 Role of personal values in financial decision making

Kumar (2019) notes a recent extension in the behavioural finance literature of papers examining non-wealth factors beyond the traditional expected utility theory paradigm, for example, the role of altruism in socially responsible investments (Brodback, Guenster, and Mezger, 2019). Consistent with this, we study the role of personal values in preferences for life insurance. Personal values are motivational life-goals that transcend situations (Schwartz, 1992) and are expected to relate to value-expressive attitudes and behaviours in a systematic manner. The theory of basic human values (Schwartz, 1992) proposed ten basic values organised around a circular continuum, based on the motivations that underlie them, later extended to 19 values (Schwartz, et al., 2012; Schwartz, 2016) and then to 20 refined values (Lee, et al., 2019) as summarised in Figure 2. The values that are adjacent, for example security and tradition, are compatible with each other, whereas those opposite, for example power and universalism, are not compatible. In the case of adjacent values, pursuing one assists attaining another whereas for those opposite, pursuing one interferes with another (Lee, et al., 2019). Figure 2 also summarises how the ten basic values and 19/20 refined values collapse into four higher order values that lie on two bipolar dimensions. The first dimension contrasts self-enhancement with self-transcendence and the second contrasts openness-to-change with conservation. Self-enhancement highlights values related to self-interest through control of people and/or resources whereas self-transcendence emphasizes concern for the welfare of others. Openness-to-change emphasizes autonomy and novelty whereas conservation emphasizes preservation of the *status quo*, conformity, and security.

<insert Figure 2 about here>

While it “might be flattering to think of values as a fundamental characteristic of human beings” (Verplanken and Holland, 2002, p.434) “we do not always live up to them” (Verplanken and Holland, 2002, p.445). Professing a particular way of behaving or acting as desirable and perceiving this as central to our self-concept does not mean these professed values “influence behavior by default. Rather, both activation and the centrality of a value to the self constitute necessary elements for value-guided behavior” (Verplanken and Holland, 2002, p.445). Verplanken and Holland (2002) argue that activation may arise when the values are the primary focus of attention or when the self is activated. In the former case, when thinking about the consequences of death, for example, values associated with considering how those left behind are impacted (e.g. benevolence) by your death or those associated with questions of how to live life (e.g. stimulation) may be expected to be activated. In the latter case it is the attention to the self which may activate values (e.g. security) which are central to the individual.

2.4 The role of personal values in insurance choices

A small number of papers have considered the role of values for financial products and services, including life insurance. One of the earliest is Zelizer (1978) who argued for the role of shared cultural values in the evolution of the life insurance market in the US where the reluctance to purchase life insurance was in part because “putting death on the market offended a system of values that upheld the sanctity of human life and its incommensurability” (Zelizer, 1978, p.594). Pollock (in press) use the life insurance market in China in the first half of the 19th century as an illustration of the role of shared cultural values in the (lack of) development of a life insurance market.

Nepomuceno and Porto (2010) investigate the role of personal values in the purchase of several banking products, including life insurance, using a Brazilian version of the Schwartz Value Survey drawing a sample of Brazilian bank employees familiar with the products. They hypothesise that benevolence and conformity, aligning with the higher order dimensions of

self-transcendence and conservation respectively, would both positively predict attitudes to life insurance. The argument for conformity was based on expected social pressure from close family. Their results support a significant relationship for conservation but not self-transcendence, and that this relationship is weaker if the consumer has had a negative experience with the product, that is, a problem or disappointment with the product.

We build on Nepomuceno and Porto (2010) in several ways. First, by eliciting personal values using the refined best-worst scaling approach of Lee et al. (2019), discussed further in the following section. Second, we consider the role of personal values in life insurance decision states rather than simply attitudes to life insurance. Third, we consider the role of personal values while additionally controlling for financial literacy.

2.5 Personal values and insurance choices - hypotheses

People who purchase life insurance 1) pay a premium; 2) that entitles their beneficiaries to a contingent payout; 3) that directly benefits others, i.e. not the insured, usually those who depend on the insured (e.g. partner, children). We expect those with a relative orientation towards Self-Transcendence to be more willing to sacrifice current consumption for the future benefit of others whereas those more orientated towards Self-Enhancement will be less willing to buy a product that reduces their current consumption. In terms of decision states, we propose that consumers with a higher Self-Transcendence relative to Self-Enhancement will be less likely to be Pre-Aware and more likely to advance to higher decision states.

Consistent with Nepomuceno and Porto (2010), we expect people who have a higher relative Conservation score to be in higher decision states, more specifically to be in the Capable state, having already purchased insurance. Whereas Nepomuceno and Porto (2010) argue this is due to conformity and social norms, we emphasise the importance of security, where individuals who have a higher rating of security will be more interested in life insurance for the sense of security it provides themselves to know that beneficiaries enjoy more financial security from

the insurance policy payout. We expect those with a relative orientation to Openness to Change to be less likely to be in the Pre-Aware state and more likely to be in a higher state though it is unclear which higher state specifically as it is not clear whether those with this orientation would be more or less inclined to take up insurance.

3 Survey design

3.1 Sample

We collected data as part of a larger “Values Project” which examined value expressive behaviours. This project administered a common survey to 6,500 respondents drawn from Pureprofile, an Australian online panel provider consisting of over 600,000 Australians. The common survey collected personal values and demographics. A subsequent shorter survey module focused on life insurance was administered to 2,658 respondents aged 18-54 years old.⁶

3.2 Survey design

The life insurance module included three broad components which were designed to capture information on: default and choice life insurance; membership of decision states in the context of the DSM; and demographics not asked in the common survey.

Default and choice life insurance: We started by asking participants whether and how many superannuation accounts they had (Q1). This question allowed us to identify members of superannuation funds and provided information about the prevalence of potential duplicate life insurance. Next, we asked all superannuation member participants whether they were current members of their employer selected fund and the name of their main superannuation fund (Q2-Q3). The option ‘do not know’ was available for those questions as a signal of lack of knowledge or disengagement. We then asked participants whether they had

⁶ To see the broader Values Project and to see the questions asked for values see <http://www.thevaluesproject.com/about/>

life insurance through any of their superannuation accounts (Q4). This question identified awareness of default cover, as distinct from actual life insurance cover. (Some participants who were unaware of default cover also answer ‘no’.) The next question asked those who reported that they have life insurance in their superannuation whether they have ever made adjustment to their coverage, and, if yes, to specify the adjustment (increase, decrease or cancel). All participants then answered questions about whether they held life insurance outside of superannuation accounts (Q5).

Questions to elicit decision state membership: Questions (Q6-Q9) enabled classification of all participants into four mutually exclusive decision states according to their own assessment of their awareness (or unawareness) (Q6), interest (Q7) and capability (Q8) of life insurance using a self-assessed life insurance literacy questions. For capable consumers, their decision timing was collected (Q9) – already chosen, choose now, choose later, choose never.

Demographics and personal characteristics: Apart from basic demographics retrieved from the main survey, we also collected data on personal socioeconomic traits and attitudes that might help determine respondents’ demand for insurance. Table 1 summarises the additional variables that were constructed from the data collected either in the main survey module or insurance module.

Demographics included gender, age, relationship status, and number of dependents which included both children and adults that rely on the participants for financial support. An indicator for having a degree and work status was also included. Socioeconomic features included assets (financial, investment, home) and liabilities (investment loan, mortgage).

The attitudes collected included risk tolerance (Jacobs-Lawson, Hershey, 2005), intention to leave bequests⁷, future time perspective (Jacobs-Lawson, Hershey, 2005), and satisfaction with health.

Personal Values: The larger survey collected data on personal values and additional demographics. We estimated personal values using the Schwartz Refined Values Best Worst Survey (Lee et al., 2016) which asks respondents to select the most and the least important items measuring the refined values from 21 sets of five value items derived from a balanced incomplete block experimental design. Each value appears the same number of times (5) in a block for ranking as best or worst, and each pair of value items appears together once. We calculate each respondent's score for a value by counting the number of times the respondent choice that value item as most important and deducting the number of times he/she chose the item as least important, then dividing by five, the number of item appearances. Every respondent then had a score for each value ranging from -1 to 1 with a mid-point of zero where scores above zero showed the respondent thought the value was more important and scores below zero indicated less importance. We then computed scores for each of the two bipolar dimensions by: (1) reducing the larger set of refined values by averaging the items measuring each of the 10 basic values; (2) averaging the basic values scores that underlie each of the four higher order values; (3) taking the Self-Enhancement score from the Self-Transcendence score; and (4) taking the Conservation score from the Openness to Change score. We calculated Self-Transcendence (ST) as the average of scores for Benevolence and Universalism; Self-Enhancement (SE) as the average of Achievement and Power; Openness

⁷ The benchmark amount \$20,000 in the bequest motive question (Q16) is the median value of inheritance for the years of 2002 and 2003 Household, Income and Labour Dynamics in Australia (HILDA) Survey (Melbourne Institute, 2003). Because the inheritance distribution is highly positively skewed, that is there are a big number of low bequests and a small number of high bequests, so that the median value is more appropriate than the average to gauge intentions to leave a bequest.

to Change (OC) as the average of scores for Self-direction, Stimulation, and Hedonism; and lastly, Conservation (CO) as the average of Security, Tradition, and Conformity.

Financial literacy: We calculated a financial literacy index using five questions drawn from Lusardi and Mitchell (2007) and van Rooij, Lusardi, and Mitchell (2011). These included a question on inflation, time value of money, mortgage interest, risk diversification, and the relationship between interest rates and bond prices. The full text of questions is included in Table 1. To construct the index, we followed the approach of von Gaudecker (2015) where we counted correct answers as one, incorrect as zero, and assigned a score equal to the probability of guessing a correct answer from the remaining available answers to a question to ‘don’t know’. As an additional measure of knowledge specific to life insurance, we asked participants what cover they thought was usually included in a standard life insurance policy. Participants could choose multiple types, but those who selected ‘don’t know’ were not allowed to select other options. Table 1 describes the full set of variables.

<insert Table 1 about here>

3.3 Estimation strategy

The premise of the DSM is that individuals progress through a series of ordered decision states, so we consider estimation strategies consistent with the model. Bauldry, Xu, and Fullerton (2018) present a typology of ordered regression models distinguished along two dimensions: 1) the approach to comparisons of response level (state) including cumulative, stage, and adjacent; and 2) the degree of constraint applied by the parallel lines assumption, which can vary from strict imposition across all explanatory variables and comparisons to a relaxation across all variables and comparisons.

Conceptualised as ordered states, the ordered logit (OL) cumulative odds model estimates the probability P of being at, or beyond, a particular decision state s : $P(y \leq s)$. To enable comparison of effects across states we explicitly model the probability (or odds) of transition

to higher decision states given a set of variables rather than the latent variable of the propensity to be in a particular state.⁸ If the ordered logit assumption of parallel lines is not supported by the data, modellers may prefer a multinomial logit regression which makes “adjacent” comparisons (Bauldry, Xu, and Fullerton, 2018) of levels/states. The multinomial logit (ML) estimates the probability of being in a state relative to an adjacent, or nominated base, state: $P(y = s|y = s + 1)$. A limitation of these approaches is that they potentially ignore the evolution of decision stages assumed by the model. For instance, in the survey, we do not ask respondents classified at an early decision state, such as Pre-Aware, subsequent questions relating to higher decision states, a structure that is inconsistent with the cumulative odds and multinomial logit models.

We can distinguish the cumulative odds and multinomial logit models from sequential logit models, continuation-ratio models, or more generally “stage” models (Buis, 2011). These models suit staged decisions where people make a series of sub-choices conditional on their previous choices. Stage models treat decisions at later states as nested in decisions at earlier states. In our case, the Decision States Model proposes four stages in consumers’ progress to a choice about life insurance consistent with three binary transitions for decreasing groups of respondents: staying Pre-Aware or advancing to Aware or higher; staying Aware or advancing to Interested or higher; staying Interested or advancing to Capable. These models estimate “a separate logistic regression for each step or decision on the sub-sample that is ‘at risk’ of making that decision” (Buis, 2011, p.2).⁹ A limitation of the stage models is that they are more

⁸ As Buis (2011) notes there is a potential scaling problem across transitions (to higher states in our model) as the dependant variable is measured on different scales across transitions. Buis (2011) suggests that “by defining the outcome of interest as the probability or odds” the scaling problem has been “defined away” consistent with Angrist and Pischke (2008) and Mood (2010).

⁹ In Stata the options to estimate these models include seqlogit, ucrlogit, and gencrm. We utilise seqlogit and ucrlogit which differ in the direction of the comparison. For example, with four ordered states seqlogit compares: 4, 3, and 2 versus 1; 4, and 3 versus 2; and 4 versus 3. The ucrlogit package compares: 2 versus 1; 3 versus 2, and 1; and 4 versus 3, 2, and 1. The advantage of seqlogit is that it also includes a means of estimating sensitivity to unobserved heterogeneity. As Bauldry, Xu, and Fullerton (2018) note, the functions employ different likelihood functions and, as noted above, the direction of comparison differ, but the results are consistent across each.

sensitive to the possible biasing influence of unobserved heterogeneity (Cameron and Heckman, 1998).

Given arguments in favour of each estimator we investigate an ordered logit, a multinomial logit, and a stage model preferring the stage model as more consistent with the DSM. In doing so we adopt the approach of Buis (2011) and directly manipulate the unobserved heterogeneity to compare the sensitivity of estimated results to the manipulation. Specifically, we consider the weighted sum of all the unobserved variables through a single variable included with mean zero and varied levels of standard deviation.

4 Results

4.1 Sample Descriptive Statistics

Table 2 presents summary statistics for the basic demographic features of our sample and the Australian population from ages 18 to 54. Our sample does not match the Australian population of similar age as we exclude respondents who are full-time students (n=197) as well as those already retired (n=46), due to their undetermined human capital. The sample has an over-representation of females and under-representation of the 18-24 years age bracket, the latter reflecting the exclusion of full-time students. The other notable difference is an over-representation of those with a Diploma, Degree or Master's Degree and corresponding underrepresentation of those with a highest qualification of secondary school or less. All regression estimations control for the above respondent characteristics.

<insert Table 2 about here>

An overview of the estimated DSM is presented in Figure 3 using the full sample of 2,407 respondents who answered the questions requiring classification in the Insurance module. Twenty-eight percent of the sample were classified as Pre-Aware and 27 percent Aware. The smallest proportion were those classified as Interested (six percent) with 39 percent classified

as Capable. Of the Capable classification 19 percent were Capable - Already Chosen, seven percent Capable – Now, nine percent Capable – Later, and four percent Capable – Never.

4.2 Regressions estimations: Aggregated decision states

We first use the four decision states as the outcome variable, where the final Capable state is an aggregation of four sub-states, and include five groups of explanatory variables: 1) Demographics (Gender, Age, Relationship Status, Number of Dependants, Degree, Work Status); 2) Financial Demographics (Financial Assets, Indicators for Investment Property and Investment Loan, Housing Status); 3) Traits (Risk Tolerance, Future Time Perspective, Financial Literacy (Index), Bequest Preference, Satisfaction with Health; and 4) Values (Relative Orientation: Self-Transcendence less Self-Enhancement and Openness to Change less Conservation).

We first estimate an ordered logit model but a Brant test rejects the assumption of proportional odds required. We next estimate a multinomial logit regression, which does not require this assumption but in turn assumes independence of irrelevant alternatives (IIA). In this case we do not reject the assumption using the Small-Hsiao test. Finally, we estimate a stage model imposing no assumption of parallel lines or requiring IIA. The average marginal effects are presented in Table 3 (Multinomial) and Table 4 (Stage)¹⁰ with the header row reporting the unconditional probability of being in each state which is helpful when interpreting the marginal effects. Table 4 also presents the odds of being in a higher state relative to the preceding state.

<insert Table 3 and Table 4 about here>

The reason the ordered logit assumption of parallel lines is too restrictive is apparent in the results. Whereas the ordered logit “fixes” a directional effect of a variable across the four

¹⁰ We use the `uclogit` (Fagerland, 2014) package in Stata which compares each state with the preceding states.

states, in many cases the effect of the variable is not monotonic at higher states. However the results of the multinomial and stage models are not materially different, and the discussion below reports marginal effects and odd ratios from the stage model.

The effects of demographic and socio-economic variables are consistent with standard theory in most instances.¹¹ Theory predicts that life insurance is more valuable to people who have dependents, and our results confirm this. We find that respondents with dependents are significantly more likely to be capable of an insurance decision. Married respondents are also more likely to have progressed through the decision states than unmarried respondents or those without partners. The results in Table 4 suggest that respondents in de facto relationships are 8.3 percentage points less likely to rate themselves as capable than those who are married, and single respondents are 8.0 percentage points less likely. The odds of an unmarried person being in the Capable state rather than Interested state are approximately two-thirds that of a married person. Respondents with financial assets were also more likely to be in higher states than those who reported have no financial assets. Holding other investment assets was not relevant, and against theoretical predictions, neither was having a mortgage. Also consistent with theory is the positive marginal effect of stronger future time perspective and bequest preference. A unit increase in future time perspective is associated with odds 1.27 times higher of being in the Interested state than Aware state and 1.16 times higher of being in the Capable state rather than Interested. The odds of being in the Capable rather than Interested state are also significantly higher for those with a bequest preference but relatively modest (1.09 times higher).

¹¹ Respondent gender, age, education (degree), and satisfaction with health are not significant. Work status is less clear. The marginal effect of being unemployed or self-employed raises the probability a consumer is aware of life insurance compared with employed consumers. This result could be related to low awareness of insurance among employees who are likely to be covered by default group insurance in their pension plans. On the other hand, employed consumers are more likely to be capable of a decision than self-employed.

We find that financial knowledge, both general and specific, is associated with being in higher decision states. Higher financial literacy is positively associated with being in each higher state though the odds are largest for Aware relative to Pre-Aware (1.38 time higher) for a unit change in the Financial Literacy index. Similarly, those who misunderstand what life insurance covers (Misunderstand Coverage), an indicator of low insurance literacy, have reduced odds of being in higher states. For example, the odds of being in the Aware state are 0.62 times that of Pre-Aware, and the odds of being in the Capable state are 0.60 times that of being in the Interested state. In addition, experience is associated with higher states: those who have life coverage (outside their coverage in superannuation) are 24 percentage points more likely to be in the Capable than earlier states, and 9 percentage point less likely to be in the Pre-Aware state than to progress.

In terms of personal values, we confirm our hypothesis that respondents with higher Self-Transcendence orientation, relative to Self-Enhancement, are less likely to be in the Pre-Aware state and more likely to be in the Capable state, consistent with a high valuation of benevolence encouraging interest in life insurance. Openness to Change less Conservation is also significant. Those more oriented towards Openness to Change are less likely to be in the Pre-Aware state and more likely to be in the Aware state. The effects are sizeable: a unit change in Self-Transcendence orientation (range -1.3 to 1.4)¹² associated with a doubling of the odds of being in the Aware state. For Openness to Change (range -1.2 to 1.5) the odds are 1.8 times higher, consistent with those scoring higher on Self-Direction acting decisively and therefore being less likely to be in the Pre-Aware state and more likely to have made a decision to learn more about life insurance. There is no corresponding significant change in being in the Interested or Capable state for those more oriented to Openness to Change but

¹² A unit change is equal to a respondent choosing a net increase of 5 self-transcendence items from 21 sets of values, either by rating more self-transcendence items as most important or more self-enhancement items as less important.

for those with higher orientation to Self-Transcendence the odds are significantly increased of being in the Capable versus Interested state (1.3 times higher). These results contrast with those of Nepomuceno and Porto (2010) who found a positive relationship for Openness to Change less Conservation but not for Self-Transcendence less Self-Enhancement in the purchase of life insurance.

In summary, knowledge and experience with the product are significant positive predictors of being in a higher decision state. Relatedly, respondents with financial assets (evidencing knowledge and experience with financial products) are more likely to be in higher states. After controlling for an extensive set of characteristics, we find that personal values are also significant predictors of advanced progress in life insurance decisions. Respondents who value Self-Transcendence over Self-Enhancement are more likely to rate themselves as Capable and less likely to have no awareness of life insurance. Those with a greater orientation to Openness to Change are less likely to be in the Pre-Aware state and more likely to be in the Aware state.

4.3 Unobserved heterogeneity

As noted in Section 3, a limitation of stage models is sensitivity to unobserved heterogeneity. Table A.2 presents estimations to assess this sensitivity for key variables from the stage model estimation. The purpose “is to find a plausible range of estimates of the causal effect and to assess how sensitive the conclusions are to changes in the assumptions” (Buis, 2011, p.3). The first row of results for each set of odds ratios are those reported in Table 4 which is the base assumption of no unobserved heterogeneity. The magnitude of unobserved heterogeneity effects considered range from 0.5 to 1.5 for the log odds ratios of passing to a higher state (or odds $e^{0.5} = 1.6$ times to $e^{1.5} = 4.5$ times higher).

The sensitivity of the estimated odds to variations in unobserved heterogeneity appears to be largest for the estimates in the Aware to Pre-Aware states. For example, when allowing for an effect of unobserved heterogeneity, the estimated effect of financial literacy changes 16

percent: in the baseline the estimated odds (1.38) are 16 percent less than when allowing for the highest unobserved heterogeneity (1.60). The analysis does not change our inferences about significance and sign, and for other state comparisons, sensitivity is lower.

4.4 Endogeneity

Any attempt to infer causality in the estimated results, notwithstanding that the estimation is cross-sectional, faces the possibility of endogeneity due to reverse causality. Specifically, in the current estimation, progression through the decision states may increase financial literacy rather than improved financial literacy leading to progression through the decision states.

Lusardi and Mitchell (2014) note that in the empirical studies that utilise instruments to account for endogeneity, estimates for the effect of financial literacy on financial behaviours are larger than estimations that do not instrument. We instrumented for financial literacy using the proportion of income earned from share dividends relative to wages or salary income for the respondent's postcode. The proportion of income received from dividend income reflects both the likelihood of participation in the stock market and the level of participation, both expected to reflect the financial sophistication. This is in the spirit of Klapper, Lusardi, and Panos (2012) who use the number of newspapers and separately universities in the respondent's region.

A one-way ANOVA shows no significant difference in the proportion of dividend income by decision state (F-stat 1.73, df 3, p-value 0.1590) which provides support for the instrument not being correlated with the decision state. On that basis, we estimated a (first-stage) regression of the financial literacy index on postcode level proportion of dividend income and supports the instrument to be “non-weak” given the F-statistic was greater than 10 (F-statistic: 10.53; Stock, Wright, and Yogo, 2002). We then included the residual from this first regression along with the financial literacy index in the main equation, following the Control Function approach (Wooldridge, 2010), with bootstrapped standard errors using 3000

replications. The results suggest endogeneity is not present as the coefficient for the residuals is not significant (p-value 0.2210).

Though this estimation suggests endogeneity is not present, we estimated a generalised structural equation model that allows for endogeneity by including financial literacy as predicted by the postcode proportion of dividend income and compared results to the multinomial logit estimated results as specified previously. As expected, the results we report in the Appendix Table A.1 are qualitatively unchanged.

4.5 Disaggregated decision states

We next estimate a “disaggregated” model where the unified Capable state is replaced with four components split out by decision time: Chosen, Now, Later, and Never. Table 5 reports the results from a stage model regression of the entire seven states, including average marginal effects for the four component states and the odds ratios for each relative to the prior state.

This estimation brings some new insights. First, age matters to decision time: older respondents are less likely to be prevaricating in the Capable Now or Capable Later states and more likely to have decided against insurance, as we expect for people moving to the end of their working lives. The component estimates confirm that unmarried respondents (single or partnered but not married) are significantly less likely to have chosen insurance compared with their married counterparts and that those who are currently not employed or self-employed less likely to have chosen already. The respondents who express a bequest preference are likely to have already chosen (odds 1.1 times higher) or to be about to choose (odds 1.15 times lower) life insurance, rather than delaying the decision.

In terms of knowledge, we find that higher financial literacy is significantly related to having chosen life insurance. The odds rise 30% (1.31 times) for a unit change in financial literacy index of having chosen life insurance over merely being interested. The same change in financial literacy also lowers the odds (0.75 times) of being in the Capable Now versus

Capable Chosen. In the light of this and the aggregated regression estimations we infer that higher financial literacy operates at several stages in the choice process. It is related to consumers development of awareness of life insurance, and also tilts them towards a purchase when they reach the capable stage. Relatedly, those who misunderstand standard policy cover have significantly lower odds (0.48 times) of moving from interest to a purchase.

In summary, the disaggregated states provide a better understanding of the role of financial literacy. Whereas higher financial literacy was weakly, and positively, associated with being Capable in the aggregated model, the disaggregation shows a positive impact for completed purchases and a negative effect on imminent but incomplete purchases.

<insert Tables 5 about here>

4.6 Superannuation account sub-sample: Default coverage

We next re-estimate the model for the subset of respondents who have superannuation accounts and are therefore likely to hold life insurance by default. Those respondents who indicated that they had coverage inside their superannuation were further asked whether they had made changes to their coverage inside super. We consolidated responses to these two questions into four categories: Don't Know (whether they had coverage); No; Yes and I have made *no* changes; and Yes and I have made a change. Table 7 reports odds-ratios from the stage model for the base model and Table 8 for the full model for respondents with superannuation accounts, and including the categorical variable showing their knowledge of their superannuation-related life insurance. Comparing the results with Tables 4 and 5, we note that this variable is informative. Specifically, people who don't know if they have insurance cover are also more likely to be at the Pre-Aware state, while respondents who know about their life cover are less likely to be at early decision states and more likely to be capable, and to have made a decision. Personal values still matter in this setting with people who value self-transcendence versus self-enhancement significantly less likely to be Pre-Aware

and more likely to be Aware, and similarly for those who value openness to change over conservation. These results reinforce the role of people's traits, personal values, and financial literacy in decision states for insurance, even where cover is the default.

<insert Table 7 and Table 8 about here>

5 Conclusion

An important facet of financial well-being is the capacity to absorb financial shocks. Life insurance is one of the oldest, and most widely used, products for protecting households against losses arising from the premature death or disablement of a provider. While conventional economic theory has long assumed that households will insure themselves against these losses when they need to, we observe that low or unsuitable life insurance cover is widespread. In Australia, where we conduct this study, many people hold default life insurance through their workplace retirement plans, but many are either unaware of their insurance cover or unsure about its suitability. This raises questions relating to what types of people are more at risk of poor insurance decisions, and how insurance choices can be presented to people in ways that help them make sound decisions.

Our collection of a large sample of online survey responses highlights the relevance of standard economic insurance factors to both awareness of and capacity for insurance choices, including responsibility for dependents or a marriage partner and owning financial assets. The results further indicate that financial literacy and financial experience are significantly associated with being in higher decision states, particularly with progressing out pre-awareness, and for shifting from interest to capability. However, having become capable, more financially literate consumers are likely to move promptly to a purchase of cover instead of prevaricating. Relatedly, expertise, or more precisely being confused about the extent of typical life cover, is associated with failing to make progress in an insurance decision.

But more intriguing is the practical relevance of personal values to engagement with, and execution of, insurance decisions. People who value benevolence (Self-Transcendence versus Self-Enhancement) are significantly more likely to find out about life insurance, and to adjust their cover, as are those more open to change. This indicates that standard methods to explain and promote life insurance cover could be modified to attract people whose values focus elsewhere.

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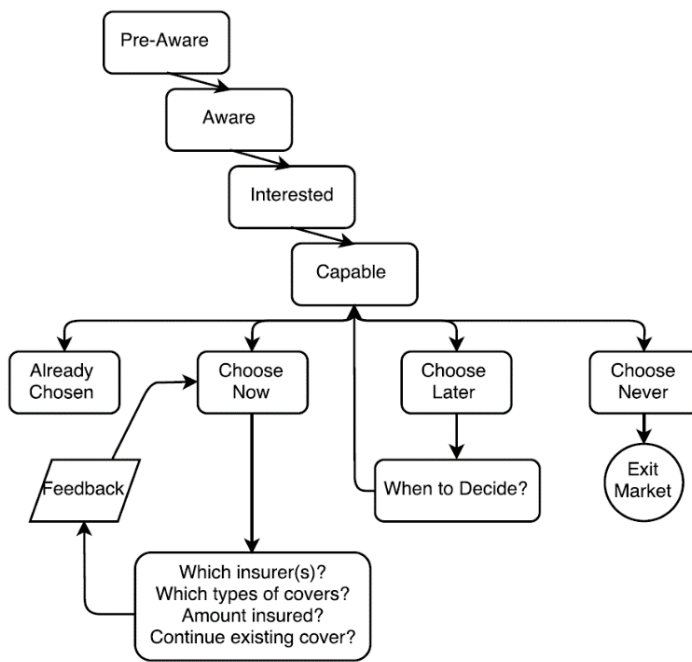
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Figure 1 Decision States Model



Source: Adapted from Bateman et al. (2014, p. 216)

Figure 2 Refined Values



Source: Lee, et al. 2019

Figure 3 Descriptive Statistics – Decision States

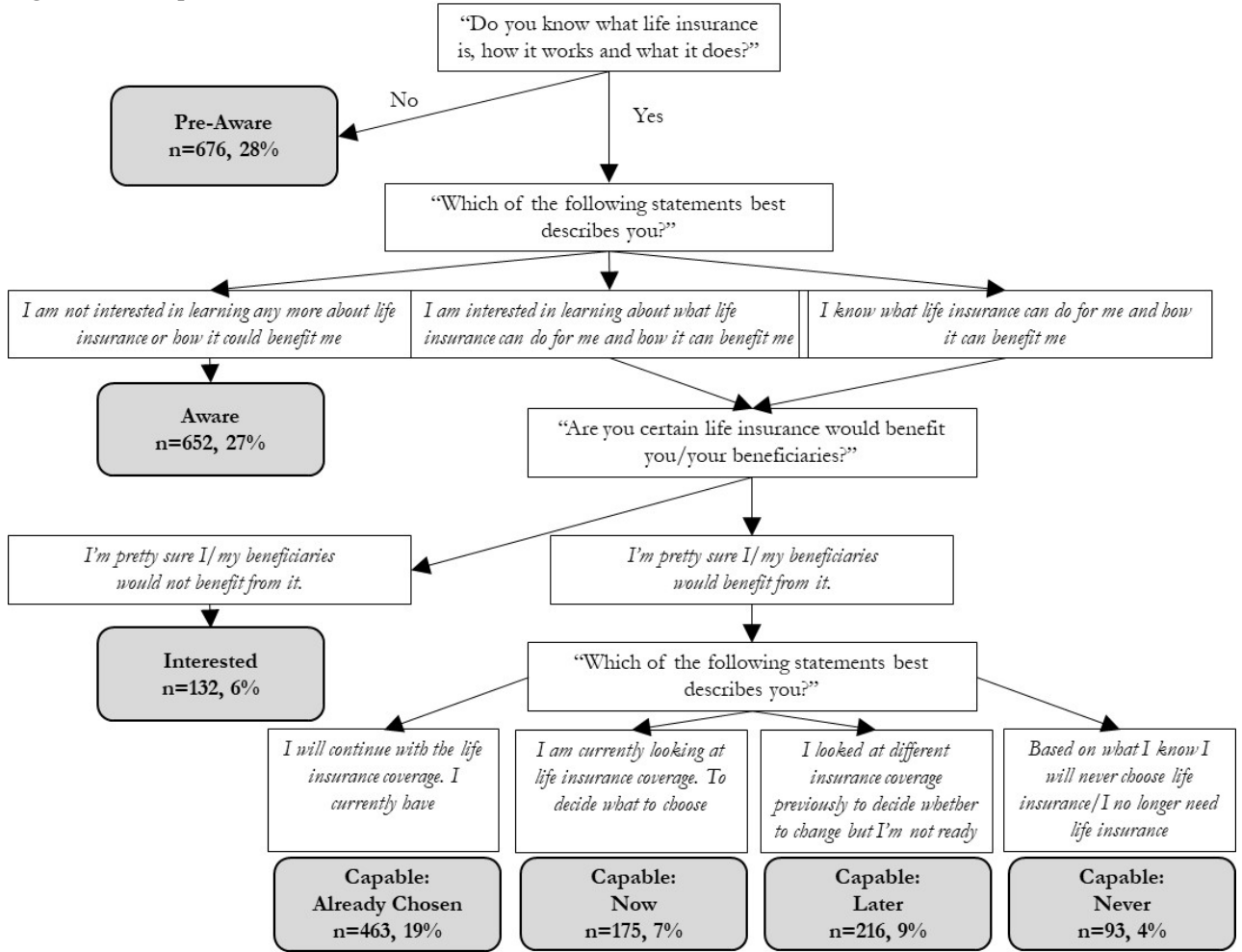


Table 1 Variable Definitions

Financial Assets	None (base); < \$50,000; ≥ \$50,000
Investment Property	Indicator of owning an investment property
Investment Loan	Indicator of investment loan (covers property & other)
Home Status	No Home Asset (base); Home, No Mortgage; Home with Mortgage
Risk tolerance	Average score of following items using scale: <i>Average score of: Completely Disagree 1, Completely Agree 7.</i> 1) I am willing to risk financial losses; 2) I prefer investments that have higher returns even though they are riskier; 3) As a rule, I would never choose the safest investment when investing; 4) The overall growth potential of an investment is more important than the risk of the investment; 5) I am very willing to make risky investments to ensure financial security in the future. (Jacobs-Lawson & Hershey, 2005)
Future Time Perspective	Average score of following items using scale: <i>Strongly Disagree 1, Strongly Agree 7</i> 1) Enjoy thinking about how I will live years from now in the future; 2) My close friends would describe me as future oriented; 3) I look forward to life in the distant future; 4) It is important to take a long-term perspective on life; 5) I like to reflect on what the future will hold.
Financial Literacy	Index: Standardised factor score for answers to following items: 1) Imagine that the interest rate on your savings account was 1 percent per year and inflation was 2 percent per year. After 1 year, how much would you be able to buy with the money in this account? (<i>More than today; Exactly the same; Less than today; Do not know</i>); 2) Assume a friend inherits \$10,000 today and his sibling inherits \$10,000 3 years from now. Who is richer because of the inheritance? (<i>My friend; His sibling; They are equally rich; Do not know</i>); A 15-year mortgage typically requires higher monthly payments than a 30-year mortgage, but the total interest paid over the life of the loan will be less: (<i>True; False; Don't Know</i>); 4) Buying shares in a single company usually provides a safer return than buying units in a managed share fund (<i>True; False; Don't Know</i>); If interest rates fall, what should happen to government bond or fixed interest security prices? (<i>Increase; Decrease; Nothing; None of the above</i>).
Bequest Preference	Response to "Including property and other valuables as well as money that you might own, what are the chances that you will leave an inheritance totalling \$20,000 or more?" (0-10 scale: where 0 means 'no chance' and 10 means 'certain')
Health Satisfaction	How satisfied are you with your health? (<i>1 Very dissatisfied, 2 Dissatisfied; 3 Neither satisfied nor dissatisfied, 4 Satisfied, 5 Very satisfied</i>)
Misunderstand Coverage	What types of cover do you think are usually included in a standard life insurance policy? (<i>If Trauma, Income Protection, or Don't know selected. Other options Life, Total and Permanent Disability</i>)
Life Insurance Coverage	Do you have life insurance coverage? (Outside Superannuation)
Openness to Change less Conservation	Average of Self-Determination, Stimulation, and Hedonism less Average of Security, Tradition, and Conformity
Self-Transcendence less Self-Enhancement	Average of Benevolence and Universalism less Average of Achievement and Power

Table 2 Basic Demographics: Sample vs Population

	Australian Popn. (18-54) %	Full Module (n=2,407) %	Regression Sample (n=1,709) %
Gender			
Male	49.54	32.53	26.97
Female	50.46	67.47	73.03
Age			
18-24 Years	18.23	7.44	6.90
25-29 Years	14.15	12.80	13.05
30-34 Years	14.48	15.75	16.38
35-39 Years	13.28	18.90	18.26
40-44 Years	13.46	16.87	16.56
45-49 Years	13.44	16.45	16.62
50-54 Years	12.95	11.80	12.23
Relationship Status			
Married	44.77	47.51	44.35
Work Status			
Employed	77.15	63.84	65.06
Unemployed	4.64	8.07	8.43
Not in Labor Force	18.21	28.09	26.51
Highest Level of Education			
Secondary School or Less (ISCED97 Level 0-3)	41.95	25.65	25.70
TAFE Certificate or Equivalent (ISCED97 Level 4)	22.52	18.02	17.76
Diploma, Bachelors or Master's Degree (ISCED97 Level 5)	35.53	56.34	56.42

	Inflation	Mortgage	Bond	Divers.	TVM	Raw Total Mean	Raw Total SD
Current Study correct	56.1%	74.6%	13.8%	48.4%	49.6%	2.45	1.40
Don't know	16.7%	16.7%	41.4%	39.6%	14.5%	1.23	1.38
FINRA (2018) correct	55%	73%	26%	43%			
Don't know	21%	17%	36%	45%			
HILDA (2018) correct	69.4%			75.6%			
Don't know	9.4%			7.9%			
Bateman et al. (2012)	78.4%			73.3%	54.9%		
Lusardi and Mitchell (2009)	87.1%			74.9%	73.8%		
Gerrans and Heaney (2019)	68.1%			70.1%	63.9%		

Table 3 Multinomial Logit DSM State

This table presents estimated results from a multinomial logit model of the DSM Model. Marginal effects are presented for each state for the basic (four state) decision state model. The unconditional probability of being in each state is included in the top row of each marginal effect column.

Unconditional prob.	Pre-Aware 0.2969	Aware 0.2804	Interested 0.0560	Capable 0.3667
Female	-0.0234 (0.0260)	-0.0175 (0.0267)	0.0058 (0.0124)	0.0350 (0.0261)
Age	-0.0006 (0.0013)	0.0014 (0.0014)	0.0001 (0.0007)	-0.0009 (0.0014)
Relationship(base: Married)				
Partnered, not married	0.0073 (0.0281)	0.0433 (0.0287)	0.0325** (0.0151)	-0.0831*** (0.0289)
Separated, Widowed	-0.0067 (0.0491)	-0.0160 (0.0455)	0.0002 (0.0203)	0.0224 (0.0514)
Single	-0.0117 (0.0301)	0.0598* (0.0322)	0.0338** (0.0170)	-0.0819** (0.0327)
Dependents	-0.0031 (0.0085)	-0.0179** (0.0089)	0.0013 (0.0047)	0.0196** (0.0088)
Degree	0.0217 (0.0240)	-0.0061 (0.0242)	-0.0054 (0.0119)	-0.0103 (0.0241)
Work (base: Employee)				
Self Employed	-0.0284 (0.0409)	0.0871** (0.0425)	0.0156 (0.0230)	-0.0743* (0.0392)
Not Employed	-0.0257 (0.0247)	0.0752*** (0.0265)	-0.0120 (0.0125)	-0.0375 (0.0269)
Financial Assets (base: None)				
< \$50,000	-0.0636*** (0.0246)	-0.0531** (0.0256)	0.0047 (0.0119)	0.1120*** (0.0256)
> \$50,000	-0.0660* (0.0354)	-0.0809** (0.0349)	0.0413* (0.0211)	0.1056*** (0.0358)
Investment Property	-0.0214 (0.0333)	0.0512 (0.0346)	-0.0011 (0.0163)	-0.0287 (0.0327)
Investment Loan	0.0469 (0.0410)	-0.0050 (0.0390)	-0.0024 (0.0189)	-0.0395 (0.0374)
Home Status (base: No Home Asset)				
Home, No Mortgage	-0.0256 (0.0366)	0.0398 (0.0375)	0.0077 (0.0202)	-0.0220 (0.0371)
Home, Mortgage	-0.0034 (0.0262)	0.0447* (0.0268)	-0.0167 (0.0131)	-0.0246 (0.0267)
Risk tolerance	0.0062 (0.0086)	-0.0087 (0.0089)	0.0025 (0.0044)	-0.0000 (0.0090)
Future Time Perspective	-0.0242** (0.0095)	-0.0133 (0.0098)	0.0085* (0.0051)	0.0290*** (0.0101)
Financial Literacy	-0.0524*** (0.0116)	0.0240* (0.0124)	0.0063 (0.0063)	0.0221* (0.0125)
Bequest Preference	-0.0151*** (0.0035)	-0.0016 (0.0037)	-0.0001 (0.0019)	0.0167*** (0.0040)
Satisfaction Health	-0.0023 (0.0111)	0.0014 (0.0112)	-0.0108* (0.0057)	0.0117 (0.0117)
Misunderstand Coverage	0.1072*** (0.0219)	0.0021 (0.0224)	-0.0051 (0.0114)	-0.1042*** (0.0231)
Have Life Coverage	-0.1028*** (0.0276)	-0.1132*** (0.0273)	-0.0196 (0.0130)	0.2357*** (0.0314)
Openness to Change less Conservation	-0.0666** (0.0295)	0.1017*** (0.0301)	-0.0033 (0.0152)	-0.0318 (0.0310)
Self-Transcendence less Self-Enhancement	-0.0971*** (0.0238)	0.0591** (0.0255)	-0.0075 (0.0124)	0.0455* (0.0258)
LL base			-1908	
LL_full			-2118	
Chi_2			419.6	
Obs			1709	

Table 4 Stage Model Decision State Marginal Effects and Odds Ratios – Base Model

This table presents estimated results from a stage model. Marginal effects (first four columns) and the odd-ratios for each state relative to the preceding states (last three columns) for the basic (four state) decision state model. The unconditional probability of being in each state is included in the top row of each marginal effect column. The ucrlogit program from Stata was used to produce the estimates for the odds which compares the odds relative to the previous categories.

Unconditional prob.	Pre-Aware	Aware	Interested	Capable	Aware Odds Ratio	Interested Odds Ratio	Capable Odds Ratio
Female	-0.0126 (0.0257)	-0.0282 (0.0264)	0.0056 (0.0126)	0.0352 (0.0259)	0.9483 (0.1605)	1.2150 (0.3307)	1.1959 (0.1607)
Age	-0.0004 (0.0013)	0.0014 (0.0014)	0.0000 (0.0007)	-0.0011 (0.0014)	1.0069 (0.0089)	0.9978 (0.0146)	0.9945 (0.0072)
Relationship(base: Married)							
Partnered, not married	0.0115 (0.0275)	0.0437 (0.0285)	0.0280* (0.0152)	-0.0832*** (0.0289)	1.1233 (0.2081)	1.5367 (0.4686)	0.6601*** (0.0963)
Separated, Widowed	-0.0093 (0.0449)	-0.0145 (0.0459)	-0.0007 (0.0211)	0.0244 (0.0517)	0.9781 (0.3219)	1.0361 (0.6046)	1.1235 (0.2748)
Single	0.0014 (0.0296)	0.0486 (0.0315)	0.0295* (0.0169)	-0.0796** (0.0321)	1.1899 (0.2388)	1.5897 (0.5279)	0.6727** (0.1106)
Dependents	-0.0014 (0.0093)	-0.0191** (0.0087)	0.0010 (0.0046)	0.0195** (0.0088)	0.9356 (0.0526)	1.0641 (0.1030)	1.1033** (0.0488)
Degree	0.0189 (0.0236)	-0.0021 (0.0243)	-0.0052 (0.0120)	-0.0116 (0.0240)	0.9192 (0.1465)	0.8720 (0.2244)	0.9430 (0.1153)
Work (base: Employee)							
Self Employed	-0.0175 (0.0401)	0.0805* (0.0428)	0.0145 (0.0225)	-0.0776** (0.0390)	1.4342 (0.3784)	1.1245 (0.4292)	0.6707* (0.1403)
Not Employed	-0.0324 (0.0246)	0.0814*** (0.0263)	-0.0101 (0.0128)	-0.0390 (0.0268)	1.5352*** (0.2515)	0.7360 (0.2179)	0.8217 (0.1117)
Financial Assets (base: None)							
< \$50,000	-0.0578** (0.0242)	-0.0610** (0.0251)	0.0053 (0.0120)	0.1135*** (0.0254)	1.0082 (0.1582)	1.3937 (0.3911)	1.7688*** (0.2296)
> \$50,000	-0.0564* (0.0341)	-0.0865** (0.0343)	0.0374* (0.0208)	0.1055*** (0.0358)	0.8978 (0.2119)	2.4400*** (0.8385)	1.7021*** (0.3007)
Investment Property	-0.0326 (0.0323)	0.0628* (0.0349)	-0.0007 (0.0165)	-0.0295 (0.0330)	1.4335 (0.3241)	0.9276 (0.3222)	0.8604 (0.1445)
Investment Loan	0.0558 (0.0398)	-0.0172 (0.0396)	0.0002 (0.0197)	-0.0388 (0.0379)	0.7548 (0.2020)	0.9278 (0.3840)	0.8199 (0.1601)
Home Status (base: No Home Asset)							
Home, No Mortgage	-0.0126 (0.0354)	0.0278 (0.0368)	0.0092 (0.0201)	-0.0243 (0.0368)	1.1724 (0.2876)	1.1271 (0.4042)	0.8842 (0.1669)
Home, Mortgage	-0.0030 (0.0264)	0.0417 (0.0268)	-0.0153 (0.0131)	-0.0234 (0.0269)	1.1844 (0.2092)	0.6718 (0.2027)	0.8885 (0.1210)
Risk tolerance	0.0057 (0.0087)	-0.0079 (0.0088)	0.0027 (0.0043)	-0.0004 (0.0090)	0.9483 (0.0540)	1.0579 (0.0959)	0.9979 (0.0452)
Future Time Perspective	-0.0241** (0.0097)	-0.0135 (0.0098)	0.0083* (0.0050)	0.0293*** (0.0101)	1.0482 (0.0663)	1.2700** (0.1359)	1.1591*** (0.0597)
Financial Literacy	-0.0555*** (0.0160)	0.0252* (0.0132)	0.0063 (0.0063)	0.0240* (0.0126)	1.3789*** (0.1100)	1.2018 (0.1579)	1.1285* (0.0712)
Misunderstand Coverage	0.1110*** (0.0214)	-0.0039 (0.0224)	-0.0034 (0.0115)	-0.1037*** (0.0230)	0.6254*** (0.0928)	0.7553 (0.1759)	0.6018*** (0.0672)
Bequest Preference	-0.0146*** (0.0039)	-0.0016 (0.0038)	-0.0004 (0.0019)	0.0166*** (0.0039)	1.0550** (0.0249)	1.0268 (0.0411)	1.0872*** (0.0221)
Satisfaction Health	-0.0048 (0.0120)	0.0026 (0.0113)	-0.0093 (0.0057)	0.0115 (0.0118)	1.0302 (0.0748)	0.8393 (0.0995)	1.0597 (0.0627)
Have Life Coverage	-0.0936*** (0.0266)	-0.1228*** (0.0270)	-0.0195 (0.0131)	0.2359*** (0.0313)	0.8835 (0.2026)	1.0715 (0.3734)	2.9904*** (0.4330)
Openness to Change less	-0.0710 (0.0484)	0.1056*** (0.0378)	-0.0039 (0.0152)	-0.0307 (0.0311)	1.9911*** (0.3906)	0.8641 (0.2770)	0.8565 (0.1340)
Self Transcendence less	-0.0942** (0.0400)	0.0528* (0.0280)	-0.0088 (0.0124)	0.0502* (0.0256)	1.7918*** (0.2924)	0.9182 (0.2397)	1.2874* (0.1676)
LL_base					-2118		
LL_full					-1908		
Chi_2					419.9***		
Observations					1709		

Table 5 Stage Model Decision State Marginal Effects and Odds Ratios – Full model

This table presents estimated results from a stage logit model of the full decision state model with seven states. (See Table 4 for estimates of the first three stages.) Columns 1-4 report marginal effects of variables on the probability of advancing conditional on reaching the previous state and columns 5-8 report associated odds of moving to the next state. We used the uclglogit program in Stata to produce the estimates for the odds which compares the odds relative to the previous categories.

	Chosen	Now	Later	Never	Chosen v Interested	Now v Chosen	Later v Now	Never v Later
Unconditional prob	0.1780	0.0602	0.0869	0.0416				
Female	0.0211 (0.0197)	-0.0260* (0.0156)	0.0246 (0.0156)	0.0142 (0.0109)	1.2329 (0.2162)	0.6790 (0.1632)	1.4290 (0.3366)	1.5157 (0.5264)
Age	0.0015 (0.0012)	-0.0018** (0.0008)	-0.0032*** (0.0009)	0.0025*** (0.0007)	1.0051 (0.0102)	0.9652** (0.0137)	0.9614** (0.0116)	1.0697*** (0.0193)
Relationship(base: Married)								
Partnered, not married	-0.0623*** (0.0226)	-0.0232 (0.0142)	0.0006 (0.0181)	-0.0122 (0.0126)	0.5273*** (0.1058)	0.6243 (0.1833)	0.9951 (0.2259)	0.7087 (0.2655)
Separated, Widowed	-0.0079 (0.0408)	-0.0165 (0.0266)	-0.0030 (0.0336)	0.0254 (0.0246)	0.9305 (0.3001)	0.7489 (0.4162)	0.9897 (0.4265)	1.6596 (0.7031)
Single	-0.0571** (0.0254)	0.0022 (0.0186)	-0.0241 (0.0191)	-0.0150 (0.0129)	0.5576** (0.1268)	0.9879 (0.3001)	0.7022 (0.1984)	0.6454 (0.2604)
Dependents	0.0076 (0.0067)	0.0025 (0.0047)	0.0027 (0.0055)	0.0048 (0.0036)	1.0954 (0.0641)	1.0555 (0.0899)	1.0404 (0.0746)	1.1361 (0.1084)
Degree	-0.0174 (0.0187)	-0.0013 (0.0129)	-0.0001 (0.0149)	0.0104 (0.0118)	0.8654 (0.1424)	0.9860 (0.2272)	1.0100 (0.1969)	1.3056 (0.3774)
Work (base: Employee)								
Self Employed	-0.0582** (0.0284)	-0.0093 (0.0206)	-0.0029 (0.0269)	0.0078 (0.0173)	0.5712** (0.1616)	0.8446 (0.3367)	0.9722 (0.3325)	1.2770 (0.6147)
Not Employed	-0.0537** (0.0211)	-0.0103 (0.0143)	-0.0104 (0.0159)	0.0309** (0.0126)	0.6117** (0.1197)	0.8388 (0.2311)	0.8998 (0.1962)	2.1485*** (0.6121)
Financial Assets (base: None)								
< \$50,000	0.0599*** (0.0198)	0.0280** (0.0126)	0.0203 (0.0160)	0.0057 (0.0105)	1.9816*** (0.3634)	1.7721** (0.4617)	1.3012 (0.2701)	1.1756 (0.3560)
> \$50,000	0.0749*** (0.0278)	0.0208 (0.0171)	-0.0148 (0.0205)	0.0209 (0.0190)	2.0777*** (0.4846)	1.5210 (0.5076)	0.8142 (0.2577)	1.6711 (0.7004)
Investment Property	-0.0004 (0.0252)	-0.0073 (0.0165)	-0.0302* (0.0182)	0.0096 (0.0163)	0.9232 (0.2003)	0.8434 (0.2658)	0.6574 (0.1881)	1.2724 (0.4834)
Investment Loan	-0.0287 (0.0272)	0.0122 (0.0214)	0.0099 (0.0259)	-0.0237** (0.0119)	0.7745 (0.1951)	1.2213 (0.4273)	1.1044 (0.3547)	0.4488 (0.2380)
Home Status (base: No Home Asset)								
Home, No Mortgage	-0.0481* (0.0279)	-0.0002 (0.0208)	0.0194 (0.0248)	0.0103 (0.0175)	0.6866 (0.1765)	1.0339 (0.3693)	1.3228 (0.4339)	1.2690 (0.4892)
Home, Mortgage	-0.0375* (0.0211)	-0.0051 (0.0145)	0.0318* (0.0170)	-0.0094 (0.0118)	0.7466 (0.1364)	0.9450 (0.2469)	1.4980* (0.3301)	0.7650 (0.2468)
Risk tolerance	0.0016 (0.0069)	0.0003 (0.0047)	-0.0002 (0.0056)	-0.0022 (0.0040)	1.0107 (0.0606)	1.0032 (0.0858)	0.9952 (0.0729)	0.9419 (0.0994)
Future Time Perspective	0.0148* (0.0080)	0.0006 (0.0054)	0.0110 (0.0067)	0.0048 (0.0043)	1.1871** (0.0822)	1.0322 (0.1012)	1.1590* (0.0988)	1.1372 (0.1296)
Financial Literacy	0.0317*** (0.0101)	-0.0166** (0.0065)	0.0107 (0.0081)	0.0007 (0.0058)	1.3094*** (0.1131)	0.7531** (0.0867)	1.1508 (0.1185)	1.0196 (0.1568)
Misunderstand	-0.0761*** (0.0181)	-0.0093 (0.0117)	-0.0056 (0.0141)	-0.0128 (0.0104)	0.4852*** (0.0722)	0.8291 (0.1759)	0.9175 (0.1673)	0.7158 (0.1868)
Bequest Preference	0.0085** (0.0033)	0.0077*** (0.0025)	0.0010 (0.0026)	-0.0004 (0.0016)	1.1054*** (0.0318)	1.1514** (0.0509)	1.0127 (0.0337)	0.9898 (0.0418)
Satisfaction Health	0.0147 (0.0096)	0.0047 (0.0066)	-0.0011 (0.0074)	-0.0076 (0.0048)	1.1376 (0.0939)	1.0791 (0.1295)	0.9778 (0.0941)	0.8158 (0.1052)
Have Life Coverage	0.2227*** (0.0286)	0.0231 (0.0164)	0.0154 (0.0190)	-0.0476*** (0.0066)	4.9184*** (0.8486)	1.4256 (0.3493)	1.1507 (0.2628)	0.0535*** (0.0546)
Openness to Change less Conservation	-0.0177 (0.0246)	0.0004 (0.0167)	-0.0022 (0.0197)	-0.0082 (0.0134)	0.8355 (0.1774)	0.9960 (0.2990)	0.9641 (0.2460)	0.8033 (0.2862)
Self-Transcendence less Self-Enhancement	0.0100 (0.0201)	0.0137 (0.0138)	0.0224 (0.0164)	-0.0053 (0.0116)	1.1886 (0.2049)	1.3174 (0.3233)	1.3303 (0.2843)	0.8671 (0.2676)
LL_base				-2908				
LL_full				-2592				
Chi_2				631.1				
Observations				1709				

Table 6 Multinomial Logit DSM State – Full Model

	Pre-Aware	Aware	Interested	Capable: Chosen	Capable: Now	Capable: Later	Capable: Never
Unconditional prob.	0.2969	0.2804	0.0560	0.1780	0.0602	0.0869	0.0416
Female	-0.0241 (0.0260)	-0.0179 (0.0267)	0.0059 (0.0124)	0.0225 (0.0200)	-0.0249 (0.0154)	0.0245 (0.0158)	0.0141 (0.0108)
Age	-0.0006 (0.0013)	0.0013 (0.0014)	0.0001 (0.0007)	0.0017 (0.0012)	-0.0018** (0.0008)	-0.0032*** (0.0009)	0.0025*** (0.0007)
Relationship(base: Married)							
Partnered, not married	0.0095 (0.0281)	0.0450 (0.0287)	0.0330** (0.0152)	-0.0539** (0.0227)	-0.0224 (0.0141)	0.0009 (0.0185)	-0.0122 (0.0126)
Separated, Widowed	-0.0014 (0.0496)	-0.0096 (0.0463)	0.0012 (0.0207)	0.0011 (0.0407)	-0.0160 (0.0270)	-0.0006 (0.0347)	0.0253 (0.0241)
Single	-0.0109 (0.0300)	0.0601* (0.0322)	0.0339** (0.0170)	-0.0499* (0.0261)	0.0053 (0.0193)	-0.0237 (0.0192)	-0.0147 (0.0129)
Dependents	-0.0035 (0.0085)	-0.0183** (0.0089)	0.0012 (0.0047)	0.0101 (0.0070)	0.0030 (0.0047)	0.0026 (0.0055)	0.0049 (0.0036)
Degree	0.0207 (0.0240)	-0.0073 (0.0242)	-0.0056 (0.0119)	-0.0180 (0.0187)	-0.0011 (0.0128)	0.0011 (0.0150)	0.0101 (0.0117)
Work (base: Employee)							
Self Employed	-0.0289 (0.0409)	0.0857** (0.0425)	0.0154 (0.0229)	-0.0689** (0.0279)	-0.0090 (0.0206)	-0.0022 (0.0265)	0.0079 (0.0167)
Not Employed	-0.0226 (0.0249)	0.0787*** (0.0267)	-0.0114 (0.0127)	-0.0594*** (0.0210)	-0.0093 (0.0144)	-0.0078 (0.0163)	0.0318** (0.0126)
Financial Assets (base: None)							
< \$50,000	-0.0660*** (0.0247)	-0.0550** (0.0256)	0.0045 (0.0120)	0.0645*** (0.0198)	0.0285** (0.0130)	0.0187 (0.0162)	0.0050 (0.0107)
> \$50,000	-0.0681* (0.0354)	-0.0828** (0.0350)	0.0410* (0.0211)	0.0839*** (0.0277)	0.0203 (0.0173)	-0.0160 (0.0203)	0.0217 (0.0190)
Investment Property	-0.0220 (0.0333)	0.0499 (0.0345)	-0.0014 (0.0162)	0.0021 (0.0254)	-0.0070 (0.0166)	-0.0311* (0.0183)	0.0095 (0.0160)
Investment Loan	0.0472 (0.0411)	-0.0050 (0.0391)	-0.0024 (0.0189)	-0.0370 (0.0269)	0.0113 (0.0213)	0.0095 (0.0262)	-0.0237* (0.0122)
Home Status (base: No Home Asset)							
Home, No Mortgage	-0.0238 (0.0366)	0.0422 (0.0376)	0.0083 (0.0201)	-0.0575** (0.0287)	-0.0006 (0.0202)	0.0207 (0.0251)	0.0107 (0.0171)
Home, Mortgage	-0.0026 (0.0261)	0.0452* (0.0267)	-0.0165 (0.0129)	-0.0434** (0.0218)	-0.0047 (0.0144)	0.0315* (0.0166)	-0.0095 (0.0112)
Risk tolerance	0.0066 (0.0086)	-0.0084 (0.0089)	0.0025 (0.0044)	0.0015 (0.0071)	-0.0000 (0.0048)	0.0000 (0.0056)	-0.0023 (0.0040)
Future Time Perspective	-0.0242** (0.0095)	-0.0134 (0.0098)	0.0086* (0.0051)	0.0133 (0.0083)	0.0005 (0.0055)	0.0105 (0.0066)	0.0046 (0.0043)
Financial Literacy	-0.0524*** (0.0116)	0.0237* (0.0123)	0.0062 (0.0063)	0.0291*** (0.0100)	-0.0171*** (0.0064)	0.0101 (0.0078)	0.0004 (0.0057)
Bequest Preference	-0.0155*** (0.0035)	-0.0021 (0.0037)	-0.0002 (0.0019)	0.0105*** (0.0035)	0.0076*** (0.0025)	0.0002 (0.0025)	-0.0005 (0.0015)
Satisfaction Health	-0.0027 (0.0111)	0.0004 (0.0112)	-0.0109* (0.0057)	0.0170* (0.0097)	0.0053 (0.0066)	-0.0015 (0.0073)	-0.0076 (0.0048)
Misunderstand Coverage	0.1065*** (0.0220)	0.0020 (0.0225)	-0.0051 (0.0114)	-0.0757*** (0.0183)	-0.0094 (0.0121)	-0.0052 (0.0143)	-0.0132 (0.0103)
Have Life Coverage	-0.0971*** (0.0279)	-0.1085*** (0.0276)	-0.0190 (0.0132)	0.2247*** (0.0284)	0.0248 (0.0168)	0.0225 (0.0205)	-0.0474*** (0.0067)
Openness to Change - Conservation	-0.0677** (0.0295)	0.1010*** (0.0301)	-0.0034 (0.0152)	-0.0217 (0.0248)	0.0021 (0.0167)	-0.0021 (0.0197)	-0.0083 (0.0133)
Self-Transcendence- Self-Enhancement	-0.0969*** (0.0238)	0.0586** (0.0254)	-0.0076 (0.0124)	0.0141 (0.0205)	0.0149 (0.0138)	0.0230 (0.0164)	-0.0062 (0.0115)
LL_base				-2590			
LL_full				-2908			
Chi_2				635.8			
Obs				1709			

Table 7 Stage Model Decision State Odds Ratios – Base model, Super Members

This table presents the equivalent odds-ratios as estimated Table 4 with the addition of a categorical variable “Life Insurance in Super” and restricts the sample to those with a superannuation account. The three columns can be compared with the results in the last three columns in Table 4.

	Aware Odds Ratio	Interested Odds Ratio	Capable Odds Ratio
Female	0.9943 (0.1868)	1.3863 (0.4094)	1.1795 (0.1691)
Age	1.0041 (0.0100)	0.9970 (0.0159)	0.9946 (0.0078)
Relationship(base: Married)			
Partnered, not married	0.9840 (0.2003)	1.4416 (0.4716)	0.6845** (0.1063)
Separated, Widowed	0.8770 (0.3169)	1.1614 (0.6870)	0.9556 (0.2568)
Single	1.0707 (0.2394)	1.5875 (0.5606)	0.6795** (0.1195)
Dependents	0.9202 (0.0584)	1.0135 (0.1098)	1.0693 (0.0515)
Degree	0.9290 (0.1568)	0.9964 (0.2645)	0.9012 (0.1157)
Work (base: Employee)			
Self Employed	1.2213 (0.3419)	1.0521 (0.4227)	0.6635* (0.1461)
Not Employed	1.4267* (0.2779)	0.8775 (0.2902)	1.0497 (0.1629)
Financial Assets (base: None)			
< \$50,000	1.0295 (0.1782)	1.4799 (0.4511)	1.6977*** (0.2379)
> \$50,000	0.8677 (0.2171)	2.6155*** (0.9551)	1.5859** (0.2963)
Investment Property	1.3095 (0.3121)	0.9401 (0.3353)	0.7572 (0.1353)
Investment Loan	0.7513 (0.2124)	0.8619 (0.3669)	0.7589 (0.1566)
Home Status (base: No Home Asset)			
Home, No Mortgage	1.2683 (0.3471)	1.3492 (0.5153)	0.9056 (0.1852)
Home, Mortgage	1.2200 (0.2359)	0.7759 (0.2472)	0.8779 (0.1268)
Risk tolerance	0.9542 (0.0615)	1.0634 (0.1054)	0.9791 (0.0482)
Future Time Perspective	1.0107 (0.0716)	1.1876 (0.1368)	1.1503** (0.0642)
Financial Literacy	1.3896*** (0.1214)	1.1273 (0.1563)	1.1460** (0.0772)
Bequest Preference	1.0574** (0.0287)	1.0145 (0.0447)	1.0836*** (0.0241)
Satisfaction Health	1.0146 (0.0840)	0.8058* (0.1024)	1.0941 (0.0709)
Misunderstand Coverage	0.6440*** (0.1047)	0.9051 (0.2277)	0.6744*** (0.0812)
Have Life Coverage	0.8909 (0.2222)	1.0964 (0.4040)	2.3627*** (0.3686)
Life Insurance in Super base: None			
Don't Know	0.4411*** (0.0830)	0.5907 (0.1900)	0.8967 (0.1481)
Yes, Made No Changes	0.5615*** (0.1154)	0.7316 (0.2383)	1.7493*** (0.2583)
Yes, Made Changes	0.7566 (0.2491)	1.4744 (0.6567)	2.8384*** (0.5770)
Openness to Change	1.8873*** (0.4192)	0.7714 (0.2678)	0.8076 (0.1381)
less Conservation			
Self Transcendence	1.7876*** (0.3254)	0.8358 (0.2317)	1.1959 (0.1658)
less Self-Enhancement			
LL_base		-1839	
LL_full		-1641	
Chi_2		396.4	
Obs		1490	

Table 8 Stage Model Decision State Odds Ratios – Full model, Super Members

This table presents the equivalent odds-ratios as estimated in Table 5 with the addition of a categorical variable “Life Insurance in Super” and restricts the sample to those with a superannuation account. The four columns can be compared with the results in the last four columns in Table 5.

	Chosen v Interested	Now v Chosen	Later v Now	Never v Later
Female	1.3241 (0.2527)	0.6468* (0.1614)	1.3444 (0.3296)	1.5921 (0.6219)
Age	1.0020 (0.0111)	0.9662** (0.0142)	0.9647*** (0.0125)	1.0878*** (0.0234)
Relationship(base: Married)				
Partnered, not married	0.5992** (0.1295)	0.7119 (0.2124)	0.9346 (0.2220)	0.5885 (0.2612)
Separated, Widowed	0.8512 (0.3071)	0.8961 (0.5031)	0.8583 (0.3980)	1.2748 (0.6656)
Single	0.6074** (0.1492)	1.1296 (0.3522)	0.5352** (0.1650)	0.6513 (0.2987)
Dependents	1.0801 (0.0710)	1.0639 (0.0942)	1.0000 (0.0775)	1.1533 (0.1295)
Degree	0.8449 (0.1485)	0.9660 (0.2284)	1.0530 (0.2119)	1.1934 (0.3871)
Work (base: Employee)				
Self Employed	0.6463 (0.1973)	0.6154 (0.2776)	0.9118 (0.3271)	1.0845 (0.5811)
Not Employed	1.0023 (0.2278)	0.9899 (0.2874)	0.8474 (0.2083)	1.7398* (0.5660)
Financial Assets (base: None)				
< \$50,000	1.9034*** (0.3828)	1.5575* (0.4155)	1.3413 (0.2987)	1.2181 (0.4231)
> \$50,000	1.9657*** (0.4983)	1.2681 (0.4354)	0.9233 (0.3013)	1.6299 (0.7345)
Investment Property	0.8729 (0.2075)	0.8217 (0.2695)	0.6273 (0.1910)	1.0993 (0.4700)
Investment Loan	0.6117* (0.1674)	1.1540 (0.4217)	1.0323 (0.3500)	0.5205 (0.2986)
Home Status (base: No Home Asset)				
Home, No Mortgage	0.6795 (0.1926)	0.9936 (0.3761)	1.2145 (0.4377)	1.3363 (0.5900)
Home, Mortgage	0.6451** (0.1282)	1.0102 (0.2712)	1.5443* (0.3563)	0.8623 (0.3182)
Risk tolerance	0.9735 (0.0648)	1.0199 (0.0909)	0.9896 (0.0779)	0.9185 (0.1108)
Future Time Perspective	1.2177*** (0.0928)	1.0330 (0.1046)	1.0942 (0.0985)	1.1338 (0.1517)
Financial Literacy	1.3317*** (0.1230)	0.7532** (0.0896)	1.1688 (0.1281)	1.1070 (0.1977)
Bequest Preference	1.0738** (0.0341)	1.1428*** (0.0526)	1.0121 (0.0362)	1.0301 (0.0520)
Satisfaction Health	1.2347** (0.1125)	1.1211 (0.1423)	0.9434 (0.0970)	0.7839 (0.1168)
Misunderstand Coverage	0.5648*** (0.0924)	0.8829 (0.1969)	0.8676 (0.1683)	0.6347 (0.1916)
Have Life Coverage	3.6077*** (0.6960)	1.4202 (0.3683)	1.3284 (0.3204)	
Life Insurance in Super base: None				
Don't Know	0.8303 (0.2396)	0.6660 (0.2099)	1.3022 (0.3159)	0.6289 (0.2172)
Yes, Made No Changes	4.5931*** (0.9692)	0.6378 (0.1759)	0.7295 (0.1840)	0.2238*** (0.1008)
Yes, Made Changes	6.8114*** (1.7919)	0.8611 (0.2913)	0.9432 (0.3053)	0.2031** (0.1569)
Openness to Change less Conservation	0.7350 (0.1732)	1.0185 (0.3201)	0.9419 (0.2581)	1.1122 (0.4567)
Self Transcendence less Self-Enhancement	1.0900 (0.2033)	1.5010 (0.3845)	1.2484 (0.2799)	0.7754 (0.2667)
LL_base		-2554.78		
LL_full		-2218.85		
Chi_2		671.85***		
Obs		1490		

Appendix

Table A.1

This table presents average marginal effects from a multinomial logit estimation of decision states. We estimate a generalised structural equation model which includes the proportion of dividend income in the respondent's postcode as a predictor of their financial literacy. The regression was estimated using gsem program in Stata.

	Pre-Aware	Aware	Interested	Capable
	0.2969	0.2804	0.0560	0.3667
Female	-0.0233 (0.0248)	-0.0145 (0.0251)	0.0077 (0.0120)	0.0301 (0.0248)
Age	-0.0011 (0.0012)	0.0020 (0.0013)	0.0002 (0.0007)	-0.0012 (0.0013)
Relationship (Base: Married)				
Partnered, not married	-0.0029 (0.0272)	0.0394 (0.0275)	0.0335** (0.0146)	-0.0700** (0.0277)
Separated, Widowed	-0.0202 (0.0476)	-0.0068 (0.0443)	-0.0031 (0.0192)	0.0301 (0.0492)
Single	-0.0216 (0.0286)	0.0580* (0.0304)	0.0352** (0.0162)	-0.0717** (0.0307)
Dependents	-0.0042 (0.0082)	-0.0166* (0.0086)	0.0005 (0.0047)	0.0203** (0.0084)
Degree	0.0205 (0.0232)	-0.0008 (0.0233)	-0.0054 (0.0117)	-0.0143 (0.0230)
Work (Base: Employed)				
Self Employed	-0.0243 (0.0404)	0.0771* (0.0412)	0.0149 (0.0226)	-0.0676* (0.0383)
Not Employed	-0.0227 (0.0230)	0.0723*** (0.0244)	-0.0103 (0.0121)	-0.0393 (0.0246)
Financial Assets (base: None)				
< \$50,000	-0.0637*** (0.0236)	-0.0459* (0.0245)	0.0088 (0.0115)	0.1007*** (0.0243)
> \$50,000	-0.0676* (0.0346)	-0.0779** (0.0335)	0.0529** (0.0217)	0.0926*** (0.0344)
Investment Property	-0.0138 (0.0323)	0.0392 (0.0329)	0.0046 (0.0166)	-0.0300 (0.0312)
Investment Loan	0.0350 (0.0397)	-0.0020 (0.0380)	-0.0027 (0.0186)	-0.0303 (0.0362)
Home Status (base: No Home Asset)				
Home, No Mortgage	-0.0468 (0.0347)	0.0608* (0.0360)	-0.0016 (0.0187)	-0.0124 (0.0352)
Home, Mortgage	-0.0145 (0.0258)	0.0534** (0.0263)	-0.0189 (0.0132)	-0.0200 (0.0258)
Risk Tolerance	0.0024 (0.0083)	-0.0074 (0.0085)	0.0010 (0.0043)	0.0039 (0.0085)
Future Time Perspective	-0.0215** (0.0090)	-0.0157* (0.0092)	0.0078 (0.0050)	0.0294*** (0.0096)
Financial Literacy	-0.0540*** (0.0112)	0.0271** (0.0119)	0.0063 (0.0062)	0.0206* (0.0119)
Bequest Preference	-0.0143*** (0.0034)	-0.0007 (0.0035)	0.0000 (0.0019)	0.0150*** (0.0038)
Satisfaction Health	-0.0041 (0.0105)	-0.0033 (0.0106)	-0.0075 (0.0055)	0.0149 (0.0110)
Misunderstand Coverage	0.1131*** (0.0211)	-0.0032 (0.0216)	-0.0072 (0.0113)	-0.1026*** (0.0221)
Have Life Coverage	-0.1079*** (0.0271)	-0.1181*** (0.0263)	-0.0195 (0.0131)	0.2455*** (0.0306)
Openness to Change less Conservation	-0.0645** (0.0282)	0.0927*** (0.0287)	0.0059 (0.0149)	-0.0341 (0.0295)
Self Transcendence less Self-Enhancement	-0.0938*** (0.0230)	0.0447* (0.0244)	-0.0032 (0.0123)	0.0522** (0.0245)
Obs			1874	
LL			-5838.78	

Table A.2

This table reports estimates of the odds-ratios for the main variables of interest allowing for different levels of unobserved heterogeneity using the method of Buis (2011) and employing the Stata program seqlogit. As noted in the main text, the seqlogit and uclogit packages differ in the direction of their comparisons. To make the results in this table consistent with the odds comparisons in the uclogit Stata package reported in the main text, we reverse code the decision states. Using the notation of Buis (2011), and focussing on the first transition, the probability (p_i) that a respondents is Aware versus Pre-Aware is a function of the proposed observed variables x and a composite, standardised variable u with mean zero and standard deviation of one which captures unobserved heterogeneity: $p_i = 1 | x, u) = \Lambda(\beta_{01} + \beta_{11}x + \beta_{u1}u)$, where $\Lambda = \frac{\exp(\cdot)}{1 + \exp(\cdot)}$. The column headed β_{u1} indicates the nominated level of unobserved heterogeneity included in the estimation. The first level (0) makes no adjustment and reports the odds ratio as reported in the main text. The values included for β_{u1} range from 0.5 to 1.5 or allowing for an odds-ratio effect of a factor up to 4.5 ($e^{1.5}$) given a one standard deviation increase in u .

Panel A: Basic Decision State Model											
β_{u1}	Financial Literacy		β_{u1}	Misunderstand		β_{u1}	ST less SE		β_{u1}	OC less CO	
	Odds-Ratio	p-value		Odds-Ratio	p-value		Odds-Ratio	p-value		Odds-Ratio	p-value
Aware v Pre-Aware											
0	1.3789	<0.01	0	0.6254	<0.01	0	1.7918	<0.01	0	1.9911	<0.01
0.5	1.4137	<0.01	0.5	0.5922	<0.01	0.5	1.8653	<0.01	0.5	2.0466	<0.01
1	1.4973	<0.01	1	0.5220	<0.01	1	2.0469	<0.01	1	2.1727	<0.01
1.5	1.6025	<0.01	1.5	0.4481	<0.01	1.5	2.2903	<0.01	1.5	2.3248	<0.01
Interested v Aware											
0	1.2018	0.1617	0	0.7553	0.2281	0	0.9182	0.7435	0	0.8641	0.6487
0.5	1.2120	0.1508	0.5	0.7267	0.1806	0.5	0.9343	0.7989	0.5	0.8455	0.6104
1	1.2434	0.1230	1	0.6602	0.1023	1	0.9745	0.9274	1	0.8057	0.5402
1.5	1.2908	0.0931	1.5	0.581	0.0488	1.5	1.0299	0.9238	1.5	0.7603	0.4751
Capable v Interested											
0	1.1285	0.0553	0	0.6018	<0.01	0	1.2874	0.0524	0	0.8565	0.3222
0.5	1.1373	0.0519	0.5	0.5851	<0.01	0.5	1.3069	0.0504	0.5	0.8498	0.3226
1	1.1604	0.0458	1	0.5444	<0.01	1	1.3585	0.0469	1	0.8345	0.3306
1.5	1.1935	0.0400	1.5	0.4935	<0.01	1.5	1.4327	0.0436	1.5	0.8154	0.3441

Panel B: Expanded Decision State Model

Financial Literacy		Misunderstand		ST less SE		OC less CO					
β_{u1}	Odds-Ratio	p-value	β_{u1}	Odds-Ratio	p-value	β_{u1}	Odds-Ratio	p-value	β_{u1}	Odds-Ratio	p-value
Chosen v Interested											
0	1.3094	<0.01	0	0.4852	< 0.01	0	1.1886	0.3161	0	0.8355	0.3974
0.5	1.3258	<0.01	0.5	0.4644	< 0.01	0.5	1.2082	0.2913	0.5	0.8261	0.3877
1	1.3619	<0.01	1	0.4191	< 0.01	1	1.2617	0.2370	1	0.8057	0.3743
1.5	1.4057	<0.01	1.5	0.3700	< 0.01	1.5	1.3327	0.1906	1.5	0.7823	0.3663
Capable Now v Chosen											
0	0.7531	0.0138	0	0.8291	0.3768	0	1.3174	0.2613	0	0.9960	0.9894
0.5	0.7512	0.0151	0.5	0.8157	0.3475	0.5	1.3343	0.2490	0.5	0.9889	0.9710
1	0.7439	0.0182	1	0.7854	0.2947	1	1.3795	0.2243	1	0.9731	0.9336
1.5	0.7346	0.0235	1.5	0.7519	0.2550	1.5	1.4378	0.2055	1.5	0.9573	0.9024
Capable Later v Capable Now											
0	1.1508	0.1725	0	0.9175	0.6367	0	1.3303	0.1817	0	0.9641	0.8860
0.5	1.1517	0.1798	0.5	0.9100	0.6141	0.5	1.3452	0.1749	0.5	0.9646	0.8903
1	1.1564	0.1967	1	0.8938	0.5771	1	1.3824	0.1666	1	0.9615	0.8887
1.5	1.1702	0.2060	1.5	0.8740	0.5466	1.5	1.4243	0.1729	1.5	0.9534	0.8778
Capable Never v Capable Later											
0	1.0196	0.8994	0	0.7158	0.2000	0	0.8671	0.6441	0	0.8033	0.5387
0.5	1.0179	0.9100	0.5	0.7161	0.2095	0.5	0.8555	0.6190	0.5	0.8040	0.5488
1	1.0104	0.9499	1	0.7138	0.2321	1	0.8244	0.5596	1	0.8079	0.5813
1.5	1.0012	0.9946	1.5	0.7035	0.2541	1.5	0.7783	0.4862	1.5	0.8148	0.6295