ARC Centre of Excellence in Population Ageing Research

Working Paper 2017/19

Saving preferences in retirement: the impact of pension policy design and health status

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December 13, 2017

Abstract

Using an online experimental survey, we investigate the importance of rational and psychological motives for saving in retirement for soon to be retired individuals. Our experimental task uses vignettes to elicit the impact of alternative retirement income policy settings comprising combinations of regular income and wealth, and major life events such as becoming frail and/or losing a spouse. Findings indicate that people modify their savings motives where a major life event is expected and the precautionary health savings motive becomes more important if the health of a spouse is expected to deteriorate in the near future. Our experimental survey is fielded in the Netherlands and Australia to allow investigation of the importance of the prevailing institutional settings (annuitized pension wealth in the Netherlands versus flexible drawdowns in Australia). Findings suggest that norms and awareness of the potential risks faced in the actual institutional setting are more important for the ranking of savings motives than the experimental institutional setting for the retirement income provision (income through full annuitization versus flexible withdrawal). This suggests that retirees may be slow to adjust their saving motives and spending patterns following an actual policy shift from flexible drawdowns to annuitization or vice versa.

JEL: J14 J26 D14 D31
Keywords: consumption smoothing, asset decumulation, saving motives

This project has received funding from the ARC Center of Excellence in Population Ageing Research (grant CE110001029) and ARC Linkage Grant 'Mandatory pre-funded retirement income schemes: Best policy and practice' (grant LP140100104). The authors are responsible for any errors.

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1 Background and motivation

Global concerns about the living standards of the elderly have led to reforms to improve the adequacy and sustainability of pension systems. However, recent empirical studies show that many retirees hold onto their assets or even keep on saving well into old age.[1] In this context, we investigate how personal circumstances could influence the saving motives of people as they enter and move through retirement. We specifically consider an expected decline in the health status of retiree households and changes in institutional settings for pension benefits. A change in expected health status would impact out of pocket health costs, which play an important role in why the elderly save (De Nardi et al., 2010; Kotlikoff, 1986) and affect the attractiveness of income benefits (Sinclair and Smetters, 2004; Davidoff, 2009). More income uncertainty is associated with more precautionary savings (Carroll and Samwick, 1998; van Santen, 2016), while retirement income risks can be reduced through annuitization (Ameriks and Yakoboski, 2003).

Government policy typically plays an important role in individual decisions about retirement saving (the accumulation phase) and drawdown (the decumulation phase). The government can restrict individual choice by mandating (for example, setting compulsory participation and minimum contribution levels), or can direct choice through tax policy (such as providing tax concessions for retirement savings) or nudges (including setting defaults or guiding drawdown patterns). The aim of government policy should be to efficiently allocate welfare spending in retirement and to improve overall social welfare by preventing or discouraging suboptimal individual choices which substantially reduce expected lifetime utility (Beshears et al., 2009). The latter effect can be reduced, however, in the case that individuals underspend in retirement. Therefore, a better understanding of the motives for continued accumulation of assets or slower than expected decumulation is important for efficient retirement saving and decumulation policy design and implementation.

We conduct an online experimental survey of retirement saving and spending decisions of soon to retire households in Australia and the Netherlands. In the survey, we use vignettes to present short descriptions of hypothetical retiree households with given patterns of wealth and income and expected future health conditions. We then ask participants to advise the retiree household on a spending pattern and to rank the importance of a set of saving motives consistent with the spending advice that is given. The wealth and income patterns vary to reflect different pension drawdown policy design - from full annuitization (characterised as low wealth and high income and indicative of the Dutch system) to complete flexibility (characterised as high wealth and low income as in the Australian system), allowing us to analyze how the importance of saving motives varies with pension system design. We present a broad menu of saving motives for this behavior, drawn from economic theory and psychology, in settings where we vary drawdown policy design and expected future health status.

To investigate how culture and norms from an institutional setting affect savings motives, we field the experimental survey in two countries with quite different retirement

[1]See Dynan et al., 2004 for the United States; Van Ooijen et al., 2015 for The Netherlands; and Asher et al., 2017 for Australia.

income arrangements[2] so we can test the impact of prevailing (and alternative) institutional settings. Our use of an experimental survey allows us to directly investigate the institutional effects, rather than wait decades (over a full working life and retirement) for the impact of institutional settings on saving motives to reveal.

The Netherlands and Australia are ideal as settings for our experimental survey. The pension systems in both countries are consistently ranked among the top three internationally by the Melbourne Mercer Global Pension Index (MMGPI, 2016) and both have a similar structure which includes a large funded income replacement pillar. As well, other relevant characteristics coincide including comprehensive public health insurance and high home ownership rates amongst retirees.

Australia's mandatory defined contribution (DC) income replacement pillar - known as the "superannuation guarantee" - was introduced in 1992 to supplement long standing voluntary arrangements. The superannuation guarantee is a mandatory universal workplace pension system in which every employee over 18 with income of more than 450 dollars per month accumulates at least 9.5% of their salary in a pension account. Retirees can choose to take benefits as a lump sum, a phased withdrawal product, or a term or life annuity. Most people purchase non-annuitized phased withdrawal products, known as account-based pensions, at retirement (APRA, 2017). This income replacement (second) pillar is accompanied by a first pillar means-tested public Age Pension, and by third pillar voluntary saving. Under current policy settings a person on average weekly earnings working for 40 years could expect a replacement rate of 65-70% from an annuitized superannuation accumulation and a part Age Pension (Gallagher, 2012).

The Dutch pension system dates from 1922.[3] The first pillar is a pay-as-you-go state pension, providing a minimum standard of living annual income for everyone above the statutory retirement age who has continuously been a resident of the Netherlands from age 15. Mandatory occupational pensions (either defined benefit (DB) or DC) cover more than 90% of employees. There is no required minimum retirement contribution and legislation mandates the annual maximum tax favored accrual of pension rights. Benefits are paid as lifetime pensions. Most pension plans aim for a gross replacement rate of 70% of average career salary (including public pension benefits) for an individual with 40 years of (full-time) employment (Knoef et al., 2016). The difference between the two systems in the decumulation phase is large: Australian retirees typically have a more flexible and liquid phased withdrawal retirement savings account while the majority of Dutch retirees are required to transfer the largest part of their retirement savings into lifetime annuities.

We contribute to the retirement decumulation literature by investigating why people hold on to, or even increase, their wealth during retirement. We analyze the influence of institutional factors such as the flexibility of retirement drawdowns compared to lifelong income streams on the observed differences in preferences. We examine the relative importance of saving motives founded on economic theory (i.e., rational explanations) as well as behavioral and psychological explanations and assess the influence of major life events, such as a health shock or losing a spouse, on spending and saving decisions in

[2]Income driven through mandatory annuitization plans following a defined benefit philosophy in the Netherlands, versus the wealth driven approach through flexible drawdowns from defined contribution plans in Australia.

[3]The foundation year of the pension fund for government employees.

retirement.[4] The different institutional settings for decumulation in Australia (flexible drawdown of pension assets) and the Netherlands (mandatory lifetime pensions) (Bateman et al., 2016) provide important insights into the differences in savings motives. Given the global shift from DB to DC retirement savings arrangements our findings inform the implications of a possible shift over time in the importance of different saving motives in retirement with changes in institutional settings. Our use of an experimental survey allows us to also investigate the impact of other factors on retirement saving and spending decisions including demographics, preferences, psychological traits and financial knowledge and competencies.

We find that motives to spend and save in retirement are little affected by (experimental) changes in the institutional settings for retirement incomes policy, with persistence in rankings as participants move from full annuitization to full flexibility However, people do modify the ordering of savings motives in the event of an expected deterioration in health of a spouse or partner, in which case the precautionary health savings motive becomes more important. Findings also suggest that awareness of the potential risks faced in actual settings for retirement income provision of participants (Dutch or Australian) are more important for the ranking of savings motives than the experimental settings (income through full annuitization versus flexible withdrawal). This suggests that retirees may be slow to adjust their saving and spending patterns following an actual policy shift from flexible drawdowns to annuitization or vice versa.

The remainder of this paper is structured as follows. Section 2 provides a brief review of rational and psychological explanations for why individuals hold on to their wealth in retirement. This is followed in Section 3 with a description of the experimental design and the structure of the experimental survey and Section 4 which discusses the data we collect. Section 5 describes the estimation models and presents results and Section 6 concludes.

2 Saving motives of the elderly

There has been considerable attention in the academic literature to identify, describe, and categorize saving motives for different types of households (Keynes, 1936; Katona, 1975; Browning and Lusardi, 1996; Canova et al., 2005). In an economics context, saving is generally treated as residual unspent income (Lunt and Livingstone, 1991; Wärneryd, 1999). However, in a study of psychological economics, Katona (1975) suggests that ordinary people think of saving as ‘to actively put money in bank accounts’ as, for example, ‘a protection against future insecurities’. Nyhus (2002) provides empirical evidence in favor of this suggestion. From an economics point of view, the difference between active or passive (residual) saving might be negligible. However, from a psychological point of view this is certainly not the case, since the framing of the decision matters. According to Wärneryd (1995), an individual can interpret the question “Do you save money” in two ways: “Do you actively put money aside?” or “Do you have money left [at the end of the month]?”.

In the experiment we describe and analyse in this paper, we restrict ourselves to ten

[4] Throughout this paper we will use saving motives to also indicate reasons to hold on to your wealth.

possible savings motives. This is done because providing a participant with an extensive list of savings motives is likely to be cognitively demanding. Alternatively, selecting for each participant only a small subset out of an extensive list would reduce the power of our test. We use a pre-test to select the ten savings motives, which we describe in detail in Appendix A. In the remainder of this section we briefly review the literature on the selected saving motives in the context of the elderly across rational and psychological explanations.[5]

2.1 Rational saving motives

As potential rational saving motives we consider precautionary savings, bequests, lifespan risk and liquidity. The precautionary savings motive is subdivided into health expenditures and general expenditures and the bequest motive into a intra household bequest and an (intended) intergenerational bequest motive. These savings motives are in line with Wärneryd (1995) who suggests that five motives could be relevant for explaining the saving behavior of the elderly - specifically, that the elderly continue earlier saving habits (not found among the ten most important savings motives), save as a matter of precaution (the precautionary (health) motive), save to bequeath (the (intra-household) bequest motive), do not dissave because of liquidity constraints (the liquidity motive), or save because they expect (even) lower income in the future (the lifespan risk motive).

The rational explanation which has gained most attention in the literature is that of precautionary savings for risks the elderly face, such as uncertain lifetimes and medical expenditures.[6] Recent work from De Nardi et al. (2016) suggests that the saving motives of the elderly essentially break down into two categories: precautionary savings for the risks faced by elderly people (such as lifespan uncertainty or uncertain medical - out of pocket - expenditure) and the bequest motive.

Economic literature related to savings for lifespan risk has a long history, dating back to Yaari's seminal paper (Yaari, 1965). Early work by Davies (1981), using actual income and survival data from Statistics Canada, shows a negative impact of uncertain lifetimes on dis-saving by the elderly. De Nardi et al. (2009), using the AHEAD (Assets and Health Dynamics of the Oldest Old) dataset and a model developed in De Nardi et al. (2010), show that individuals deplete their net worth by the end of their certain lifetime whereas individuals facing uncertain lifespans still have significant asset holdings, even when facing the most pessimistic survival prospects.

The precautionary savings motive is the most prominent theoretical economic explanation for savings. The importance of precautionary savings for the elderly is empirically confirmed by Kennickell and Lusardi (2004), using a direct question about precautionary wealth from the 1995 and 1998 waves of the US Survey of Consumer Finances. In particular the role of health expenditures was emphasized in Kotlikoff (1986), Levin (1995) and De Nardi et al. (2016).

[5]We note that these different motives are not necessarily mutually exclusive, although recent research by Beshears et al. (2011) suggest that some individuals do view them as though they are.

[6]Zeldes (1989), Caballero (1990), and Weil (1993) extended the theoretical conditions of the two-period framework by Leland (1968), Sandmo (1970) and Dreze and Modigliani (1972) under which non diversifiable (income) risk leads to higher saving.

The bequest motive could also be important. Intra-household bequests were theoretically investigated in Hurd (1999) and the role of intergenerational transfers, both post-mortem and inter-vivos, has gained considerable attention in the economics literature (Alessie and Kapteyn, 2001; Masson and Pestieau, 1997). However, as pointed out by Poterba (2001) and others, there is a lack of consensus on why people leave a bequest. Some argue that bequests are mainly accidental (Hurd, 1989) as the elderly keep a buffer as a result of life-span risk. Others believe that bequests are intentional (Alessie et al., 1995; Laferrère and Wolff, 2006) and motivated by inter-generational altruism. In these models well-off parents will help finance their children's higher education (Laitner and Juster, 1996), but parents will discriminate on the basis of their children's income (Hochguertel and Ohlsson, 2009). Another group of models are motivated by 'a joy of giving'. In these (egoistic) models, parents derive utility from the amount they spend on their children but do not take the utility the child derives from the resulting transfer into account (Hurd, 1989).

Lastly, elderly may save during retirement due to liquidity constraints. Most studies concern retirees' aggregate assets in the household portfolio (including housing), and implicitly assume that households can easily liquidate their housing wealth by means of, for example, a second or reverse mortgage. However, there is a general consensus that the elderly are not willing to give up their houses (Banks et al., 2012; Fisher et al., 2007; Caro et al., 2012), except in the event of divorce, widowhood, or the departure of all children from the family home (Suari-Andreu et al., 2015; Sabia, 2008). Therefore, the willingness to stay put may be a reason for the elderly to save during retirement, since most of their wealth is in the house they live in (Venti and Wise, 2004).

2.2 Psychological saving motives

There has been little consideration in the economics literature of psychological explanations for saving, despite an increasing number of studies suggesting that these may be important (Shefrin and Thaler, 1988; Canova et al., 2005; Beshears et al., 2011). The psychology literature suggests that individuals find more abstract goals more important than concrete motivations to save (Canova et al., 2005) or as a buffer against social risks (Engelberg and Sjöberg, 2007). Abstract savings motives include autonomy, security and self-gratification, whereas the buffer against social risk includes political risk.

Regarding the abstract savings motives, Canova et al. (2005) identified fifteen salient motives for saving. These include autonomy, self-gratification and security. An explanation why these savings motives are among the ten most important savings motives is that these savings motives are more likely to be the target of other savings motives (including 'rational' explanations) and are more likely involved in linkages with other goals. This aligns with the early work of Yamauchi and Templer (1982) who identify, using an experimental setting, three dimensions to explain the attitude towards money. The first is "power and prestige", or alternatively purchasing items or accumulating wealth to impress others and increase your self-esteem, the second and third are "time-retention" and "security", which can be interpreted as placing value on preparing for future goals or security.

The psychology literature suggests that there is a tendency to view money on hand (that is, saving) as a protection against the kind of vulnerability that is inherent to social involvement (Yamauchi and Templer, 1982; Furnham, 1984; Engelberg and Sjöberg, 2007). This would imply that the abstract savings motives autonomy and security are important. Risks could include the loss of trust and confidence in others because of their dubious schemes, or loss of autonomy and consequent dependence upon other people.

Lastly political risk can be a motivation to save in order to have a buffer against this social risk. Individuals may save to protect themselves against a change in pension rules. Diamond (1994) notes that the effect of reforms of the pension system can be twofold: first, they can provide a solution to existing social risk, or they can generate such risks. Since political risks are an inherent part of any pension scheme (Barr and Diamond, 2006), individuals may experience discomfort with them. Van Dalen and Henkens (2015) find, using a regular survey with a representative sample of the Dutch population, that the Dutch have reduced their trust in pension funds, banks and insurance companies after the global financial crisis. This perception of the institutions may have an impact on saving behavior.

We now turn to an explanation of our experimental survey. The ten rational and psychological motives we select in our pre-test are listed in Table 2.

3 The experimental survey

Individuals from representative samples in the Netherlands and Australia were invited to participate in an online experimental survey on consumption (spending) patterns and saving motives. The experimental task was designed with three objectives in mind. First, to investigate the effect of the liquidity of wealth (that is, lifetime income versus liquid wealth) on preferred consumption patterns and saving motives; second, to analyze the role of government prescribed drawdown patterns (that is, implied endorsement) on preferred consumption patterns and saving motives;[7] and third, to assess the effect of possible future health shocks on preferred consumption patterns and saving motives.[8] We were also interested in the impact of personality traits, financial competence, demographics, and other personal characteristics, as well as country-specific effects.

We address our research questions by designing and implementing stated-choice experiments using vignettes to elicit preferences (Louviere et al., 2000). Vignette experiments have long been used in social sciences (Van Beek et al., 1997) and are particularly suitable for cross-country analysis (e.g. King et al. (2003); Kapteyn et al. (2007)). Our vignettes comprise short descriptions of scenarios of income, wealth and health status, for hypothetical retiree households. We use hypothetical households so that participants in different countries (who have experience with or knowledge of different retirement income systems) can evaluate the same choice set with minimal influence from country specific factors. For example, in Australia the state pension is mean-tested, whereas in the Netherlands it is universal. Another advantage of the vignette methodology is

[7]The second objective is analysed in a companion paper (Alonso-García et al., 2017).

[8]The Dutch survey was fielded in the Netherlands in December 2016 and the Australian survey in late March 2017. Static copies of the surveys are available in the supplementary materials as 'Dutch version of the survey.pdf' and 'English version of the survey.pdf'. A 'live' version of the Australian survey is available at http://survey.us.confirmit.com/wix/6/p3081554696.aspx

that participants whose actual situations differ from the scenarios presented can still complete the tasks.

Participants in the Netherlands were recruited from two established panels - LISS and CentER, which together include over 5,000 households.[9] The Dutch sample comprised 1,798 eligible household members and were paid €5. Participants in Australia were recruited from the commercial web panel provider 'TEG rewards' which includes over 1,000,000 panel members and were paid $4 on completion of the survey. The Australian sample comprised 1,004 people aged 50-64 and not yet retired.

3.1 Survey overview

The survey consists of preliminary questions and four sections. The preliminary questions cover marital status, age of the participant and partner if applicable, employment status of the participant and partner if applicable and household income, in order to select an appropriate sample and allocate the participant to an appropriate household income group. Since we are only interested in individuals close to retirement - as this group are more likely to be thinking about retirement decisions - only individuals aged 50-64 and not yet retired (if single) or one of a couple where at least one is not retired, received an invitation to participate. The income question is used to allocate subjects into one of four income groups. The preliminary questions were not included in the Dutch version of the survey, as the relevant information is already available as background variables in the LISS and CentER panels. The remainder of the survey was conducted in both countries, except for questions available as background variables in the LISS and CentER panels.

Section 1 of the survey is the experimental task which is explained in detail in Subsections 3.2 and 3.3. Section 2 of the survey is a set of questions on retirement planning and personality traits. To test whether an individual's knowledge of retirement planning and future orientation influences retirement saving behavior we include questions relating to planning and future time perspectives from Jacobs-Lawson and Hershey (2005), time preference and planning horizon from Fisher and Montalto (2011) as well as the Dohmen et al. (2011) question on risk attitude. We also include questions to elicit life expectancy beliefs, as they should have an influence in retirement planning since people who underestimate their life expectancy are more likely to retire early, save too little and not purchase longevity protection (Van Solinge and Henkens, 2009; Bateman et al., 2016). Participants are also asked to estimate the life expectancy of their partner, if relevant (Teppa et al., 2015).

Following recent practice to add psychological personality tests such as the Big Five to economics surveys (e.g. Borghans et al., 2008; Agnew et al., 2016), we ask the participants to answer the ten-item personality inventory (TIPI) instead of the much lengthier original version Gosling et al. (2003).[10]

[9]One member in the household provides the household data and updates this information at regular time intervals. Panel members are selected to be representative of the Dutch population, with the assistance of Statistics Netherlands, and these households agree to respond to survey questions on a regular basis.

[10]TIPI is typically used for studies where short measures are needed when the personality is not the primary topic of interest.

Section 3 is a set of questions on superannuation / pension arrangements and financial competence. We include a question on subjective financial literacy, the big three financial literacy questions (Lusardi and Mitchell, 2011), and questions on superannuation/pension knowledge (Agnew et al., 2013) and numeracy (Lipkus et al., 2001), since financial competence has been found to influence retirement decisions (Lusardi and Mitchell, 2014). We also ask a set of questions on the specific superannuation / pension arrangements of the participants.

Section 4 concludes the survey with questions on demographics and personal characteristics. In an attempt to identify whether cultural differences can explain different preferences, we ask questions about place of birth (of the participant and their parents) and religion (Weber, 2013). We also ask questions on the extent of financial support provided, number of children in household, education, health, wealth and housing.

The remainder of this section discusses the design of the experimental task.

3.2 The experimental task - vignette characteristics

In Section 1 of the experimental survey, each participant is shown eight different vignettes ('Choice sets'). The base vignette describes a hypothetical household couple at retirement and the eight vignettes presented differ through variation in key characteristics - expected health status (four alternatives), the institutional framework or 'liquidity' of the retirement income arrangements (which sets income and wealth) (three alternatives), and implied endorsement (two alternatives) (cf. Table 1). For each vignette the participant is asked to (a) advise a preferred consumption stream (spending pattern), and (b) in two rounds of best / worst choice sets indicate which savings motives accompany the spending advice. Since the decision to save (or to hold on to wealth) and the amount of wealth to consume is, most likely, made at the same time, we could have changed the order (ask (b) first and (a) second). However, the saving preferences for the participant might not fully align with the saving motives presented in the experiment. To prevent this mismatch influencing the stated spending pattern preference, our approach is to ask (a) before (b). The income and wealth shown to the participant is based on the median wealth for the income group (of four) in which they are placed at the beginning of the survey. The liquidity of retirement saving differs as discussed in Section 3.3, whereas the net present value of the total wealth at the start of retirement remains unchanged. The text of the base vignette and alternatives for the key characteristics are summarised in Appendix B.

Part A: advising spending patterns to vignette households

For each vignette, the participant is asked to advise a consumption (spending) pattern for the hypothetical household out of five alternatives.[11] For a given participant the five spending patterns presented are the same in all eight vignettes. However, the spending pattern differs between participants since it is aligned to one of the four household income groups in which the participant is placed. To help the participant

[11] In order avoid too much complexity, participants can only choose between constant consumption patterns. It would be of interest to analyze the effect of decreasing (increasing) consumption throughout the retirement. This, however, is beyond the scope of this paper.

Table 1: Text of the base vignette

> The household consists of two individuals currently 65 years old who have just retired. [INSERT FUTURE HEALTH EXPECTATIONS].
>
> Each household has a net of tax lifetime income of [INSERT INCOME] and their wealth at retirement is [INSERT WEALTH]. The household owns the house they live in, without a mortgage. They don't want to move or sell their house. If one member of the household dies, the survivor will receive less income but also spend less. The reduction in income is roughly equivalent to the reduction in spending.
>
> At retirement the household has to plan how much they expect to save and spend, based on their income and current wealth. The following table shows five different spending plans together with income and wealth at different ages (if they survive). If their wealth is exhausted then the household has to adapt their spending to their income. [INSERT IMPLIED ENDORSEMENT or not]
>
> Finally, you can assume that prices do not change over time.
>
> **Part A**:
> What spending plan do you advise the household to choose, based on your preferences?
> << Show five different SPENDING PLANS, accompanied by a reminder of annual and fortnightly/monthly income, and information about remaining wealth at ages 65, 75, 85, 95 >>
>
> **Part B**:
> Below you see five possible reasons to choose a specific spending plan.
>
> Please indicate which reason is the most important for this household, based on your own preferences, and which saving motive is the least important. Then indicate which saving motive is the 2nd most important and the 2nd least important.
> << Show five different SAVING MOTIVES in each choice set, randomly selected from 10 (subject to category restrictions)>>

fully understand the consequences of each consumption (spending) pattern, we include information on the remaining wealth at the age of 65, 75, 85, and 95. We also remind the participant of their lifetime income (presented earlier in the vignette). Figure 1 shows an example of the set of alternative spending patterns presented to a hypothetical household.

Part B: saving motives for the vignette household for a given a spending pattern

Informed by the economics and psychology literature, we identified 19 possible saving motives for people entering and in retirement. To prevent cognitive exhaustion while maintaining econometric power, we reduced the list to 10 saving motives to include in the vignette-based experimental task. We pre-tested using best/worst scaling to select

Figure 1: Spending patterns for a household in the lowest income group with middle income and middle wealth (as defined in Section 3.3).

Lifetime income	
Annual	Fortnightly
$36,050	$1,387

	Spending		Wealth			
	Annual	Fortnightly	At age 65	At age 75	At age 85	At age 95
Spending Plan 1	$42,700	$1,642	$152,775	$86,275	$19,775	$0
Spending Plan 2	$40,650	$1,563	$152,775	$106,775	$60,775	$14,775
Spending Plan 3	$36,050	$1,387	$152,775	$152,775	$152,775	$152,775
Spending Plan 4	$31,450	$1,210	$152,775	$198,775	$244,775	$290,775
Spending Plan 5	$29,900	$1,150	$152,775	$214,275	$275,775	$337,275

the highest ranked subset of ten (see Appendix A). Table 2 lists the 10 saving motives together with the textual description presented in the experiment task.

Table 2: Saving motives used in the vignettes.

Name	Text in vignette (The household ...)
Rational	
precautionary	wants to ensure that they will be able to finance any unforeseen expenditures other than health and aged care expenditures
precautionary health	wants to ensure that they will be able to finance unforeseen health and aged care expenditures
life-span risk	wants to ensure that they will not outlive their wealth
intended bequest	wants to ensure that they will be able to leave a bequest to their dependents or estate
liquidity	wants to ensure that they have enough cash on hand at any time
intra-household bequest	wants to ensure that if they die, their partner is able to maintain his/her standard of living
Psychological	
autonomy	wants to ensure that they remain financially independent
security	wants to ensure that they have enough money to have peace of mind
self-gratification	wants to ensure that they are able to enjoy life now as well as later
political risk	wants to ensure that they are protected against a change in the superannuation / pension rules

Again, in the interests of cognitive exhaustion, we present a subset of five saving motives in each choice set. These motives are selected at random from the list of 10 saving motives, without replacement, with the restriction that there should be three rational motives and two psychological motives in each set. However, the ordering of these five motives is determined randomly. Moreover, to further to avoid too much complexity for participants, the subset of five savings motives is the same across the first four vignettes and the same across the last four vignettes.

3.3 Variation of key characteristics across the eight vignettes

As illustrated in Table 1, three features of the characteristics of the hypothetical household vary across the eight vignettes (choice sets). In the first three vignettes the extent to which retirement savings are liquid (that is, require full, partial or no annuitization) differ. In the fourth vignette we introduce implied endorsement. In the last four vignettes the future health expectations of the hypothetical household differ, but for a given participant, the liquidity of retirement savings is fixed.

Liquidity of retirement savings (vignette 1-3)

In the first three vignettes presented to participants, the hypothetical households have the following characteristics. The household consists of two recently retired individuals aged 65. They are in good health and expect to stay so at least until they reach the age of 70. They own the house they live in (without a mortgage), and do not have any plans to move or sell the house. If one of them dies, the widow(er) would receive less pension income. The reduction in pension income corresponds to a proportional decrease in expenditures.

However, in vignettes 1-3 we vary the institutional framework for retirement benefits and therefore the liquid wealth and income combinations. The gross household income groups (Table B.1) are used to construct four between subject treatments. Based on the income group, subjects are allocated a level of total retirement savings which consist of liquid wealth plus the net present value of lifetime income. The three within subject income/wealth combinations differ by the extent to which retirement savings are liquid - that is, of the proportion of pension wealth provided as a lifetime income stream (annuity).

Using a participant's pension wealth and savings wealth (see Table B.1), the wealth and income combinations are constructed as follows: (Ia) [high wealth, low income]: the lifetime income consists of the state pension plus annuitized savings wealth. The wealth solely consists of the pension wealth. (Ib) [middle wealth, middle income]: the lifetime income consists of the state pension plus an average of the annuitized pension and savings wealth. The wealth consists of the average of pension wealth and savings wealth. (Ic) [low wealth, high income]: the lifetime income consists of the state pension plus annuitized pension wealth. The wealth consists solely of the savings wealth. The order in which participants are presented with the three different wealth and income combinations (vignettes 1, 2 and 3) is randomly assigned.

An important characteristic of this experimental design is that the three wealth and lifetime income combinations correspond to the country specific pension characteristics. In the Netherlands, second pillar pension contributions are required to be converted into a lifetime income stream (full annuitization), whereas Australian retirees can choose to take non annuitized benefits (lump sums or phased withdrawals) from their superannuation accumulation at retirement, and many do.[12] Therefore, (Ia) mimics the financial situation of a household subject to the Australian institutional framework, which is likely to have a high pension wealth and low lifetime income, and is compared to (Ic) which corresponds to the financial situation of a household subject to the Dutch institutional framework, which is likely to have low wealth and high income.

Whereas (Ia) and (Ic) correspond to country specific systems, (Ib) corresponds to a potential future direction for both retirement systems. Discussions around the pension system reform in the Netherlands indicate that the new pension contract should allow for more flexibility while maintaining some intragenerational risk-sharing features (Bovenberg and Nijman, Bovenberg and Nijman). Similarly, reform proposals for retirement income in Australia indicate that more prescription may be introduced in order to encourage products which offer longevity protection (Murray et al., 2014; Treasury, 2016). This suggests that in the future the two pension systems could (slowly) converge

[12]For a thorough investigation on the similarities and differences between the Dutch and Australian pension system, see e.g. Bateman et al. (2016).

towards each other. Therefore, the combination (Ib) corresponds to a potential future direction for both retirement systems and is calculated as the average of the wealth and income based on the Dutch and Australian pension systems. Alternatively, (Ib) could also be interpreted as a system in transition, where individuals have had some years of pension accrual in a DB setting and some years in a DC setting (which is, for example, representative of the United States). Participants in both countries receive all three liquidity (wealth, income) combinations - (Ia), (Ib), as well as (Ic). In our model and analysis in Section C we refer to vignettes 1-3 with combinations Ia, Ib and Ic as Treatments 1, 2 and 3.

Implied governmental endorsement (vignette 4)

A potential instrument for governments to influence spending and savings decisions without restricting individuals' choices is to use implied endorsement. We address this by including a fourth vignette in which the hypothetical household is obliged to withdraw a minimum amount each financial year from their account in order to qualify for a tax exemption.In the experimental survey the high liquidity alternative (Ia) is assigned to the 'implied endorsement' vignette.

Future health expectation (vignette 5-8)

Vignettes 5-8 differ by the future health expectation of the hypothetical household. Each of these households again consists of two recently retired individuals aged 65. They own the house they live in (without a mortgage), and do not have any plans to move or sell the house. If one of them dies, the widow(er) would receive less pension income. The reduction in pension income corresponds to a proportional decrease in expenditures. However, the four vignettes differ in their future health expectations over four levels.

For the hypothetical household in vignette 5 it is expected that both household members will remain healthy, at least until the age of 75. For the vignette 6 household, it is expected that within 10 years one of the household will develop some difficulties with activities of daily living (ADL). In the household represented in vignette 7, it is expected that one will pass away within 10 years, and that the survivor will remain healthy at least until the age of 75, while for the household represented in vignette 8, it is expected that one will pass away within 10 years, and that the surviving partner will develop some ADL limitations.

For vignettes 5-8 the liquidity feature (which sets income and wealth) is randomly assigned on a between-subjects basis. That is, each participant is randomly assigned one of the two liquidity alternatives ((Ia) or (Ic)).[13] In our model and analysis in Section 5 we refer to the future health expectation vignettes as Treatments 5, 6, 7 and 8 where associated with low liquidity alternative (Ic), and as Treatments 5H, 6H, 7H and 8H where associated with high liquidity alternative (Ia).

[13] We do not include middle income and middle wealth because of survey time restrictions and to prevent lack of explanatory power due to too many between subject treatments.

4 Data and descriptive analysis

The initial sample includes data on 2,673 participants who completed the survey comprising 1,669 Dutch who participate in the Dutch LISS / CentER panel[14], and 1,004 Australians were recruited from the commercial web panel provider 'TEG rewards'. Australian participants were allocated to an income category based on the screening questions at the start of the survey while Dutch participants were allocated to an income category based on already available information on gross household income - see Section 3.1. Dutch participants for whom information on gross household income was missing were allocated to an income category at random. The accuracy of the (pre-) allocation was checked afterwards based on the survey response. Severely mismatched participants that were (randomly) allocated an income category differing at least two positions from their self-reported income category were excluded from the analysis sample. Preliminary analysis suggested that survey responses of the severely mismatched participants (138 out of 1,669), were statistically significantly different from those who were not severely mismatched. Also, participants who afterwards turned out not to be eligible to participate (e.g. retirees), or with missing information on relevant covariates (see Table 3) were excluded. This reduced the initial sample of 2,673 to the analysis sample of 2,420 (1,437 Dutch, and 983 Australian) participants.

The analysis sample is summarised in Table 4. Australian participants compared to Dutch participants on average are more likely to have at least one child living at home, a higher homeownership rate, and higher subjective life expectancy. The Dutch, however, are more likely to be born in the country they currently live in, and are more likely to consider themselves a member of a church or religion. Compared to the Australians, they also tend to be more confident about the operation of the first and second pension pillars. This is most likely driven by the differences in the first-pillar pension, whereby Australia's comprehensively means-tested first pillar is more complex than the Dutch universal first pillar. For the personality related measures, Australians tend to perform better in the pension capability related questions,[15] and are more conscientious, and future oriented (patient). However, Australians are more impulsive on financial matters, and slightly more risk seeking than their Dutch counterparts.[16]

Turning to the choices made by participants in respect of the hypothetical households, Table 5 presents the percentages of participants electing the alternative advised spending patterns per treatment and country.[17] Participants increase the wealth of the hypothetical household if they advise spending pattern $s = 5$ for the high liquidity of wealth

[14]For the Dutch sample there is data on 129 participants who partially completed the experimental task. The Australian data, however, is collected solely for participants who completed the experimental task.

[15]The pension capability measure is constructed using the financial literacy, numeracy and pension knowledge questions. Australians outperform the Dutch only in the financial literacy questions (around 85% had at most 1 mistake in Australia, compared to 72% in the Netherlands), as the distributions of the numbers of mistakes for the numeracy and pension knowledge question are comparable.

[16]Standardized measures are standardized (mean 0 and standard deviation of 1) using the full analysis sample. However, not all participants ranked all saving motives. As a robustness check we compare the estimates of our main specification to the results when standardization takes place per participants that ranked the saving motive, see Table D.2 in Appendix D. There are few differences in the estimation results.

[17]In this paper we focus on treatments $t = 1, \ldots, 3, 5, \ldots 8, 5H, \ldots, 8H$, referring to the vignettes as discussed in Section 3. The implied endorsement vignette, $t = 4$ will be analysed in a companion paper.

Table 3: Description of the relevant covariates, X_i.

Covariate	Explanation
Personal characteristics	
male	1 if male, 0 if female
partner	1 if lives together with partner, 0 else
children	1 if participant has at least one child living at home, 0 else
INC_3_4	1 if participant is in (current) income category 3 or 4, 0 else
homeowner	1 if participant owns (potentially with a mortgage) the house (s)he lives in, 0 else
religious	1 if participant considers himself as member of a certain religion or church community, 0 else
born_country	1 if participant is born in the country (s)he lives in, 0 else
SLE1_high	1 if participant expects to live as least as long as predicted according to Statistics Australia / Netherlands, 0 else
Personality related	
ret_plan	1 if participant answered 'Yes' to the question: "Have you ever tried to work out how much you need to save for retirement?", 0 else
pens_cap	1 if participant had less mistakes than the median number of mistakes in the analysis sample for both the financial literacy questions (Lusardi and Mitchell, 2011), as well as the numeracy questions (Lipkus et al., 2001), and pension literacy questions (Bateman et al., 2017), 0 else.
pens_kno_std	standardized measure comprised of the following questions: "I am knowledgeable about how the state pension works" and "I am knowledgeable about how superannuation / pension works."
risk1_std	standardized measure comprised of the following question: "How do you see yourself: Are you generally a person who is fully prepared to take risks or do you try to avoid taking risks?"
imp_fin_be∼d	standardized measure comprised of four questions related to self-controlled behavior in the domain of finances of the participant (Duckworth and Weir, 2011)
fut_or_std	standardized measure comprised of twelve questions related to patience / future orientation of the participant (Strathman et al., 1994)
TIPI_Con_std	standardized measure for the personality trait conscientiousness, comprising two conscientiousness related questions of the ten-item personality inventory (TIPI) (Gosling et al., 2003)
Country of residence	
AUSTRALIA	1 if participant took part in the Australian questionnaire, 0 else

vignette ($t = 1$). Spending pattern $s = 4$ or $s = 5$ leads to an increase in wealth for the middle wealth / middle income vignette ($t = 2$), whereas wealth increases during retirement for the low liquidity of wealth vignette ($t = 3$), if the participant advised spending pattern $s = 3$, $s = 4$ or $s = 5$. Spending patterns $s = 2$ and $s = 3$ are the most popular irrespective of the treatment. The spending pattern distribution for the Dutch participants is more skewed to the higher spending patterns, in contrast to that of the Australians who are more conservative. Almost 50% (45%) of the Dutch (Australian) participants did not change the advised spending pattern in vignettes 1-3, which vary retirement income arrangements. For vignettes 5-8, which vary future health expectations), almost 60% (55%) of the Dutch (Australian) participants did not change the advised spending pattern.

As expected beforehand, there are differences between the advised spending patterns between participants by country of residence. For example, if a Dutch participant is confronted with an unfamiliar institutional pension setting they become less conservative spenders (compare $t = 3$ with $t = 1$), whereas Australian participants become more conservative spenders (compare $t = 1$ with $t = 3$). If a health shock is likely to occur in the near future in the system that participants are familiar with, Dutch advise the hypothetical household to spend less (compare $t = 5$ with $t = 6$ and $t = 8$), whereas the effects are only minor for Australians (compare $t = 5H$ with $t = 6H$ and $t = 8H$). Moreover, we find that participant's advised spending pattern responses to variations in their expected lifespan are as expected. If death is expected in the near future participants become less conservative spenders, irrespective of the retirement income system they are familiar with (compare $t = 5, 5H$ with $t = 7, 7H$).

Table 6 presents the importance of the presented saving motives per treatment and country. We define a saving motive as important, when it is most preferred in either the first or second round of best / worse (that is, ranked 1 or 2 in a choice set). The importance of given saving motives is fairly consistent across treatments, and for some, but not all, similar in the two countries. Irrespective of the country of residence, the psychological motives (cf. autonomy and self-gratification) appear to be important but the importance of some rational saving motives differ by country. For example, life-span risk is considered more important by Australian participants. This is likely due to Australians being more aware of life-span risk, compared to the Dutch who are in a (real-world) setting where life-span risk is hedged with lifelong annuities. However, intra-household bequest is more important in the Netherlands than in Australia, which is likely due to the prominence of joint and survivor annuities in the Netherlands[18], which would make Dutch participants more aware of the need to leave sufficient wealth for the surviving partner. Some saving motives are less important for participants in both countries, specifically intended bequest. The liquidity of wealth at the start of retirement ($t = 1$, $t = 2$, and $t = 3$) does not seem to influence the ranking of the saving motives. However, liquidity of wealth does seem to affect the ranking if future health is expected to deteriorate ($t = 6, 6H$ and $t = 8, 8H$). The effect of liquidity of wealth on the life-span risk motive for the Australian participants seems counterintuitive. For a hypothetical household with a high liquidity of wealth, Australian participants indicate

[18] Accrued pension rights in the Netherlands are typically converted into a life-long income stream - cf. Section 1. The pension benefit consists of an "own" old age pension and survivor benefits. Commonly 70% of the pension benefit is a survivor benefit. However, individuals have the opportunity to increase their "own" old age pension at the cost of the partner pension before their first pillar pension payment and upon mutual agreements of both spouses (Brown and Nijman, 2011).

less often that the life-span motive is most preferred in the first or second round of best / worse, compared to a hypothetical household with a low liquidity of wealth. A closer inspection of the data (not included) reveals that this result is driven by a relative small number of participants who change their advised spending pattern. Finally, participants seem to react as expected to expected health shocks ($t = 6, 6H$) and ($t = 8, 8H$) as the precautionary health motive becomes more important on average.

Table 4: Descriptive statistics for the control variables.

	Analysis Sample				The Netherlands				Australia			
	Mean	Sd	Min	Max	Mean	Sd	Min	Max	Mean	Sd	Min	Max
Personal characteristics												
male	0.50	0.50	0.00	1.00	0.50	0.50	0.00	1.00	0.50	0.50	0.00	1.00
partner	0.72	0.45	0.00	1.00	0.71	0.45	0.00	1.00	0.74	0.44	0.00	1.00
children[a]	0.40	0.49	0.00	1.00	0.36	0.48	0.00	1.00	0.45	0.50	0.00	1.00
INC_3_4	0.32	0.47	0.00	1.00	0.31	0.46	0.00	1.00	0.34	0.47	0.00	1.00
homeowner	0.78	0.42	0.00	1.00	0.74	0.44	0.00	1.00	0.83	0.37	0.00	1.00
religious	0.32	0.47	0.00	1.00	0.33	0.47	0.00	1.00	0.30	0.46	0.00	1.00
born_country	0.85	0.36	0.00	1.00	0.92	0.27	0.00	1.00	0.74	0.44	0.00	1.00
SLE1_high	0.49	0.50	0.00	1.00	0.40	0.49	0.00	1.00	0.62	0.49	0.00	1.00
Personality related												
ret_plan	0.42	0.49	0.00	1.00	0.33	0.47	0.00	1.00	0.56	0.50	0.00	1.00
pens_cap	0.35	0.48	0.00	1.00	0.26	0.44	0.00	1.00	0.47	0.50	0.00	1.00
pens_kno_std	0.00	1.00	−1.88	1.87	0.04	1.05	−1.88	1.87	−0.06	0.92	−1.88	1.87
risk1_std	0.00	1.00	−1.97	2.40	−0.04	1.01	−1.97	2.40	0.06	0.98	−1.97	2.40
imp_fin_be∼d	0.00	1.00	−1.94	5.08	−0.23	0.93	−1.94	5.08	0.34	1.01	−1.94	5.08
fut_or_std	0.00	1.00	−4.18	2.80	−0.16	0.99	−4.18	2.80	0.24	0.97	−4.18	2.80
TIPI_Con_std	0.00	1.00	−4.11	1.52	−0.12	1.02	−4.11	1.52	0.17	0.94	−4.11	1.52
Country of residence												
AUSTRALIA	0.41	0.49	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00	1.00
N	2,420				1,437				983			

Notes: [a]Recall that 'children' equals one if the respondent has at least one child living at home, and zero otherwise (cf. Table 3). Hence, 40% of the respondents in our analysis sample have at least one child living at home.

Table 5: Percentage advised spending pattern by treatment: The Netherlands and Australia

		Treatment (t)										
		$t=1$	$t=2$	$t=3$	$t=5$	$t=6$	$t=7$	$t=8$	$t=5H$	$t=6H$	$t=7H$	$t=8H$
Spending pattern (s)												
The Netherlands												
$s=1$	1.05*[high income]	17.1	15.7	7.9	5.4	5.2	7.2	5.0	15.0	13.0	18.5	17.4
$s=2$	[high income]	42.2	46.2	56.9	58.7	49.7	57.4	50.5	45.7	40.4	42.5	38.2
$s=3$	[middle income]	26.4	30.1	28.3	29.9	38.1	26.7	33.5	24.9	31.8	26.0	28.7
$s=4$	[low income]	8.8	5.4	3.6	2.9	4.2	4.5	6.0	9.9	10.9	9.6	11.1
$s=5$	0.95*[low income]	5.5	2.7	3.3	3.1	2.9	4.2	5.0	4.5	4.0	3.3	4.6
Australia												
$s=1$	1.05*[high income]	12.7	12.3	5.6	5.2	4.4	5.4	4.8	12.1	10.5	13.8	13.6
$s=2$	[high income]	29.4	28.4	34.3	35.8	32.5	39.2	34.1	33.3	32.0	32.9	28.7
$s=3$	[middle income]	29.8	36.6	39.6	41.4	41.8	37.8	40.8	28.5	29.1	27.0	32.0
$s=4$	[low income]	13.5	13.3	11.8	11.5	14.7	12.3	14.5	12.8	14.9	14.0	11.1
$s=5$	0.95*[low income]	14.6	9.4	8.8	6.1	6.7	5.4	5.9	13.4	13.6	12.3	14.6

Notes: Per country, columns add up to 100. Treatments $t = 1, \ldots, 3, 5, \ldots, 8, 5H, \ldots, 8H$, relate to the vignettes as discussed in Section 3, with $t = 1$ referring to (Ia) (high wealth, low income), $t = 2$ to (Ib) (middle wealth, middle income), $t = 3$ to (Ic) (low wealth, high income), $t = 5H, \ldots, 8H$ referring to high liquidity vignettes 5 to 8 (high wealth, low income), and $t = 5, \ldots, 8$ referring to low liquidity vignettes 5 to 8 (low wealth, high income).

Table 6: Percentage saving motive most important in first or second round best / worse: The Netherlands and Australia

		Treatment (t)										
		$t=1$	$t=2$	$t=3$	$t=5$	$t=6$	$t=7$	$t=8$	$t=5H$	$t=6H$	$t=7H$	$t=8H$
Saving motive (m)												
The Netherlands												
Rational												
$m=1$	precautionary	46.5	48.3	48.5	43.5	47.1	44.6	45.1	46.5	51.5	49.6	48.7
$m=2$	precautionary health	53.8	54.2	54.9	50.4	59.9	54.3	60.2	52.8	64.1	53.1	64.6
$m=3$	life-span risk	7.9	5.6	5.6	7.2	8.1	7.8	7.5	6.5	8.3	7.1	9.8
$m=4$	intended bequest	6.1	6.6	6.9	8.2	7.1	6.8	6.2	4.8	3.7	4.8	5.3
$m=5$	liquidity	59.7	58.2	58.3	58.9	62.9	61.5	63.7	57.3	59.5	61.0	56.4
$m=6$	intra-household bequest	52.9	53.9	54.2	51.7	50.4	60.4	59.1	54.9	51.0	60.2	58.8
Psychological												
$m=7$	autonomy	58.9	57.9	58.1	59.9	54.5	54.5	52.6	57.8	53.3	53.5	54.4
$m=8$	security	26.8	27.7	27.4	25.9	22.5	23.6	22.2	26.9	25.1	23.7	22.8
$m=9$	self-gratification	64.0	63.8	63.0	63.5	58.1	60.3	56.2	66.3	62.4	64.4	58.6
$m=10$	political risk	25.9	26.4	25.6	24.8	24.5	20.1	21.5	26.1	20.9	22.7	20.4
Australia												
Rational												
$m=1$	precautionary	45.5	47.9	48.4	42.2	49.0	44.6	49.8	45.7	48.2	41.7	43.7
$m=2$	precautionary health	51.9	51.5	51.3	47.3	49.0	46.1	51.0	52.6	63.8	51.7	59.9
$m=3$	life-span risk	33.0	33.3	31.8	34.2	35.0	30.8	31.3	28.5	26.4	24.8	26.4
$m=4$	intended bequest	8.3	7.5	8.5	6.1	10.6	8.3	7.6	10.1	12.3	11.5	12.3
$m=5$	liquidity	32.1	35.5	33.1	34.2	31.5	31.9	33.1	25.6	30.8	31.6	31.2
$m=6$	intra-household bequest	41.4	40.6	42.5	50.6	49.4	60.7	61.1	46.8	45.6	58.1	51.2
Psychological												
$m=7$	autonomy	56.5	54.9	58.7	58.7	57.6	57.6	50.4	53.5	50.2	53.9	49.8
$m=8$	security	54.9	54.5	53.2	44.1	41.8	44.8	43.7	55.5	52.4	55.0	53.3
$m=9$	self-gratification	63.5	64.7	61.9	62.0	58.0	62.0	56.4	62.3	55.9	56.4	58.1
$m=10$	political risk	14.6	11.4	12.2	20.0	17.4	11.5	14.9	19.4	14.9	15.3	14.5

Notes: A respondent assesses the importance of five saving motives per treatment. The motives that are most important in either the first or second round of best / worse (i.e., ranked first or second overall) are assigned value 1, while the other three motives are assigned value 0. Next, per saving motive and per treatment, the share of ones in the total number of time a motive is assessed is reported in the table. Per country, columns average is around 40. Treatments $t = 1, \ldots, 3, 5, \ldots, 8, 5H, \ldots, 8H$, referring to the vignettes as discussed in Section 3, with $t = 1$ referring to (Ia) (high wealth, low income), $t = 2$ to (Ib) (middle wealth, middle income), and $t = 3$ to (Ic) (low wealth, high income). Moreover, $t = 5H, \ldots, 8H$ refer to high liquidity vignettes 5 to 8 (high wealth, low income) whereas $t = 5, \ldots, 8$ refer to low liquidity vignettes 5 to 8 (low wealth, high income). See Table 2 for the full-text saving motives.

5 Model description and estimation results

This section discusses the model and results. First, we present the model used to explain the importance of saving motives. Second, the analysis sample is described together with the descriptive statistics on the advised spending pattern, importance of the saving motives, and the relevant covariates. Finally, the estimation results are discussed.

5.1 A model to assess the importance of the saving motives

We use data from treatments $t = 1, \ldots, 3, 5, \ldots 8, 5H, \ldots, 8H$, as described in Section 3, with $t = 1$ referring to (Ia) (high wealth, low income), $t = 2$ to (Ib) (middle wealth, middle income), $t = 3$ to (Ic) (low wealth, high income), $t = 5H, \ldots, 8H$ refer to high liquidity vignettes 5 to 8 (high wealth, low income) and $t = 5, \ldots, 8$ refer to low liquidity vignettes 5 to 8 (low wealth, high income). We investigate the effect of various (unobserved) determinants on the participant's decision to indicate the importance of a saving motive. We focus on the effect of the participant's country of residence, liquidity of wealth (i.e., retirement income arrangements), and future health expectations, while controlling for a rich set of explanatory variables collected in Sections 2, 3, and 4 of the survey.

The econometric analysis assumes that individuals are utility maximizers. Since we only observe the ranking of the saving motives, the utility is a latent variable. Therefore, the underlying decision process is unobserved. The starting point of the empirical specification is therefore a single index latent variable (U^*). The importance of a saving motive m ($m = 1, \ldots, 10$) for individual i ($i = 1, \ldots, N$) and for treatment t is assumed to be determined by individual characteristics X_i, the individual's (advised) spending pattern S_i, a set of nuisance parameters $A_{i,t}$, and an individual specific term μ_i^m capturing unobserved individual characteristics,

$$U_{i,t}^{m,*} = U_{i,t}^{m,*}(X_i, S_i, A_{i,t}, \mu_i^m).$$

For the advised spending pattern, a set of binary variables S_i is included, where one indicates that the participant selected spending pattern s ($s = 1, \ldots, 5$) in treatment t and zero otherwise. To account for different advised spending patterns per treatment, there are [5*3 + (5*4)*2 - 1 =] 54 binary variables for the spending pattern, i.e. $S_i := [S_{i,1,1}, \ldots, S_{i,1,5}, S_{i,2,1}, \ldots, S_{i,2,5}, \ldots, S_{i,8H,5}]$ where $S_{i,t,s}$ equals one if individual i selected spending pattern s in treatment t and zero otherwise. Similarly, we model $A_{i,t}$ as a set of 10 binary variables $A_{i,t,m}$ indicating whether individual i saw saving motive m in treatment t[19], i.e. $A_{i,t} := [A_{i,t,1}, \ldots, A_{i,t,10}]$. Our model can be written as follows:

$$U_{i,t}^{m,*} = \beta_1^m X_i + \beta_2^m S_i + \beta_3^m A_{i,t} + \mu_i^m + \epsilon_{i,t}^m,$$

where β_1^m measures the effect of individual characteristics $U_{i,t}^{m,*}$ for saving motive m.

[19] Nuisance parameters, modeled as binary variables, are included to account for the different choice sets of saving motives presented (in total there are [20*4 =] 120 different possibilities). It could be that some motives are of less importance when another (different) motive is included in the choice set. Our results appear to be robust to a specification without nuisance parameters, see Table D.1.

The influence of the spending pattern and vignette[20] for saving motive m is captured by β_2^m, whereas the impact of the nuisance term is determined by β_3^m. The unmeasured (and immeasureable) effects on the decision process, $\epsilon_{i,t}^m$, are assumed to be normally distributed with mean 0 and variance $\sigma^2_{\epsilon^m}$. The random component is normally distributed with mean 0 and variance $\sigma^2_{\mu^m}$, and independent of $\epsilon_{i,t}$ for all m and t.

The importance of a saving motive is analyzed using an ordinal scale (from $k = 1$: 'least important' to $k = 5$: 'very important').[21] The observed ranking per saving motive m and treatment t, $R_{i,t}^m$ are linked to the latent variable using

$$R_{i,t}^m = k \iff \nu_{k-1}^m < U_{i,t}^{m,*} \leq \upsilon_k^m,$$

where for each m the threshold parameters $-\infty = \nu_0^m < \nu_1^m < \ldots < \nu_4^m < \nu_5^m = \infty$ for $k = 1, \ldots, 4$ are estimated empirically. This implicitly assumes that, per saving motive, they are the same for all participants. Identification is achieved by restricting the constant term to zero and $\sigma^2_{\epsilon^m}$ to 1. This is the specification of a random effects ordered probit (REOP) model. The estimation of such model can be conducted using standard software (e.g. Stata) - see Greene and Hensher (2010) for details about the estimation procedure.

5.2 Estimation Results

In discussing the estimation results, first, we consider the effect of the country of residence and the institutional settings on the importance of saving motives. Second, we quantify these effects on the importance of rational and psychological savings motives. Third, we look more closely at the effect of updated beliefs on expected future health status. We discuss these estimation results in detail for the precautionary health motive ($m = 2$), security motive ($m = 8$), and self-gratification motive ($m = 9$) only, as the discussion of expected future health status only affects the importance of these savings motives substantially. For completeness, a discussion of the estimation results for the other saving motives is presented in Appendix C.

5.2.1 Liquidity of retirement savings versus retirement income

The main estimation results are presented in Table 7.[22] The corresponding probability that the savings motive is among the top two most important savings motives for a survey participant is presented in Table 8. First, we discuss the results which are consistent across treatments and country of residence. Next, we discuss the differences between the treatments and finally the differences due to the country of residence of the participant.

[20] As the spending pattern includes the vignette, a vignette (dummy) variable itself is redundant.

[21] Formally, a saving motive was assigned value 5 (4) if the motive was most preferred in the first (second) round of best / worse, whereas a value 1 (2) was assigned if the motive was least preferred in the first (second) round of best / worse. The non-selected motive was assigned value 3.

[22] It might be the case that the ranking of some saving motives are made within a household, rather than per household member. Since the LISS / CentER panel are household panels, this could influence the standard errors of our estimates. Therefore, in Table D.3 (Appendix D) we cluster on households, rather than on household members. The results are similar.

General effects

Irrespective of the country of residence and treatment, we find the following. First, we observe that savings motives classified as rational as well as those classified as psychological are highly ranked. Autonomy ($m = 7$) and self-gratification ($m = 9$) are ranked as the most important of the psychological saving motives. Self-gratification is more important for participants who advise a higher spending pattern. This signals that the importance of this savings motive corresponds to being more likely to prefer a higher spending level in the near future rather than in the distant future.

Among the rational savings motives, precautionary (health) savings ($m = 1$ and $m = 2$), liquidity ($m = 5$) and intra-household bequest ($m = 6$) are ranked as important. Surprisingly, the rational savings motives life-span risk ($m = 3$) and intended bequest ($m = 4$) are less likely to be important. These results suggest that people are saving for unexpected expenses and to leave their partner in a good state financially should they pass away in the near future. However, they do not worry about the distant future: that is, whether one of the household members lives longer than expected or what happens with the savings after both household members have passed away.

Treatment effects

Interestingly, the ranking of the importance of the savings motives are very consistent between the various liquidity (pension system design) treatments. The main difference relates to the importance of the precautionary (health) savings motives ($m = 1$ and $m = 2$). The precautionary (health) savings motive is more important when the liquidity of retirement savings is low ($t = 3$) and is even more important for those who spend less and save more (high s), indicating that it is a motive that reduces an individual's consumption in the near future. The increase in the importance of the precautionary savings motive when the liquidity of retirement savings is low indicates that the participants are more aware of the need to have set aside money for unexpected expenses in the near future, as opposed to the distant future. This is because an (annuity/pension) income would also provide mortality credits which would provide greater returns and reduce the probability of running out of money in the event one lives long and has (health) costs, and reduce the need to save for expenditures in the distant future.

We also observe that an income is seen as providing security. The savings motive security ($m = 8$) becomes less important in the low liquidity treatment ($t = 3$). An income for life instead of a phased withdrawal product with (probably) stochastic investment returns would provide an individual more certainty about the possible spending pattern he can choose.

Although the prevalence of the savings motive autonomy ($m = 7$) does not differ substantially between liquidity treatments, there are interaction effects with the advised savings pattern. On the one hand, for the low liquidity treatment ($t = 1$) it is a more prevalent savings motive where the participant advises the hypothetical household to spend less (high s). This indicates that those participants feel they have autonomy where they have some cash on hand. On the other hand, in the high liquidity treatment ($t = 3$) autonomy is a more prevalent savings motive where the participant advises the hypothetical household to spend more. This indicates that those participants feel they have autonomy in their preferred intertemporal substitution of consumption by spending more in the near future than in the distant future.

Similarly, the prevalence of the savings motive liquidity ($m = 5$) does not differ substantially between liquidity treatments, but there are interaction effects with the advised spending pattern. For the high liquidity treatment ($t = 1$) this savings motive is more prevalent where the participant advises a high spending pattern (low s) indicating that there is enough liquid wealth to have a high consumption in the near future and not worry about the liquidity of wealth in the distant future. In the low liquidity treatment ($t = 3$), the participants also have a present bias, but that leads to the liquidity savings motive being more prevalent where the participant advises the hypothetical household to spend less (high s).

Country of residence (norms and awareness of risks) effects
Generally, the ranking of the savings motives is quite consistent between participants from the Netherlands and Australia (that is, country of residence). While there are no savings motives that are very important in one country but not in the other country, there are still some differences in the ranking of the savings motives between the two countries. These between country differences are often larger than the between treatment differences, suggesting that outside the experiment people would not respond instantaneously to a reform of the retirement income system, and it might take a while before people adjust their savings motives. This might occur because people are more influenced by societal norms and awareness of potential risks within the current system, rather than due to institutional settings. Unfortunately, this would make policy evaluation difficult as it might take a long time before people adjust to different retirement income arrangements.

The norm in the Netherlands is that retirement income from pillar 1 and 2 is household income and that a surviving spouse is able to maintain their standard of living after one of the couple passes away. This is not the case in Australia. Workplace pension arrangements (the income replacement pillar) in the Netherlands typically have a 70% partner pension feature[23] and the state pension is higher for a single than for (each spouse separately in) a couple. In comparison, Australia's income replacement DC system does not require annuitization, so if the surviving spouse lives longer, she is more likely to run out of money. Moreover, it is only since the implementation of the Harmer pension review (Harmer, 2009) that the single state pension rate was increased to two-thirds of the rate paid to couples (households). This awareness of reversionary pensions is reflected in the higher ranking of the savings motive intra-household bequest ($m = 6$), by the Dutch participants.

In the Netherlands the retirement income system requires retirees to take an income stream without the possibility of even a partial lump sum, whereas under the Australian arrangements a liquid phased withdrawal account or lump sum is the standard option for the decumulation of retirement savings: there is no mandatory annuitization requirement and little take-up of voluntary annuities. As a result, the Dutch participants are likely to be more aware than the Australian participants that a (non-reversible) income stream might lead to too low (liquid) wealth when they need cash on hand for immediate expenditures. We see this particularly prevalent for the savings motive liquidity ($m = 5$) and to a lesser extent for the precautionary (health) savings motives ($m = 1$ and $m = 2$). This between country difference in awareness of the risk effect is even larger than the liquidity treatment effect.

[23]The partner pension feature works as follows. If the insured passes away the widow(er) receives an income for the rest of his life which is 70% of the income the insured received while alive. If the partner of the insured passes away, the income of the insured will not be reduced.

Although not that important as a highly ranked saving motive, political risk ($m = 10$) is much more prevalent in the Netherlands than in Australia. This might be due to a lack of transparency in the Dutch pension system rather than political risk itself. The transparency in the Dutch retirement income system with soft rights is an issue due to the allocation of realized risks to different cohorts. In the past decade many pension funds did not fully index pension income to inflation due to low funding ratios, and many pension funds had to warn their members of the possibility of nominal pension cuts in the future should their funding ratio remain low. Political intervention in the Netherlands has led to small changes in prudential regulation, requiring pension funds to hold higher reserves. Moreover, there has been debate for the past few years about whether to add a new type of pension contract. By comparison, in the recent past the politically driven changes in the Australian retirement income arrangements have been much more extensive - with proposed and actual changes to both state pensions and tax concessions in the DC system announced frequently in the annual federal budget and as election policies. On the one hand the system has become more generous: in 2007 pension withdrawals became tax exempt and in 2009 the ratio of the single to married rate of the state pension increased. On the other hand, the arrangements have become less generous as the means testing of state pension has become tighter, while changes to the taxation of pensions has increased uncertainty despite their narrow impact.

In Australia the lack of a requirement to take retirement income streams means that people might know peers or elderly family members who have run out of money in retirement and are left solely reliant on income from the state pension. In the Netherlands people have not learnt about this potential drawback of liquid retirement savings from their peers or family members, as retirement savings are fully annuitized. As a consequence, the prevalence of the savings motives life-span risk ($m = 3$) and security ($m = 8$) is much higher for Australians than for the Dutch. This between country effect is much larger than the between treatment effect, which indicates that people need to be aware of the risk before they adjust their savings motives.

5.2.2 The effect of expected future health status on the importance of saving motives

The second stage dummy variables (see Table 7) allow us to control for the (experimental) institutional setting and to assess the effect of expected future health status.[24] Similar to the first stage dummy variables, most estimates are not statistically significantly different from the reference category ($S_{3,2}$). An interesting exception is the negative estimate of $S_{5,2}$ for the precautionary health motive, suggesting that reducing uncertainty about the future health state is associated with a decrease in the importance of that motive in the low wealth / high income setting.

From Tables 9 and 10 we observe that the precautionary health savings motive ($m = 2$) is most affected by a change in the expected health status of the household. In the case that the household expects that one of them will have a limitation in the activities of

[24]The estimates for spending pattern $s = 5$ in the second stage variables are, for some motives, driven by at most 50 observations. Therefore, these estimates might behave somewhat surprisingly. Notice that combining these with spending pattern $s = 4$ is not desirable because of the interpretation, as spending pattern $s = 5$ is constructed to indicate an increase in wealth for the high wealth / low income type of vignettes.

daily living (ADL) ($t = 6$ or $t = 8$) the precautionary savings motive becomes more prevalent as a top ranked motive. Whereas for Dutch participants the liquidity of the retirement wealth (comparing treatments $t = 5, \ldots, 8$ with treatments $t = 5H, \ldots, 8H$) has only a minor influence on the prevalence of the precautionary health savings motive, for the Australian participants there is a larger treatment effect. The effect of an increase in the prevalence of the precautionary health savings motive is much larger for the high liquidity of retirement wealth treatment than for the low liquidity of wealth treatment. In the case of high income but low liquid wealth, Australians might not be aware that they can save some of their income to pay for the expenditures related to having poor health as they might only be familiar with using their liquid retirement savings for health-related expenditures.

Interestingly, the savings motive liquidity ($m = 5$) is affected by the expected health status of the household in the high liquidity of retirement savings treatment, but there is almost no effect for the low liquidity treatment. We suggest that the participant wants to ensure an adequate standard of living for the healthy surviving spouse where the household has high retirement wealth but low retirement income. This implies that the liquidity savings motive is more prevalent for $t = 6H$ and $t = 7H$, where the household will expect some out of pocket health expenditures because either one of the household dies within ten years ($t = 7H$) or acquires a limitation of ADL ($t = 6H$). Where the household has high income but low wealth $t = 6$ or $t = 7$, the surviving healthy spouse will not be in poverty as the income would be sufficient to maintain an adequate standard of living.

As expected, for Australian participants the life-span risk saving motive ($m = 3$) becomes less prevalent where one of the household is expected to pass away within ten years ($t = 7, 7H, 8, 8H$). For Dutch participants the prevalence of this savings motive as a highly ranked motive is too low to observe health expectancy effects.

Finally, the following observations about the prevalence of the savings motives are consistent for the country of residence of the participant as well as for the liquidity of the retirement wealth, and are as expected. The intra-household saving motive ($m = 6$) is more prevalent where one spouse is expected to pass away with the next ten years ($t = 7, 8, 7H, 8H$). The savings motive self-gratification ($m = 9$) is more prevalent where at least one of the household is expected to remain healthy for at least ten years ($t = 5, 7, 5H, 7H$), and the savings motive autonomy ($m = 7$) is more prevalent where both the household members are expected to remain healthy for at least ten years ($t = 5, 5H$).

Table 7: Main results. Random Effects Ordered Probit estimates by saving motive.

	$m=2$ precautionary health	$m=8$ security	$m=9$ self-gratification
AUSTRALIA	-0.278^{***}	1.175^{***}	-0.0310
	(-3.32)	(12.60)	(-0.34)
First stage dummies			
$S_{1,1}$	-0.0430	0.0735	-0.0782
	(-0.40)	(0.66)	(-0.60)
$S_{1,2}$	-0.0126	0.0251	0.0754
	(-0.20)	(0.38)	(1.01)
$S_{1,3}$	0.284^{***}	0.0207	-0.138
	(3.26)	(0.24)	(-1.43)
$S_{1,4}$	0.189	0.0960	-0.300^{**}
	(1.50)	(0.78)	(-2.39)
$S_{1,5}$	0.306^{**}	0.0931	-0.396^{***}
	(2.16)	(0.62)	(-2.77)
$S_{2,1}$	0.0768	0.00983	0.0734
	(0.64)	(0.09)	(0.56)
$S_{2,2}$	0.0236	-0.0683	0.0690
	(0.40)	(-1.14)	(0.94)
$S_{2,3}$	0.272^{***}	0.164^{*}	-0.300^{***}
	(3.16)	(1.85)	(-3.23)
$S_{2,4}$	0.609^{***}	0.212	-0.307^{**}
	(4.49)	(1.44)	(-2.19)
$S_{2,5}$	0.404^{**}	-0.333	-0.524^{***}
	(2.32)	(-1.50)	(-2.96)
$S_{3,1}$	0.0312	-0.113	0.331^{*}
	(0.18)	(-0.59)	(1.87)
$S_{3,2}$	0	0	0
	(.)	(.)	(.)
$S_{3,3}$	0.371^{***}	-0.00275	-0.378^{***}
	(4.35)	(-0.03)	(-3.81)
$S_{3,4}$	0.532^{***}	-0.0749	-0.611^{***}
	(3.39)	(-0.37)	(-3.69)
$S_{3,5}$	0.291	-0.168	-0.420^{**}
	(1.60)	(-0.80)	(-2.20)
Second stage dummies			
$S_{5,1}$	-0.372	0.0340	-0.494
	(-1.44)	(0.13)	(-1.55)
$S_{5,2}$	-0.197^{*}	-0.0844	0.0620
	(-1.94)	(-0.81)	(0.59)
$S_{5,3}$	0.267^{**}	-0.424^{***}	-0.365^{***}
	(2.10)	(-3.70)	(-3.03)
$S_{5,4}$	0.676^{***}	-0.286	-1.009^{***}
	(2.72)	(-1.18)	(-4.36)
$S_{5,5}$	0.736^{**}	-0.317	-0.557
	(2.18)	(-1.22)	(-1.47)
$S_{5H,1}$	0.00177	-0.201	0.657^{*}
	(0.01)	(-0.68)	(1.84)
$S_{5H,2}$	0.137	0.116	-0.0646
	(1.05)	(0.85)	(-0.46)
$S_{5H,3}$	0.0110	0.344^{**}	0.374^{**}
	(0.07)	(2.10)	(2.47)
$S_{5H,4}$	-0.453	-0.0221	0.448
	(-1.50)	(-0.07)	(1.60)
$S_{5H,5}$	-0.438	0.399	-0.00995
	(-1.09)	(1.07)	(-0.02)
$S_{6,1}$	-0.502^{**}	-0.411	-0.136
	(-2.02)	(-1.64)	(-0.48)
$S_{6,2}$	-0.0300	-0.204^{*}	-0.00697
	(-0.28)	(-1.89)	(-0.06)
$S_{6,3}$	0.783^{***}	-0.287^{***}	-0.554^{***}
	(6.08)	(-2.64)	(-4.86)
$S_{6,4}$	0.229	-0.521^{**}	-0.812^{***}
	(0.92)	(-2.44)	(-3.35)
$S_{6,5}$	0.514^{*}	0.0347	-0.857^{**}
	(1.70)	(0.13)	(-2.56)

	$m=2$ precautionary health	$m=8$ security	$m=9$ self-gratification
$S_{6H,1}$	0.562^{*}	0.181	0.334
	(1.80)	(0.62)	(0.99)
$S_{6H,2}$	0.417^{***}	0.0568	-0.0441
	(3.01)	(0.42)	(-0.30)
$S_{6H,3}$	0.0817	0.108	0.104
	(0.50)	(0.72)	(0.71)
$S_{6H,4}$	0.409	0.294	0.189
	(1.32)	(1.07)	(0.69)
$S_{6H,5}$	0.324	-0.00724	0.0631
	(0.84)	(-0.02)	(0.17)
$S_{7,1}$	-0.273	-0.121	-0.363^{*}
	(-1.18)	(-0.57)	(-1.77)
$S_{7,2}$	-0.0157	-0.264^{***}	0.0347
	(-0.15)	(-2.66)	(0.30)
$S_{7,3}$	0.384^{***}	-0.340^{***}	-0.540^{***}
	(3.06)	(-2.81)	(-4.51)
$S_{7,4}$	0.473^{*}	-0.131	-0.736^{***}
	(1.71)	(-0.54)	(-3.14)
$S_{7,5}$	0.171	-0.0830	-0.264
	(0.57)	(-0.29)	(-0.67)
$S_{7H,1}$	0.263	-0.0581	0.640^{**}
	(0.97)	(-0.24)	(2.47)
$S_{7H,2}$	0.0814	0.0920	-0.0135
	(0.64)	(0.67)	(-0.09)
$S_{7H,3}$	-0.179	0.281^{*}	0.149
	(-1.10)	(1.69)	(0.95)
$S_{7H,4}$	-0.351	0.0253	0.194
	(-1.06)	(0.08)	(0.69)
$S_{7H,5}$	0.697^{*}	-0.281	-0.272
	(1.81)	(-0.80)	(-0.61)
$S_{8,1}$	-0.197	0.472^{**}	-0.426
	(-0.77)	(2.26)	(-1.49)
$S_{8,2}$	0.104	-0.276^{**}	-0.156
	(0.98)	(-2.57)	(-1.36)
$S_{8,3}$	0.597^{***}	-0.485^{***}	-0.501^{***}
	(4.56)	(-4.17)	(-4.46)
$S_{8,4}$	0.446^{**}	-0.0346	-0.563^{***}
	(2.28)	(-0.14)	(-2.79)
$S_{8,5}$	0.376	-0.397	-0.728^{***}
	(1.28)	(-1.25)	(-2.92)
$S_{8H,1}$	0.485^{*}	-0.520^{**}	0.491
	(1.66)	(-2.09)	(1.46)
$S_{8H,2}$	0.357^{**}	0.170	-0.0169
	(2.48)	(1.18)	(-0.11)
$S_{8H,3}$	0.0626	0.363^{**}	-0.0274
	(0.38)	(2.26)	(-0.18)
$S_{8H,4}$	0.00614	-0.167	-0.0946
	(0.02)	(-0.56)	(-0.38)
$S_{8H,5}$	0.552	-0.215	0.0936
	(1.50)	(-0.58)	(0.28)
Random effect			
$\widehat{\sigma}^2_{u,m}$	1.689^{***}	2.007^{***}	1.949^{***}
	(16.64)	(16.81)	(16.97)
ρ	62.8%	66.7%	66.1%
Control var.	Yes	Yes	Yes
Nuisance par.	Yes	Yes	Yes
Threshold par.	Yes	Yes	Yes
Groups	1,770	1,785	1,813
Observations	8,279	8,390	8,541
Log-likelihood	-10735.6	-10707.8	-10581.2

Notes: *, ** and *** denote significance at 90%, 95%, and 99% respectively. t-statistics clustered by individual in parentheses. Recall that $m=2$ denotes the precautionary health motive, $m=8$ the security motive, and $m=9$ the self-gratification motive. See Table C.1 in Appendix C for the other saving motives. Control variables: personal characteristics and personality related cf. Table 3.

Table 8: Predicted probabilities (%) and corresponding standard error (*100) in brackets of a reference person for ranking a saving motive as most important in either first or second round of best / worse. References person vary by country of residence, liquidity of wealth, and advised spending pattern.

		Country of residence *The Netherlands*							
		Treatment (t)							
		$t = 1$				$t = 3$			
		Spending pattern (s)				Spending pattern (s)			
		$s = 2$	$s = 3$	$s = 4$	$s =$ "Table 5"	$s = 2$	$s = 3$	$s = 4$	$s =$ "Table 5"
Saving motive (m)									
Rational									
$m = 1$	precautionary	45.2	48.4	62.6	47.6	52.0	51.1	53.2	54.2
		(12.1)	(12.4)	(12.3)	(12.0)	(11.8)	(12.3)	(13.3)	(12.5)
$m = 2$	precautionary health	57.6	68.5	64.5	61.5	60.1	74.1	79.7	75.1
		(13.2)	(12.2)	(13.2)	(12.7)	(12.7)	(11.1)	(10.4)	(11.0)
$m = 3$	life-span risk	1.3	1.4	1.5	1.6	1.2	1.1	1.1	0.9
		(1.2)	(1.3)	(1.4)	(1.4)	(1.1)	(1.0)	(1.2)	(0.9)
$m = 4$	intended bequest	0.2	0.4	0.1	0.2	0.1	0.4	0.5	0.5
		(0.3)	(0.6)	(0.2)	(0.3)	(0.2)	(0.6)	(0.6)	(0.6)
$m = 5$	liquidity	71.0	63.3	60.4	66.7	66.2	63.6	69.4	66.5
		(10.6)	(11.9)	(12.7)	(11.1)	(11.0)	(11.8)	(11.8)	(11.6)
$m = 6$	intra-household bequest	64.5	65.9	62.2	65.0	66.1	66.6	72.1	68.9
		(12.2)	(12.2)	(13.3)	(12.0)	(11.7)	(12.0)	(12.1)	(12.0)
Psychological									
$m = 7$	autonomy	64.8	59.5	72.4	64.5	63.1	62.6	57.4	60.4
		(13.9)	(14.7)	(13.2)	(13.8)	(13.8)	(14.3)	(15.9)	(14.8)
$m = 8$	security	11.9	11.7	13.3	12.2	11.9	12.1	11.0	10.6
		(7.4)	(7.4)	(8.2)	(7.4)	(7.2)	(7.6)	(7.8)	(7.1)
$m = 9$	self-gratification	87.3	82.0	77.3	84.0	86.3	76.5	68.9	72.3
		(7.8)	(10.0)	(11.7)	(9.0)	(8.0)	(11.7)	(14.3)	(12.8)
$m = 10$	political risk	7.3	7.3	13.2	7.9	7.8	8.4	10.0	10.1
		(4.8)	(4.9)	(7.9)	(5.1)	(5.0)	(5.5)	(6.8)	(6.4)

		Country of residence *Australia*							
		Treatment (t)							
		$t = 1$				$t = 3$			
		Spending pattern (s)				Spending pattern (s)			
		$s = 2$	$s = 3$	$s = 4$	$s =$ "Table 5"	$s = 2$	$s = 3$	$s = 4$	$s =$ "Table 5"
Saving motive (m)									
Rational									
$m = 1$	precautionary	42.2	45.4	59.7	45.7	47.9	47.0	49.1	49.6
		(12.6)	(13.0)	(13.2)	(12.6)	(12.5)	(13.0)	(13.9)	(13.1)
$m = 2$	precautionary health	49.7	61.1	56.8	55.5	45.4	60.9	67.8	56.2
		(14.1)	(13.8)	(14.6)	(13.9)	(13.8)	(13.8)	(13.8)	(14.3)
$m = 3$	life-span risk	15.3	15.9	16.5	17.2	20.8	19.8	20.3	17.6
		(8.7)	(9.1)	(9.7)	(9.3)	(10.3)	(10.4)	(11.4)	(9.8)
$m = 4$	intended bequest	0.3	0.6	0.2	0.3	0.1	0.5	0.6	0.6
		(0.4)	(0.8)	(0.3)	(0.4)	(0.2)	(0.7)	(0.8)	(0.8)
$m = 5$	liquidity	36.6	28.9	26.3	31.3	33.9	31.3	37.2	33.8
		(12.3)	(11.4)	(11.3)	(11.4)	(11.7)	(11.7)	(13.3)	(12.2)
$m = 6$	intra-household bequest	45.0	46.6	42.6	45.0	46.9	47.5	53.8	47.5
		(13.7)	(13.9)	(14.3)	(13.5)	(13.4)	(13.8)	(14.9)	(14.1)
Psychological									
$m = 7$	autonomy	62.6	57.1	70.4	62.8	65.6	65.1	60.0	64.2
		(14.8)	(15.6)	(14.3)	(14.7)	(14.2)	(14.7)	(16.3)	(15.0)
$m = 8$	security	51.5	51.2	54.1	52.3	47.9	48.3	45.9	44.9
		(15.5)	(15.7)	(16.0)	(15.3)	(15.3)	(15.7)	(17.2)	(15.8)
$m = 9$	self-gratification	88.4	83.4	79.0	83.8	85.2	75.0	67.2	72.9
		(7.7)	(9.9)	(11.8)	(9.6)	(8.9)	(12.7)	(15.3)	(13.3)
$m = 10$	political risk	2.0	2.0	4.2	2.3	1.7	1.9	2.4	2.4
		(1.7)	(1.8)	(3.5)	(2.0)	(1.5)	(1.7)	(2.3)	(2.1)

Notes: Reference person is constructed under the following input: male = 1, partner = 1, children = 1, INC_3_4 = 1, homeowner = 1, religious = 0, born_country = 1, SLE1_high = 0, ret_plan = 1, pens_cap = 1, other (standardized) variables equal zero. Nuisance parameters have value 0.5 and we abstain from the random effects (formally, we use the mean random effects which equals zero). Per country, columns average is around 40. Treatments $t = 1$ (high wealth, low income) and $t = 3$ (low wealth, high income) refer to vignettes 1 and 3 as discussed in Section 3. Spending pattern $s =$ "Table 5" refers to the distribution of the advised spending patterns per country and per treatment, see Table 5. See Table 2 for the full-text saving motives.

Table 9: Predicted probabilities (%) and corresponding standard error (*100) in brackets of a reference person for ranking a saving motive as most important in either first or second round of best / worse. References person vary by country of residence, health status for the high wealth and low income treatment, and advised spending pattern.

		Country of residence							
		The Netherlands				*Australia*			
		Treatment (t)				Treatment (t)			
		$t = 5H$	$t = 6H$	$t = 7H$	$t = 8H$	$t = 5H$	$t = 6H$	$t = 7H$	$t = 8H$
		Spending pattern (s)				Spending pattern (s)			
		$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"
Saving motive (m)									
Rational									
$m = 1$	precautionary	51.5	57.4	53.4	52.2	35.2	43.0	34.9	38.8
		(12.9)	(12.6)	(12.8)	(12.9)	(15.0)	(15.8)	(14.9)	(15.6)
$m = 2$	precautionary health	57.1	75.0	63.2	76.2	56.1	75.8	56.8	71.3
		(13.9)	(11.3)	(13.4)	(11.0)	(17.5)	(14.0)	(17.4)	(15.3)
$m = 3$	life-span risk	1.7	1.7	1.8	2.6	14.8	13.5	12.9	11.6
		(1.6)	(1.6)	(1.7)	(2.2)	(10.5)	(10.0)	(9.7)	(9.0)
$m = 4$	intended bequest	0.1	0.1	0.1	0.1	0.6	0.7	0.8	0.9
		(0.2)	(0.2)	(0.2)	(0.1)	(0.9)	(1.0)	(1.2)	(1.3)
$m = 5$	liquidity	62.4	68.2	66.0	64.1	23.8	28.9	27.6	25.4
		(12.3)	(11.5)	(11.9)	(12.2)	(12.6)	(13.9)	(13.4)	(13.0)
$m = 6$	intra-household bequest	70.3	60.5	75.3	73.3	50.8	47.6	65.6	59.5
		(11.9)	(13.2)	(11.0)	(11.4)	(16.7)	(16.6)	(16.0)	(16.8)
Psychological									
$m = 7$	autonomy	54.3	52.2	51.0	49.0	58.6	52.0	54.4	48.6
		(15.4)	(15.5)	(15.5)	(15.5)	(18.6)	(19.1)	(18.7)	(18.8)
$m = 8$	security	11.1	9.2	8.6	9.4	45.2	41.6	45.0	41.5
		(7.3)	(6.3)	(6.0)	(6.4)	(18.6)	(18.2)	(18.6)	(18.4)
$m = 9$	self-gratification	85.8	81.9	84.8	76.7	81.1	74.0	78.4	78.0
		(8.8)	(10.3)	(9.2)	(12.0)	(12.9)	(15.4)	(14.1)	(14.1)
$m = 10$	political risk	5.6	3.7	3.9	3.8	2.0	0.9	1.0	0.7
		(4.1)	(3.0)	(3.1)	(3.0)	(2.2)	(1.1)	(1.2)	(0.9)

Notes: Reference person is constructed under the following input: male = 1, partner = 1, children = 1, INC_3_4 = 1, homeowner = 1, religious = 0, born_country = 1, SLE1_high = 0, ret_plan = 1, pens_cap = 1, other (standardized) variables equal zero. Nuisance parameters have value 0.5 and we abstain from the random effects (formally, we use the mean random effects which equals zero). Per country, columns average is around 40. Treatments $t = 5H$, $t = 6H$, $t = 7H$, and $t = 8H$ refer to vignettes 5, 6, 7, and 8 (high wealth, low income) as discussed in Section 3. Spending pattern $s =$"Table 5" refers to the distribution of the advised spending patterns per country and per treatment, see Table 5. See Table 2 for the full-text saving motives.

Table 10: Predicted probabilities (%) and corresponding standard error (*100) in brackets of a reference person for ranking a saving motive as most important in either first or second round of best / worse. References person vary by country of residence, health status for the low wealth and high income treatment, and advised spending pattern.

		Country of residence							
		The Netherlands				*Australia*			
		Treatment (t)				Treatment (t)			
		$t = 5$	$t = 6$	$t = 7$	$t = 8$	$t = 5$	$t = 6$	$t = 7$	$t = 8$
		Spending pattern (s)				Spending pattern (s)			
		$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"	$s =$"Table 5"
Saving motive (m)									
Rational									
$m = 1$	precautionary	44.3	51.3	47.9	49.0	41.5	48.2	39.9	51.6
		(12.2)	(12.3)	(12.3)	(12.3)	(13.2)	(13.4)	(13.0)	(13.5)
$m = 2$	precautionary health	58.0	72.0	64.7	72.9	54.4	58.7	53.2	57.4
		(13.3)	(11.5)	(12.6)	(11.3)	(14.9)	(14.7)	(14.9)	(14.7)
$m = 3$	life-span risk	1.0	1.5	1.9	1.7	20.0	18.4	15.5	15.7
		(0.9)	(1.3)	(1.6)	(1.5)	(10.8)	(10.3)	(9.2)	(9.3)
$m = 4$	intended bequest	0.4	0.2	0.1	0.1	0.2	0.3	0.3	0.3
		(0.5)	(0.3)	(0.2)	(0.2)	(0.3)	(0.4)	(0.5)	(0.4)
$m = 5$	liquidity	66.0	68.4	68.1	68.0	32.1	29.7	30.9	31.8
		(11.4)	(11.1)	(11.1)	(11.1)	(12.2)	(11.8)	(11.9)	(12.1)
$m = 6$	intra-household bequest	67.4	66.6	79.8	77.2	56.2	54.6	66.9	63.9
		(11.9)	(12.0)	(9.3)	(10.0)	(14.2)	(14.2)	(13.3)	(13.7)
Psychological									
$m = 7$	autonomy	64.6	57.2	56.9	56.7	66.1	63.3	67.2	57.1
		(14.0)	(14.8)	(14.8)	(14.8)	(15.0)	(15.4)	(14.7)	(15.9)
$m = 8$	security	8.8	7.6	6.5	6.3	37.7	38.0	42.3	39.7
		(5.9)	(5.3)	(4.7)	(4.6)	(15.3)	(15.3)	(15.8)	(15.6)
$m = 9$	self-gratification	83.3	78.8	80.5	77.6	76.5	74.5	78.9	74.1
		(9.4)	(10.9)	(10.4)	(11.2)	(12.5)	(13.1)	(11.8)	(13.1)
$m = 10$	political risk	6.9	5.7	4.5	4.6	2.1	1.5	0.7	1.1
		(4.7)	(4.0)	(3.3)	(3.4)	(1.9)	(1.5)	(0.8)	(1.1)

Notes: Reference person is constructed under the following input: male = 1, partner = 1, children = 1, INC_3_4 = 1, homeowner = 1, religious = 0, born_country = 1, SLE1_high = 0, ret_plan = 1, pens_cap = 1, other (standardized) variables equal zero. Nuisance parameters have value 0.5 and we abstain from the random effects (formally, we use the mean random effects which equals zero). Per country, columns average is around 40. Treatments $t = 5$, $t = 6$, $t = 7$, and $t = 8$ refer to vignettes 5, 6, 7, and 8 (low wealth, high income) as discussed in Section 3. Spending pattern $s =$"Table 5" refers to the distribution of the advised spending patterns per country and per treatment, see Table 5. See Table 2 for the full-text saving motives.

6 Conclusion

Recent empirical studies in the United States (Dynan et al., 2002), the Netherlands (Van Ooijen et al., 2015), and Australia (Asher et al., 2017), show that retirees do not draw down their wealth during retirement, contradicting the strong theoretical support for the smoothing of consumption over the life-cycle (Modigliani and Brumberg, 1954). The current paper investigates reasons why individuals close to retirement may hold on to their wealth during retirement. We analyze the influence of institutional factors by using the Netherlands and Australia as proxies for income-driven and wealth-driven systems respectively. We examine the relative importance of saving motives based on rational, behavioral and psychological explanations. In addition, we assess the influence of major life events, such as a health shock or losing a spouse, on the spending and saving decisions during retirement. We do so by conducting an experimental survey both in Australia and the Netherlands.

We observe a twofold effect of the institutional setting. It appears that different income and wealth combinations do affect the advised consumption pattern in the two countries considered. For instance, Dutch participants become less conservative (advise the hypothetical household the highest spending pattern more often) if they have a large liquidity of wealth at retirement, whereas Australian participants become more conservative in a setting with low availability of wealth and high income. On the other hand, our estimation results suggest that most saving motives are not affected by the interaction between the institutional setting and advised spending pattern. However, in absence of major life events, advising consumption patterns that imply low consumption (or saving) are associated with an increase in the ranking for the precautionary, precautionary health and intended bequest motives, and a decrease in ranking for the self-gratification motive.

Our estimation results show that major life events have an impact on the advised spending pattern and saving motives. We find that a health shock is associated with an increase in the importance of the precautionary health motive for the high liquidity of wealth vignette. Similarly, an expectation that one of the household members dies within 10 years after retirement significantly affects the importance of the intra-household bequest and the security motive, irrespective of the liquidity setting. Overall, these results suggest that the liquidity of wealth, as a proxy for the institutional setting, does not seem to be a substantive contributor for the importance of saving motives at the start of retirement. Furthermore, health shocks, combined with availability of wealth, seem to be associated with an increase in importance of some motives, such as precautionary health.

Predicted probabilities for reference persons that behave in correspondence with the empirical results by Van Ooijen et al. (2015) for the Netherlands and Asher et al. (2017) for Australia, indicate that the most important reasons to hold on to wealth are precautionary health, intra-household bequest, and self-gratification for the Dutch and precautionary health, self-gratification, and security for Australians. In contrast to, for example, De Nardi et al. (2016), our results suggest that intended bequest and life-span risk are unlikely to be important for the reference person irrespective of the, country of residence, advised spending pattern, and the institutional setting. This different result might be driven by an unobserved cohort effect.

Finally, our estimation results suggest that individual effects are important as the fraction of the unexplained variation captured by the individual effects varies between 54.6% (for the precautionary motive) and 72% (for the intended bequest motive). Furthermore, we observe that there still appear to be differences between Dutch and Australian participants. Despite controlling for a rich sets of covariates that control for individual characteristics and institutional factors, there are still country-specific drivers for saving during retirement that remain unexplained.

From a policy perspective, our results suggest that the availability of wealth, our proxy for the institutional setting, has little influence on the ranking of the saving motives. This could be interpreted that individuals do not respond as expected to changes in the liquidity of wealth at the start of retirement. Furthermore, the high effect of individual characteristics suggests that a medium to high annuitisation rate with limited choice might be desirable from a policy perspective in order to accommodate for the observed heterogeneity and to protect individuals from themselves.

Based on the work presented in this paper, at least three important directions for future research can be identified. First, lifetime consumption and saving decisions are complex choices for individuals. The effect of choice architecture, which may alter decisions for a substantial proportion of individuals (Benartzi and Thaler, 2007), could be analyzed with the 'implied endorsement' vignette we included in our survey. Second, the decision to spend and save (or to hold on to wealth) could be made at the same time. Our current analysis would allow us to study associations between the former and the latter. A possible extension could be to estimate a structural model which assumes that the spending pattern and saving motive is a combined decision. Third, in this paper individuals are asked to choose between different constant spending patterns before indicating their preferred saving motives. An interesting extension would be to analyze preferences for saving motives for non constant patterns (e.g. higher consumption at the start of retirement, followed by less spending later) which is a policy design consideration in the Netherlands.

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A Pre-test to identify a short list of saving motives

A.1 Background and methodology

A review of the economics, psychology and behavioral literature on motives for the spending and saving behavior of individuals during retirement (see Section 2) identified 19 possible motives. These motives, categorized as rational, behavioral or psychological are listed in Table A.1. We used a pre-test based on Best-Worst scaling to reduce the 19 potential saving motives to a subset of ten, in order to minimize cognitive exhaustion while maintaining econometric power in the experimental task. The pre-test was fielded to samples of 100 people aged 50 and over, in each of Australia and the Netherlands, in September/October 2016. The text of the pre-test was drafted in English and then translated into Dutch for the version fielded in the Netherlands. The commercial web panel provider Pureprofile was used in Australia and the commercial web panel provider Survey Sampling International (SSI) in the Netherlands.

We used a Balanced Incomplete Block Design (BIBD) to make 19 multiple comparison sets comprising ten of the 19 initial saving motives and with the aim of minimizing cognitive exhaustion, split these into one set of nine and one set of ten saving motives.

In an online survey, participants were randomly assigned to nine or ten sets of ten saving motives and in two rounds of best/worst were asked to nominate the ?most? and ?least? important motives for saving during retirement. Figure A.1 shows an example comparison set of ten motives from the 19 sets.

Figure A.1: Example comparison set

Set 1 of 9

MOST important reason to save	2nd MOST important reason to save	Reasons to save	2nd LEAST important reason to save	LEAST important reason to save
		You want to **ensure** that you have enough money at hand to help your children finance their house (or other unforeseen events).		
		You want to **ensure** that you will have sufficient savings to cover unforeseen expenditures and intend to leave any unused savings as a bequest to your dependents or estate.		
		You want to **ensure** that you will be able to leave a bequest to your dependents or estate.		
		You want to **ensure** that you remain financially independent.		
		You want to **stick** to what you are used to because you tend to delay making decisions.		
		You want to **ensure** that if you die, your partner is able to maintain his/her standard of living.		
		You want to **ensure** that your spending level remains constant over time.		
		You want to **ensure** that you have enough cash on hand at any time		
		You want to **ensure** that you will be able to finance unforeseen health and aged care expenditures.		
		You want to **ensure** that you are protected against a change in the superannuation/pension rules.		

A.2 Results

The ranking of the saving motives from the best/worst scaling task is summarized in Table A.1. We observe that the precautionary, precautionary health, liquidity, intra-household bequest, second mental account, autonomy, security, self-gratification and political risk score among the top 10 in both countries. Life-span risk scores among the top 10 only in Australia, whereas the top 10 in the Netherlands is completed by the first mental account motive.

These results indicate that motives we categorize as rational and psychological seem more important for both Australian and Dutch participants. As expected, life-span risk scores higher in Australia (top 8) than in the Netherlands, where it is the least preferred saving motive. This aligns with the fact that few retired households in Australia purchase lifetime payments in the form of annuities, exposing themselves to the risk of outliving their wealth. On the other hand, political risk scores much higher in the Netherlands (top 4) than in Australia (top 10). This aligns with our expectations due to concerns by the Dutch about lower retirement incomes due to changes in the indexation practices. Interestingly, intended bequest does not score among the top 10 reasons to save in retirement in either Australia or the Netherlands.

The ten motives we include in our experimental task are highlighted in bold italics in Table A.1. We note that this list does include the intended bequest motive, even though it did not score in the top ten in the pre-test (top 18 out of 19 for both countries). However, participants in both countries ranked the mental account motive comprising bequests and precautionary saving as top ten, so we decided to include the bequest motive in the subset to be used in the experimental task.

Table A.1: Ranking of 19 possible saving motives.

Reasons to save	Australia	The Netherlands
Rational		
wants to ensure that they will be able to finance any unforeseen expenditures (excluding health and aged care expenditures). [precautionary]	5	6
wants to ensure that they will be able to finance unforeseen health and aged care expenditures. [precautionary health]	6	1
wants to ensure that they will not outlive their wealth. [Life-span risk]	8	19
wants to ensure that they will be able to leave a bequest to their dependents or estate. [(intended) Bequest]	18	18
wants to ensure that they have enough cash on hand at any time [Liquidity]	4	2
wants to ensure that if one of them dies, the other is able to maintain his/her standard of living. [Intra-household bequest]	7	7
want to ensure that they have enough money at hand to help their children financing their house or with other (unforeseen) events.[inter-vivos]	17	14
Behavioral		
wants to ensure that the amount of total wealth remains constant over time. [habit formation]	13	12
wants to ensure that the level of their monthly savings remains constant over time. [habit formation]	11	16
wants to ensure that their spending level remains constant over time. [habit formation]	12	11
wants to stick to what they are used to because they tend to delay making decisions. [Procrastination]	16	13
Behavioral - mental accounts		
wants to ensure that they will have savings in one account to leave a bequest to your dependents or estate and savings in another account for unforeseen expenditures. [Silo #1]	15	10
wants to ensure that they will have sufficient savings to cover unforeseen expenditures and intend to leave any unused savings as a bequest to your dependents or estate. [Silo #2]	9	9
Psychological		
wants to ensure that they remain financially independent. [Autonomy]	2	3
wants to ensure that their wealth continues to increase. [Speculation]	4	17
wants to ensure that they have enough money to have peace of mind. [Security]	1	8
wants to ensure that they have enough money so that they feel they have been successful in life. [Self-esteem]	19	15
wants to ensure that they are able to enjoy life now as well as later. [Self-gratification]	3	5
wants to ensure that they are protected against a change in the superannuation/pension rules. [Political risk]	10	4

Notes: the saving motives which have been selected on the pre-test are highlighted in bold italics.

B Design of vignette choice sets

B.1 Derivation of the household wealth

In the preliminary part of the survey participants are asked to nominate an income range (category) out of four, for their gross household income - see Table B.1. These four categories are then used to construct vignettes' household income and wealth. For participants within a category all hypothetical households in all eight vignettes (choice sets) have the same net present value (NPV) of retirement savings, but the liquidity of retirement savings differs (see Section 3.3). We implemented income categorization to avoid alienation of participants from the hypothetical wealth and income combinations presented in the experiment.[25] The cut-off points in Table B.1 are set so that they align with the quartiles of gross household income which correspond to the LISS and CentER panel members. Using Purchasing Power Parity (PPP)[26], the cut-off points are converted to Australian dollars.

Table B.1: Categorization of gross household income into income groups for the Netherlands (Australia).

Participant's income			**Vignette household wealth**	
			NPV of pension wealth	saving wealth
1	less than	€41,250 ($70,000)	€168,000 ($291,000)	€8,400 ($14,550)
2	€41,250 ($70,000)	$\leq$ €60,000 ($105,000)	€543,000 ($940,500)	€27,150 ($47,050)
3	€60,000 ($105,000)	$\leq$ €81,750 ($140,000)	€880,500 ($1,524,000)	€462,275 ($76,200)
4	more than	€81,750 ($140,000)	€1,420,500 ($2,458,500)	€71,050 ($122,950)

The value of the vignette household pension wealth (saving for retirement) and savings wealth (other savings) are set using the available information on the net (median) household income of couples for each of the groups in the Dutch dataset. The pension wealth at retirement is calculated in two steps. First, we calculate the "additional lifetime income". That is, the difference between the current net median household income[27] for the income group and the state age pension for couples.[28] Second, we calculate the current value for this annuity product and use this as the pension wealth at retirement using a joint survivor annuity factor of 30. Furthermore, their savings wealth is the maximum of five percent of their pension wealth, or three months worth of their monthly net household income. The corresponding wealth and income combinations in Australian dollars are set by converting euros to Australian dollars using the PPP (OECD, 2015b).

[25]For example, if a participant with a yearly income of 20,000 euros has to evaluate a hypothetical household with a yearly income of 60,000 euros, it is unlikely that we can capture the participant's preferences for the vignettes presented.

[26]The Purchasing Power Parity rates allows us to "... equalize the purchasing power of different currencies by eliminating the differences in price levels between countries." (OECD, 2015b).

[27]We assume that the replacement rate (pension entitlement divided by the pre-retirement earnings) is equal to 1, based on the net replacement rate in the Netherlands (OECD, 2015a).

[28]As we do not restrict our sample to couples only, we implicitly assume that participants without a partner are capable of assessing the (financial) preferences of a hypothetical household consisting of two persons.

B.2 Derivation of consumption pattern given household wealth

The consumption patterns are based on, and include, the yearly income streams derived in Section 3.3. The highest consumption pattern that the participant can choose is 105% of the high income stream. The other options are ranked from highest consumption to low(est) consumption as follows, consumption equal to high income, a consumption pattern equal to middle income, the consumption stream equal to low income, and yearly consumption equal to 95% of the low income stream. Notice that if the household in the vignette receives a low income and the participant states a preferred consumption stream equal to middle income, the wealth of the household decreases each year. If the household runs out of wealth, they have to adjust their consumption level to their income. According to this example, the household has to reduce their consumption to their low income.

C Full description of the main results

This Appendix discusses the estimates of the variables related to personal characteristics and personality traits - cf. Table C.1. Interpretation of the other coefficients estimates is discussed in Section 5.2.

C.1 The effect of personal characteristics on the importance of saving motives

The explanatory power of the personal characteristics differs by saving motive, and some motives are not affected by any of the included personal characteristics. The precautionary motive ($m = 1$), autonomy motive ($m = 7$) and the security motive ($m = 8$) are unsurprisingly not statistically different from zero at the 5% significance level as these motives are likely to affect everyone irrespective of their personal characteristics, or are more related to the personality traits. The absence of statistically significant personal characteristics for the life-span risk motive ($m = 3$) is surprising at first. As a prior one might expect that (private) information on subjective life expectancy (captured by SLE_high), current income (captured by INC_3_4), and partner (captured by partner) are indicators of life-span risk. The null hypothesis that these three variables are jointly significant is rejected at conventional significance levels. Re-estimating the model with only one out of these three variables does not lead to a significant parameter estimate. This could be a consequence of the survey design. Recall that participants have to choose a spending pattern for a hypothetical household with two members and possible different income stream, thereby potentially reducing the explanatory variables of these covariates. Another explanation might be the framing of life-span risk, see Table 2, as *they will not outlive their wealth* thereby unintentionally putting more emphasis on the advised spending pattern.

Being a male is associated with a decrease in the importance of the precautionary health motive ($m = 2$) and an increase in the intra-household bequest motive ($m = 6$). As males are generally the first to die in the household (as they, on average, live shorter and are generally older), they are also providers of the intra-household bequest and are typical receiver of partner's informal care (Kaye et al., 2010). In addition, males spend less time in bad health (Majer et al., 2013). Hence, the intended bequest motive ($m = 4$) is more important to them. A stronger intended bequest motive is found for individuals with children as well.

Receiving a high income and / or being a homeowner are indicators of wealthier individuals and provides an explanation to the positive estimates for self-gratification ($m = 9$) as well as for the political risk motive ($m = 10$). Wealthier individuals are less constrained by their current income thereby making it possible for them to *enjoy live now, as well as later*. In addition, wealthier individuals generally have alternative sources of wealth, thereby providing an opportunity to hedge themselves against political risk ($m = 10$). Individuals who consider themselves as a member of a certain church or religion[29], on the contrary, are less likely to value material wealth strongly, are more trusting and have longer planning horizons (Renneboog and Spaenjers, 2012).

[29] Of those who consider themselves as a member of a certain church or religion, 50% identifies themselves as member of the Roman Catholic religion and over 25% as member of a Protestant church.

Therefore, the positive estimates for the precautionary health motive ($m = 2$), liquidity motive ($m = 5$), and negative estimate for the self-gratification motive ($m = 9$) come as no surprise.

Finally, as immigrants (both from western and non-western countries) are more likely to experience income uncertainty and be subject to qualifying periods to access social security (Islam et al., 2013), we expect that they generally want more security ($m = 8$). In addition, they generally have less wealth so self-gratification ($m = 9$) is less important and could be more used to receiving (non-)monetary transfers from children, thereby making intra-household bequest less ($m = 6$) important.

C.2 The effect of personality and financial competence on the importance of saving motives

Similar to personal characteristics, the explanatory power of the personality traits and financial skills differ by saving motive. All personality traits influence the importance of at least one saving motive, although, the security motive ($m = 8$) is unaffected by any of the personality traits. It remains unclear why exactly this is the case. A potential explanation might be that the text for this saving motive (*to ensure that they have enough money to have peace of mind*), although carefully designed, is interpreted differently across the two countries. For example, in the Dutch version of the survey, we translated 'piece of mind' to 'gemoedsrust'. However, the dictionary meaning of the word 'gemoedsrust' has a negative connotation, in contrast to 'peace of mind'.

Individuals who have tried to work out how much they need to save for retirement (ret_plan = 1) are more likely to have a plan to meet their financial needs (Agnew et al., 2013), reducing the uncertainty around the necessary wealth upon retirement. This aligns with the negative estimate for the liquidity motive ($m = 5$) and the precautionary motive ($m = 1$). Moreover, as these individuals plan for retirement, they typically find a good standard of living in retirement more important. Similar to retirement planners, objectively having better pension capabilities (i.e. pension_cap = 1) is associated with a lower importance of the bequest motive, as well as less concern about political risk ($m = 10$). In contrast to being a retirement planner, having better pension capabilities leads to an increase in the importance of precautionary (health) savings ($m = 1$ and $m = 2$). They might be, after controlling for being a planner, more aware of the (health) cost and therefore increase its importance.

Having better self-assessed pension knowledge (pension_know_std) indicates that the person might be more aware that the income benefits are joint in both systems, thus leaving the widow(er) with similar levels of income. Thereby explaining the negative estimate for intra-household bequest ($m = 6$).

The personality trait conscientiousness is associated with a tendency to set out plans and stick to them. Therefore, conscientious individuals are, compared to less conscientious individuals, more likely to be aware of uncertain expenditures ($m = 1$), are more likely to have a plan (or insurance) if they become very old ($m = 3$). Recall that the hypothetical households own the house they live in without a mortgage, therefore the negative estimate for intended bequest ($m = 4$) could be explained by already planning to leave the house as a bequest. As conscientious individuals tend to follow their plans, it is more natural to them to ensure that *they will enjoy live now, as well as later* ($m = 9$, self-gratification).

Having more self-control in financial matters (captured by higher imp_fin_bed̃) increases the ability to save during retirement, or reduce spending if a negative event occurs (such as unexpected health expenditures or changes in the pension system). Thereby reducing the importance of the importance of the precautionary health motive ($m = 2$) and the political risk motive ($m = 10$). Also, having more self-control suggests that an individual is more willing to control their own consumption in favour of others. Hence, the positive estimate for the bequest motive ($m = 4$). Being more patient (or future oriented fut_or_std) makes individuals more aware of future consumption levels, leading to a positive coefficient for the precautionary ($m = 1$) and precautionary health motive ($m = 2$). However, this line of reasoning leads to negative estimates for the necessity of current liquid wealth ($m = 5$) and the associated status ($m = 9$).

Finally, more risk seeking individuals (captured by higher risk1_std) are more willing to not have money for negative events, making precautionary (health) savings ($m = 1$ and $m = 2$) less important. However, they want to ensure that they are financially independent.

Table C.1: Main results. Random Effects Ordered Probit estimates per saving motive.

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
Personal characteristics										
male	-0.0732	-0.307***	0.0116	0.308***	0.0177	0.153**	-0.0745	-0.0000742	0.0571	-0.0340
	(-1.20)	(-4.24)	(0.15)	(3.26)	(0.26)	(2.11)	(-0.97)	(-0.00)	(0.74)	(-0.46)
partner	-0.0405	-0.157*	0.0166	0.125	-0.0842	0.552***	0.0109	-0.0793	-0.0740	-0.0382
	(-0.55)	(-1.87)	(0.20)	(1.18)	(-1.11)	(6.60)	(0.12)	(-0.89)	(-0.85)	(-0.47)
children	0.0357	0.0345	-0.0542	0.363***	0.0230	-0.0930	-0.0359	-0.0813	-0.0685	0.0300
	(0.58)	(0.48)	(-0.74)	(3.93)	(0.35)	(-1.29)	(-0.48)	(-1.03)	(-0.87)	(0.40)
INC_3_4	-0.0409	0.0797	0.0507	-0.0613	-0.0171	-0.0839	0.119	-0.0166	0.267***	-0.277***
	(-0.59)	(0.99)	(0.62)	(-0.60)	(-0.22)	(-1.03)	(1.41)	(-0.19)	(2.95)	(-3.47)
homeowner	-0.00851	-0.00739	-0.0389	-0.117	0.00714	0.0302	-0.0204	-0.0228	0.225**	-0.172**
	(-0.11)	(-0.08)	(-0.44)	(-1.02)	(0.09)	(0.33)	(-0.22)	(-0.24)	(2.50)	(-2.00)
religious	-0.0839	0.142*	0.0702	0.0401	0.155**	-0.0901	-0.00880	0.00797	-0.284***	0.0212
	(-1.31)	(1.91)	(0.94)	(0.42)	(2.32)	(-1.20)	(-0.11)	(0.10)	(-3.63)	(0.30)
born_country	-0.0858	0.0221	-0.135	-0.0581	0.0495	0.185*	0.0489	-0.172*	0.181*	-0.118
	(-0.95)	(0.23)	(-1.21)	(-0.46)	(0.56)	(1.86)	(0.46)	(-1.66)	(1.71)	(-1.15)
SLE1_high	-0.0288	-0.0621	0.0775	-0.101	-0.0886	0.0269	0.0403	0.0186	0.122	-0.0178
	(-0.47)	(-0.87)	(1.07)	(-1.13)	(-1.35)	(0.38)	(0.54)	(0.24)	(1.60)	(-0.26)
Personality related										
ret_plan	-0.202***	-0.0106	-0.0232	-0.237**	-0.146**	0.115	0.102	0.0440	0.0491	0.0916
	(-2.94)	(-0.13)	(-0.28)	(-2.29)	(-1.96)	(1.50)	(1.21)	(0.50)	(0.59)	(1.14)
pens_cap	0.170**	0.254***	0.103	-0.408***	0.0840	-0.0816	0.0351	0.0789	0.127	-0.379***
	(2.50)	(3.21)	(1.29)	(-4.00)	(1.21)	(-1.07)	(0.42)	(0.89)	(1.49)	(-4.99)
pens_kno_std	0.00954	0.0321	-0.0161	-0.0444	0.0545	-0.0888**	0.00421	-0.0178	0.00566	-0.0146
	(0.30)	(0.81)	(-0.41)	(-0.90)	(1.50)	(-2.24)	(0.11)	(-0.42)	(0.15)	(-0.40)
risk1_std	-0.0744**	-0.0644*	0.0117	0.0301	-0.0422	-0.0271	0.0887**	0.0419	0.0544	0.0456
	(-2.49)	(-1.77)	(0.33)	(0.65)	(-1.35)	(-0.77)	(2.44)	(1.11)	(1.42)	(1.34)
imp_fin_be∼d	-0.00226	-0.0594*	-0.0135	-0.00380	0.0176	0.0694*	-0.0316	0.00778	0.0331	-0.103***
	(-0.07)	(-1.65)	(-0.36)	(-0.08)	(0.48)	(1.84)	(-0.82)	(0.19)	(0.82)	(-2.84)
fut_or_std	0.0874***	0.0910**	-0.0288	-0.0160	-0.0679**	-0.00699	-0.0351	0.00852	-0.0762*	0.0135
	(2.79)	(2.22)	(-0.72)	(-0.33)	(-1.98)	(-0.18)	(-0.93)	(0.21)	(-1.78)	(0.37)
TIPI_Con_std	0.0666**	0.0429	-0.0918**	-0.128***	0.0444	0.0497	0.0449	-0.0492	0.0806**	-0.0581
	(2.20)	(1.19)	(-2.49)	(-2.72)	(1.30)	(1.36)	(1.18)	(-1.27)	(2.08)	(-1.61)
AUSTRALIA	-0.179**	-0.278***	1.194***	0.225**	-0.900***	-0.425***	0.0401	1.175***	-0.0310	-0.613***
	(-2.43)	(-3.32)	(13.56)	(2.07)	(-11.54)	(-5.23)	(0.47)	(12.60)	(-0.34)	(-7.48)
Fist stage dummies										
$S_{1,1}$	-0.179*	-0.0430	0.252**	-0.181	-0.0917	0.0472	0.0185	0.0735	-0.0782	0.0179
	(-1.65)	(-0.40)	(1.98)	(-1.17)	(-0.79)	(0.48)	(0.17)	(0.66)	(-0.60)	(0.18)
$S_{1,2}$	-0.159***	-0.0126	-0.0385	0.153*	0.116*	-0.0468	0.00703	0.0251	0.0754	-0.00590
	(-2.60)	(-0.20)	(-0.52)	(1.65)	(1.74)	(-0.72)	(0.10)	(0.38)	(1.01)	(-0.09)
$S_{1,3}$	-0.0685	0.284***	-0.00681	0.400***	-0.0988	-0.0157	-0.145	0.0207	-0.138	-0.00495
	(-0.78)	(3.26)	(-0.07)	(3.48)	(-1.10)	(-0.18)	(-1.55)	(0.24)	(-1.43)	(-0.05)
$S_{1,4}$	0.303**	0.189	0.0161	0.0180	-0.177	-0.114	0.200	0.0960	-0.300**	0.335**
	(2.38)	(1.50)	(0.11)	(0.10)	(-1.40)	(-0.85)	(1.38)	(0.78)	(-2.39)	(2.50)
$S_{1,5}$	-0.0848	0.306**	0.142	0.213	0.0205	-0.184	0.0898	0.0931	-0.396***	0.0661
	(-0.56)	(2.16)	(0.88)	(1.22)	(0.13)	(-1.26)	(0.52)	(0.62)	(-2.77)	(0.41)
$S_{2,1}$	-0.227**	0.0768	0.0343	-0.202	-0.209*	0.249**	0.0161	0.00983	0.0734	0.00919
	(-2.16)	(0.64)	(0.28)	(-1.22)	(-1.80)	(2.20)	(0.13)	(0.09)	(0.56)	(0.08)
$S_{2,2}$	-0.0688	0.0236	-0.0502	0.0369	0.0270	0.0648	-0.0560	-0.0683	0.0690	0.0357
	(-1.09)	(0.40)	(-0.70)	(0.42)	(0.40)	(1.09)	(-0.80)	(-1.14)	(0.94)	(0.57)
$S_{2,3}$	0.0160	0.272***	0.00649	0.409***	-0.0966	-0.0476	-0.0496	0.164*	-0.300***	-0.102
	(0.19)	(3.16)	(0.07)	(3.54)	(-1.14)	(-0.58)	(-0.55)	(1.85)	(-3.23)	(-1.15)
$S_{2,4}$	0.0946	0.609***	-0.106	0.379**	-0.0848	-0.0796	0.112	0.212	-0.307**	-0.0861
	(0.64)	(4.49)	(-0.66)	(2.43)	(-0.61)	(-0.51)	(0.70)	(1.44)	(-2.19)	(-0.50)
$S_{2,5}$	0.0956	0.404**	-0.216	0.777***	0.0202	0.00783	-0.0983	-0.333	-0.524***	0.196
	(0.54)	(2.32)	(-0.94)	(3.30)	(0.09)	(0.04)	(-0.42)	(-1.50)	(-2.96)	(1.00)
$S_{3,1}$	-0.389**	0.0312	0.114	0.113	-0.145	0.263	-0.211	-0.113	0.331*	-0.223
	(-2.52)	(0.18)	(0.66)	(0.53)	(-0.84)	(1.63)	(-1.04)	(-0.59)	(1.87)	(-1.33)
$S_{3,2}$	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
$S_{3,3}$	-0.0106	0.371***	0.0131	0.384***	-0.0598	0.00172	-0.00627	-0.00275	-0.378***	0.0277
	(-0.12)	(4.35)	(0.14)	(3.31)	(-0.69)	(0.02)	(-0.07)	(-0.03)	(-3.81)	(0.32)
$S_{3,4}$	0.0570	0.532***	0.0742	0.395**	0.111	0.151	-0.135	-0.0749	-0.611***	0.103
	(0.39)	(3.39)	(0.42)	(2.03)	(0.77)	(0.91)	(-0.79)	(-0.37)	(-3.69)	(0.60)
$S_{3,5}$	0.213	0.291	-0.242	0.502**	-0.149	-0.0741	0.0710	-0.168	-0.420**	0.181
	(1.17)	(1.60)	(-1.17)	(2.05)	(-0.76)	(-0.37)	(0.32)	(-0.80)	(-2.20)	(0.90)

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
Second stage dummies										
$S_{5,1}$	-0.187	-0.372	0.383	0.197	0.292	-0.198	-0.105	0.0340	-0.494	0.186
	(-0.62)	(-1.44)	(1.24)	(0.54)	(1.32)	(-0.79)	(-0.45)	(0.13)	(-1.55)	(0.58)
$S_{5,2}$	-0.201*	-0.197*	-0.0998	0.0528	0.0666	0.149	0.0962	-0.0844	0.0620	-0.0298
	(-1.95)	(-1.94)	(-0.92)	(0.39)	(0.65)	(1.58)	(0.86)	(-0.81)	(0.59)	(-0.30)
$S_{5,3}$	-0.121	0.267**	-0.0556	0.459***	-0.100	0.117	0.0367	-0.424***	-0.365***	0.00218
	(-1.04)	(2.10)	(-0.43)	(3.09)	(-0.91)	(1.04)	(0.28)	(-3.70)	(-3.03)	(0.02)
$S_{5,4}$	-0.225	0.676***	0.332	0.404	-0.248	0.189	-0.0750	-0.286	-1.009***	-0.387*
	(-0.95)	(2.72)	(1.20)	(1.16)	(-1.33)	(0.84)	(-0.34)	(-1.18)	(-4.36)	(-1.79)
$S_{5,5}$	-0.135	0.736**	0.335	0.424	-0.320	-0.0835	-0.402	-0.317	-0.557	0.234
	(-0.49)	(2.18)	(1.17)	(1.05)	(-0.89)	(-0.30)	(-1.17)	(-1.22)	(-1.47)	(0.86)
$S_{5H,1}$	0.0893	0.00177	-0.182	-0.0608	-0.411	0.143	0.0376	-0.201	0.657*	-0.238
	(0.27)	(0.01)	(-0.51)	(-0.15)	(-1.61)	(0.48)	(0.13)	(-0.68)	(1.84)	(-0.66)
$S_{5H,2}$	0.0771	0.137	0.0122	-0.00995	-0.219*	0.108	-0.299**	0.116	-0.0646	0.0522
	(0.60)	(1.05)	(0.09)	(-0.06)	(-1.67)	(0.86)	(-2.21)	(0.85)	(-0.46)	(0.43)
$S_{5H,3}$	-0.0201	0.0110	-0.0480	-0.134	-0.226	-0.129	-0.324*	0.344**	0.374**	-0.224
	(-0.13)	(0.07)	(-0.30)	(-0.68)	(-1.48)	(-0.91)	(-1.94)	(2.10)	(2.47)	(-1.40)
$S_{5H,4}$	-0.0212	-0.453	0.300	-0.460	0.186	-0.294	-0.0924	-0.0221	0.448	0.299
	(-0.07)	(-1.50)	(0.93)	(-1.17)	(0.77)	(-1.02)	(-0.34)	(-0.07)	(1.60)	(1.12)
$S_{5H,5}$	0.0883	-0.438	-0.518	-0.0879	0.200	0.358	0.176	0.399	-0.00995	-0.568
	(0.25)	(-1.09)	(-1.50)	(-0.19)	(0.47)	(0.96)	(0.42)	(1.07)	(-0.02)	(-1.60)
$S_{6,1}$	-0.143	-0.502**	0.924***	0.130	0.335	-0.0639	-0.578**	-0.411	-0.136	-0.215
	(-0.56)	(-2.02)	(2.87)	(0.43)	(1.61)	(-0.25)	(-1.99)	(-1.64)	(-0.48)	(-0.58)
$S_{6,2}$	-0.0584	-0.0300	0.0315	0.101	0.0664	0.112	-0.0637	-0.204*	-0.00697	-0.137
	(-0.56)	(-0.28)	(0.30)	(0.71)	(0.63)	(1.11)	(-0.56)	(-1.89)	(-0.06)	(-1.24)
$S_{6,3}$	0.0294	0.783***	-0.0933	0.201	-0.101	0.0788	-0.0752	-0.287***	-0.554***	-0.146
	(0.27)	(6.08)	(-0.79)	(1.35)	(-0.97)	(0.79)	(-0.61)	(-2.64)	(-4.86)	(-1.32)
$S_{6,4}$	0.00127	0.229	0.176	0.340	-0.0901	0.253	-0.107	-0.521**	-0.812***	-0.0578
	(0.01)	(0.92)	(0.76)	(1.31)	(-0.54)	(1.26)	(-0.55)	(-2.44)	(-3.35)	(-0.25)
$S_{6,5}$	0.476*	0.514*	0.210	-0.0232	-0.110	-0.311	-0.388	0.0347	-0.857**	0.225
	(1.74)	(1.70)	(0.75)	(-0.05)	(-0.36)	(-1.22)	(-1.26)	(0.13)	(-2.56)	(0.76)
$S_{6H,1}$	0.323	0.562*	-1.123***	0.0139	-0.198	-0.241	0.379	0.181	0.334	0.0320
	(1.07)	(1.80)	(-2.91)	(0.04)	(-0.75)	(-0.82)	(1.14)	(0.62)	(0.99)	(0.08)
$S_{6H,2}$	0.0385	0.417***	-0.0647	-0.116	0.0206	-0.0873	-0.194	0.0568	-0.0441	-0.111
	(0.29)	(3.01)	(-0.46)	(-0.68)	(0.15)	(-0.66)	(-1.38)	(0.42)	(-0.30)	(-0.80)
$S_{6H,3}$	-0.000293	0.0817	0.0458	0.113	-0.0668	-0.161	-0.260*	0.108	0.104	-0.400***
	(-0.00)	(0.50)	(0.32)	(0.61)	(-0.48)	(-1.23)	(-1.73)	(0.72)	(0.71)	(-2.69)
$S_{6H,4}$	0.217	0.409	0.0113	-0.145	0.0319	-0.586**	-0.361	0.294	0.189	-0.146
	(0.84)	(1.32)	(0.04)	(-0.47)	(0.15)	(-2.32)	(-1.41)	(1.07)	(0.69)	(-0.52)
$S_{6H,5}$	-0.643*	0.324	0.0704	0.171	-0.0646	0.463	0.0968	-0.00724	0.0631	-0.570
	(-1.93)	(0.84)	(0.21)	(0.34)	(-0.18)	(1.41)	(0.24)	(-0.02)	(0.17)	(-1.56)
$S_{7,1}$	-0.301	-0.273	0.534*	0.137	0.211	0.171	-0.304	-0.121	-0.363*	-0.373
	(-1.34)	(-1.18)	(1.77)	(0.52)	(0.92)	(0.76)	(-1.44)	(-0.57)	(-1.77)	(-1.50)
$S_{7,2}$	-0.223**	-0.0157	0.0369	-0.0932	0.144	0.508***	-0.123	-0.264***	0.0347	-0.273***
	(-2.17)	(-0.15)	(0.35)	(-0.66)	(1.47)	(5.01)	(-1.14)	(-2.66)	(0.30)	(-2.75)
$S_{7,3}$	-0.114	0.384***	0.0642	0.199	-0.151	0.459***	0.147	-0.340***	-0.540***	-0.327***
	(-0.98)	(3.06)	(0.53)	(1.27)	(-1.39)	(3.76)	(1.16)	(-2.81)	(-4.51)	(-2.73)
$S_{7,4}$	0.132	0.473*	-0.253	0.300	-0.132	0.632***	-0.490**	-0.131	-0.736***	-0.310*
	(0.63)	(1.71)	(-1.16)	(0.98)	(-0.66)	(2.84)	(-2.50)	(-0.54)	(-3.14)	(-1.74)
$S_{7,5}$	0.452	0.171	-0.0780	0.622**	-0.549**	-0.0532	-0.0278	-0.0830	-0.264	-0.358
	(1.38)	(0.57)	(-0.19)	(2.03)	(-2.11)	(-0.17)	(-0.10)	(-0.29)	(-0.67)	(-1.09)
$S_{7H,1}$	0.419	0.263	-0.653*	0.156	-0.330	0.118	-0.262	-0.0581	0.640**	0.0751
	(1.58)	(0.97)	(-1.90)	(0.51)	(-1.20)	(0.43)	(-0.99)	(-0.24)	(2.47)	(0.26)
$S_{7H,2}$	0.0160	0.0814	0.0364	0.212	-0.148	-0.0465	-0.0995	0.0920	-0.0135	-0.0230
	(0.13)	(0.64)	(0.28)	(1.30)	(-1.18)	(-0.34)	(-0.75)	(0.67)	(-0.09)	(-0.18)
$S_{7H,3}$	0.0238	-0.179	-0.394**	0.135	0.00750	-0.172	-0.362**	0.281*	0.149	-0.0138
	(0.16)	(-1.10)	(-2.54)	(0.66)	(0.05)	(-1.05)	(-2.24)	(1.69)	(0.95)	(-0.09)
$S_{7H,4}$	-0.306	-0.351	0.789***	-0.235	0.114	-0.283	0.00477	0.0253	0.194	0.0887
	(-1.16)	(-1.06)	(2.75)	(-0.65)	(0.46)	(-0.96)	(0.02)	(0.08)	(0.69)	(0.36)
$S_{7H,5}$	-0.506	0.697*	0.259	-0.659*	0.351	0.241	-0.0452	-0.281	-0.272	0.0658
	(-1.34)	(1.81)	(0.58)	(-1.75)	(1.07)	(0.60)	(-0.11)	(-0.80)	(-0.61)	(0.16)
$S_{8,1}$	-0.388	-0.197	0.339	-0.0714	0.253	0.103	-0.425**	0.472**	-0.426	-0.665**
	(-1.53)	(-0.77)	(1.10)	(-0.15)	(1.16)	(0.39)	(-1.97)	(2.26)	(-1.49)	(-2.10)
$S_{8,2}$	-0.114	0.104	0.0167	-0.00581	0.119	0.399***	-0.0817	-0.276**	-0.156	-0.198*
	(-1.05)	(0.98)	(0.15)	(-0.04)	(1.12)	(3.82)	(-0.72)	(-2.57)	(-1.36)	(-1.86)

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
$S_{8,3}$	0.0744	0.597***	0.0192	0.0486	-0.0164	0.419***	-0.219*	-0.485***	-0.501***	-0.251**
	(0.68)	(4.56)	(0.16)	(0.33)	(-0.15)	(3.44)	(-1.81)	(-4.17)	(-4.46)	(-2.25)
$S_{8,4}$	0.154	0.446**	-0.409*	0.519***	-0.257	0.271	-0.276	-0.0346	-0.563***	-0.149
	(0.73)	(2.28)	(-1.91)	(2.73)	(-1.34)	(1.34)	(-1.51)	(-0.14)	(-2.79)	(-0.66)
$S_{8,5}$	0.547**	0.376	0.686**	0.0843	-0.419	0.209	-0.423	-0.397	-0.728***	-0.260
	(2.05)	(1.28)	(2.27)	(0.27)	(-1.38)	(0.81)	(-1.48)	(-1.25)	(-2.92)	(-0.88)
$S_{8H,1}$	0.316	0.485*	-0.381	0.724	-0.433	-0.0356	-0.0267	-0.520**	0.491	0.0681
	(1.09)	(1.66)	(-1.08)	(1.47)	(-1.58)	(-0.12)	(-0.10)	(-2.09)	(1.46)	(0.19)
$S_{8H,2}$	-0.0367	0.357**	0.0629	-0.0667	-0.179	-0.0553	-0.311**	0.170	-0.0169	-0.0672
	(-0.26)	(2.48)	(0.44)	(-0.37)	(-1.32)	(-0.40)	(-2.15)	(1.18)	(-0.11)	(-0.50)
$S_{8H,3}$	-0.0710	0.0626	-0.247*	0.0566	-0.222	-0.0698	-0.0626	0.363**	-0.0274	-0.196
	(-0.51)	(0.38)	(-1.68)	(0.30)	(-1.52)	(-0.45)	(-0.41)	(2.26)	(-0.18)	(-1.38)
$S_{8H,4}$	-0.379	0.00614	1.128***	-0.595**	0.161	-0.0989	-0.203	-0.167	-0.0946	0.0428
	(-1.41)	(0.02)	(3.65)	(-2.01)	(0.67)	(-0.35)	(-0.78)	(-0.56)	(-0.38)	(0.15)
$S_{8H,5}$	-0.512	0.552	-0.456	0.205	0.399	-0.218	-0.0574	-0.215	0.0936	0.0770
	(-1.56)	(1.50)	(-1.31)	(0.55)	(1.15)	(-0.67)	(-0.16)	(-0.58)	(0.28)	(0.21)
Nuisance parameters										
A_1	0	0.112	-0.129	0.0837	0.109	-0.143*	-0.00206	0.166**	0.132	0.152**
	(.)	(1.43)	(-1.49)	(0.88)	(1.51)	(-1.87)	(-0.02)	(2.06)	(1.49)	(2.00)
A_2	-0.198**	0	-0.127	0.00745	0.0564	-0.133*	-0.0643	-0.0354	0.0940	0.0992
	(-2.51)	(.)	(-1.49)	(0.08)	(0.73)	(-1.80)	(-0.68)	(-0.44)	(0.99)	(1.29)
A_3	0.432***	0.204**	0	0.399***	0.371***	0.250***	0.254***	0.431***	0.345***	0.525***
	(5.32)	(2.46)	(.)	(3.82)	(4.89)	(3.24)	(2.91)	(5.09)	(3.84)	(6.54)
A_4	0.478***	0.369***	0.705***	0	0.673***	0.309***	0.499***	0.626***	0.378***	0.801***
	(6.12)	(4.70)	(8.81)	(.)	(9.13)	(4.18)	(5.55)	(7.44)	(4.41)	(9.96)
A_5	0.0314	-0.0313	-0.129	-0.0641	0	0	-0.0250	0.0821	0.0421	0.165**
	(0.40)	(-0.38)	(-1.60)	(-0.66)	(.)	(.)	(-0.28)	(0.97)	(0.52)	(2.25)
A_6	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
A_7	-0.294***	-0.215***	-0.212***	-0.385***	-0.517***	-0.175**	0	-0.411***	-0.225***	0.00712
	(-3.92)	(-2.68)	(-2.76)	(-4.04)	(-7.13)	(-2.34)	(.)	(-5.04)	(-2.65)	(0.10)
A_8	0.0707	-0.0982	-0.134	-0.160*	-0.415***	-0.0208	-0.226***	0	-0.154*	0.244***
	(0.95)	(-1.35)	(-1.64)	(-1.67)	(-6.34)	(-0.28)	(-2.59)	(.)	(-1.84)	(3.12)
A_9	-0.226***	-0.337***	-0.191**	-0.181**	-0.549***	-0.211***	-0.587***	-0.512***	0	0
	(-3.16)	(-4.51)	(-2.46)	(-2.04)	(-7.71)	(-2.94)	(-6.93)	(-6.43)	(.)	(.)
A_{10}	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Threshold parameters										
$\widehat{\nu}_1$	-2.186***	-2.361***	-0.234	0.830***	-2.916***	-1.757***	-2.327***	-1.276***	-1.893***	-1.025***
	(-11.30)	(-11.24)	(-1.13)	(3.21)	(-14.83)	(-8.90)	(-9.55)	(-5.46)	(-7.80)	(-4.54)
$\widehat{\nu}_2$	-1.159***	-1.404***	1.123***	1.922***	-1.724***	-0.846***	-1.205***	0.168	-0.862***	0.410*
	(-6.10)	(-6.78)	(5.35)	(7.35)	(-8.94)	(-4.32)	(-4.95)	(0.72)	(-3.54)	(1.83)
$\widehat{\nu}_3$	-0.175	-0.325	2.002***	2.836***	-0.643***	0.321*	-0.231	1.115***	-0.0204	1.545***
	(-0.93)	(-1.58)	(9.36)	(10.57)	(-3.36)	(1.65)	(-0.95)	(4.71)	(-0.08)	(6.80)
$\widehat{\nu}_4$	0.998***	0.884***	2.697***	3.628***	0.599***	1.700***	0.939***	2.155***	0.998***	2.595***
	(5.24)	(4.30)	(12.39)	(12.99)	(3.11)	(8.66)	(3.85)	(8.98)	(4.05)	(11.26)
Random effect										
$\widehat{\sigma}_u^2$	1.203***	1.689***	1.688***	2.566***	1.427***	1.739***	1.942***	2.007***	1.949***	1.606***
	(15.77)	(16.64)	(14.89)	(14.20)	(16.53)	(16.72)	(16.88)	(16.81)	(16.97)	(15.54)
ρ	54.6%	62.8%	62.8%	72.0%	58.8%	63.5%	66.0%	66.7%	66.1%	61.6%
Groups	1,796	1,770	1,778	1,848	1,847	1,831	1,836	1,785	1,813	1,788
Observations	8,386	8,279	8,315	8,645	8,545	8,650	8,568	8,390	8,541	8,381
Log-likelihood	-11528.1	-10735.6	-9712.7	-7048.9	-11146.0	-11110.7	-10971.7	-10707.8	-10581.2	-10473.8

Notes: *, ** and *** denote significance at 90%, 95%, and 99% respectively. t-statistics clustered by individual in parentheses. Recall that $m=1$ denotes the precautionary motive, $m=2$ the precautionary health motive, $m=3$ the life-span risk motive, $m=4$ the intended bequest motive, $m=5$ the liquidity motive, $m=6$ the intra-household bequest motive, $m=7$ the autonomy motive, $m=8$ the security motive, $m=9$ the self-gratification motive, and $m=10$ the political risk motive. See Table 2 for the full-text saving motives.

D Robustness checks

Table D.1: Robustness check 1. Random Effects Ordered Probit estimates per saving motive without nuisance parameters.

	$m = 1$	$m = 2$	$m = 3$	$m = 4$	$m = 5$	$m = 6$	$m = 7$	$m = 8$	$m = 9$	$m = 10$
Personal characteristics										
male	-0.0940	-0.294***	-0.0146	0.318***	-0.0163	0.150**	-0.115	0.00851	0.0516	-0.0545
	(-1.50)	(-4.02)	(-0.19)	(3.33)	(-0.24)	(2.04)	(-1.47)	(0.10)	(0.66)	(-0.73)
partner	-0.0235	-0.153*	0.0172	0.126	-0.0932	0.547***	0.0122	-0.0773	-0.0750	-0.0313
	(-0.31)	(-1.80)	(0.21)	(1.17)	(-1.21)	(6.45)	(0.14)	(-0.83)	(-0.86)	(-0.38)
children	0.00991	0.0308	-0.0582	0.369***	0.0466	-0.111	-0.0697	-0.0578	-0.0609	0.0199
	(0.16)	(0.42)	(-0.79)	(3.95)	(0.70)	(-1.53)	(-0.91)	(-0.71)	(-0.78)	(0.27)
INC_3_4	-0.0479	0.108	0.0519	-0.0733	-0.00343	-0.0826	0.160*	-0.0253	0.273***	-0.270***
	(-0.68)	(1.33)	(0.63)	(-0.70)	(-0.04)	(-0.99)	(1.87)	(-0.28)	(3.02)	(-3.32)
homeowner	0.0222	-0.0389	-0.0568	-0.123	-0.00510	0.0455	-0.0467	-0.0156	0.229**	-0.190**
	(0.28)	(-0.42)	(-0.64)	(-1.07)	(-0.06)	(0.49)	(-0.48)	(-0.16)	(2.52)	(-2.18)
religious	-0.0537	0.143*	0.0894	0.0389	0.129*	-0.0886	0.00989	0.00494	-0.278***	0.0296
	(-0.82)	(1.91)	(1.18)	(0.41)	(1.91)	(-1.15)	(0.13)	(0.06)	(-3.55)	(0.41)
born_country	-0.0807	0.00161	-0.166	-0.0425	0.0338	0.187*	0.0245	-0.161	0.164	-0.120
	(-0.89)	(0.02)	(-1.45)	(-0.33)	(0.37)	(1.84)	(0.23)	(-1.54)	(1.56)	(-1.16)
SLE1_high	-0.0187	-0.0591	0.0877	-0.101	-0.0769	0.0376	0.0276	0.0133	0.116	-0.000471
	(-0.30)	(-0.82)	(1.20)	(-1.12)	(-1.16)	(0.53)	(0.36)	(0.17)	(1.52)	(-0.01)
Personality related										
ret_plan	-0.214***	-0.00662	0.00570	-0.230**	-0.126*	0.104	0.0963	0.0416	0.0423	0.115
	(-3.09)	(-0.08)	(0.07)	(-2.20)	(-1.67)	(1.33)	(1.11)	(0.46)	(0.51)	(1.41)
pens_cap	0.172**	0.261***	0.106	-0.397***	0.111	-0.0665	0.0531	0.0793	0.142*	-0.347***
	(2.46)	(3.28)	(1.33)	(-3.85)	(1.56)	(-0.86)	(0.63)	(0.87)	(1.66)	(-4.45)
pens_kno_std	0.0146	0.0353	-0.0144	-0.0534	0.0450	-0.0914**	0.00497	-0.00911	0.000241	-0.0275
	(0.45)	(0.88)	(-0.36)	(-1.08)	(1.22)	(-2.26)	(0.12)	(-0.21)	(0.01)	(-0.73)
risk1_std	-0.0747**	-0.0616*	0.00720	0.0186	-0.0225	-0.0193	0.0934**	0.0425	0.0545	0.0545
	(-2.47)	(-1.67)	(0.20)	(0.40)	(-0.71)	(-0.54)	(2.47)	(1.10)	(1.43)	(1.58)
imp_fin_beh_std	0.00526	-0.0595	-0.0251	-0.0125	0.00667	0.0662*	-0.0399	0.00733	0.0291	-0.110***
	(0.17)	(-1.63)	(-0.67)	(-0.26)	(0.18)	(1.75)	(-1.01)	(0.18)	(0.72)	(-3.00)
fut_or_std	0.0925***	0.0912**	-0.0256	-0.0174	-0.0637*	-0.00507	-0.0360	0.0209	-0.0772*	0.0128
	(2.84)	(2.19)	(-0.64)	(-0.35)	(-1.83)	(-0.13)	(-0.92)	(0.50)	(-1.80)	(0.34)
TIPI_Con_std	0.0612*	0.0448	-0.0913**	-0.125***	0.0537	0.0571	0.0549	-0.0474	0.0869**	-0.0608*
	(1.95)	(1.23)	(-2.46)	(-2.63)	(1.57)	(1.54)	(1.42)	(-1.18)	(2.25)	(-1.67)
AUSTRALIA	-0.188**	-0.274***	1.166***	0.228**	-0.898***	-0.440***	0.0237	1.169***	-0.0483	-0.602***
	(-2.50)	(-3.24)	(13.23)	(2.08)	(-11.28)	(-5.36)	(0.27)	(12.21)	(-0.53)	(-7.21)
Interaction terms (1st stage)										
$S_{1,1}$	-0.147	-0.0457	0.283**	-0.160	-0.0936	0.0422	-0.00508	0.0947	-0.0803	0.0156
	(-1.35)	(-0.41)	(2.23)	(-1.05)	(-0.81)	(0.42)	(-0.05)	(0.84)	(-0.62)	(0.15)
$S_{1,2}$	-0.147**	-0.00878	-0.0550	0.147	0.110*	-0.0578	0.0174	0.0188	0.0796	-0.00179
	(-2.43)	(-0.14)	(-0.76)	(1.59)	(1.68)	(-0.89)	(0.25)	(0.29)	(1.07)	(-0.03)
$S_{1,3}$	-0.0542	0.288***	-0.00764	0.403***	-0.105	-0.0105	-0.128	0.0291	-0.147	0.000280
	(-0.61)	(3.33)	(-0.08)	(3.50)	(-1.16)	(-0.12)	(-1.34)	(0.34)	(-1.51)	(0.00)
$S_{1,4}$	0.267**	0.185	-0.0243	0.0305	-0.248**	-0.134	0.160	0.0974	-0.328***	0.331**
	(2.08)	(1.47)	(-0.17)	(0.16)	(-1.97)	(-1.01)	(1.13)	(0.77)	(-2.63)	(2.47)
$S_{1,5}$	-0.0639	0.296**	0.0844	0.203	-0.0440	-0.204	0.0764	0.0823	-0.403***	0.0261
	(-0.42)	(2.11)	(0.53)	(1.16)	(-0.27)	(-1.42)	(0.44)	(0.54)	(-2.82)	(0.16)
$S_{2,1}$	-0.187*	0.0809	0.0714	-0.185	-0.197*	0.261**	0.00444	0.0326	0.0963	0.00664
	(-1.78)	(0.68)	(0.57)	(-1.13)	(-1.68)	(2.31)	(0.04)	(0.28)	(0.74)	(0.06)
$S_{2,2}$	-0.0740	0.0197	-0.0580	0.0345	0.0216	0.0543	-0.0465	-0.0683	0.0615	0.0233
	(-1.18)	(0.33)	(-0.83)	(0.39)	(0.32)	(0.92)	(-0.67)	(-1.15)	(0.84)	(0.38)
$S_{2,3}$	0.0272	0.279***	-0.0132	0.425***	-0.116	-0.0613	-0.0441	0.174**	-0.311***	-0.0875
	(0.32)	(3.23)	(-0.14)	(3.69)	(-1.34)	(-0.74)	(-0.49)	(1.96)	(-3.34)	(-0.98)
$S_{2,4}$	0.0977	0.625***	-0.139	0.344**	-0.172	-0.100	0.0852	0.173	-0.307**	-0.0765
	(0.66)	(4.66)	(-0.87)	(2.17)	(-1.24)	(-0.63)	(0.53)	(1.13)	(-2.20)	(-0.45)
$S_{2,5}$	0.155	0.364**	-0.259	0.737***	-0.0323	0.0131	-0.108	-0.325	-0.545***	0.163
	(0.88)	(2.05)	(-1.18)	(3.10)	(-0.15)	(0.07)	(-0.47)	(-1.53)	(-2.99)	(0.83)
$S_{3,1}$	-0.342**	0.0103	0.139	0.151	-0.185	0.246	-0.281	-0.0966	0.348**	-0.229
	(-2.28)	(0.06)	(0.80)	(0.74)	(-1.04)	(1.47)	(-1.39)	(-0.51)	(2.00)	(-1.38)
$S_{3,2}$	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
$S_{3,3}$	0.00229	0.383***	-0.0109	0.386***	-0.0896	-0.0170	0.00883	0.0133	-0.396***	0.0236
	(0.03)	(4.46)	(-0.11)	(3.35)	(-1.02)	(-0.21)	(0.09)	(0.15)	(-3.97)	(0.27)

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
$S_{3,4}$	0.0828	0.521***	0.0467	0.408**	0.0724	0.142	-0.133	-0.0893	-0.587***	0.129
	(0.56)	(3.28)	(0.27)	(2.06)	(0.51)	(0.86)	(-0.76)	(-0.45)	(-3.49)	(0.76)
$S_{3,5}$	0.223	0.277	-0.292	0.451*	-0.207	-0.0806	0.0638	-0.169	-0.451**	0.143
	(1.21)	(1.54)	(-1.47)	(1.80)	(-1.04)	(-0.41)	(0.30)	(-0.83)	(-2.34)	(0.72)
Interaction terms (2nd stage)										
$S_{5,1}$	-0.169	-0.372	0.348	0.0856	0.211	-0.238	-0.0794	-0.0435	-0.490	0.165
	(-0.56)	(-1.47)	(1.15)	(0.23)	(0.95)	(-0.94)	(-0.34)	(-0.17)	(-1.53)	(0.52)
$S_{5,2}$	-0.223**	-0.222**	-0.103	0.0239	0.00695	0.120	0.0577	-0.140	0.0460	-0.0733
	(-2.14)	(-2.16)	(-0.93)	(0.18)	(0.07)	(1.26)	(0.51)	(-1.33)	(0.44)	(-0.68)
$S_{5,3}$	-0.142	0.252**	-0.0785	0.386***	-0.103	0.0759	0.0309	-0.466***	-0.353***	-0.0339
	(-1.21)	(1.98)	(-0.62)	(2.61)	(-0.92)	(0.66)	(0.24)	(-4.07)	(-2.93)	(-0.27)
$S_{5,4}$	-0.273	0.625**	0.287	0.348	-0.216	0.162	-0.138	-0.300	-1.011***	-0.418*
	(-1.15)	(2.52)	(1.05)	(0.99)	(-1.22)	(0.71)	(-0.60)	(-1.23)	(-4.34)	(-1.89)
$S_{5,5}$	-0.121	0.776**	0.289	0.341	-0.249	-0.157	-0.436	-0.249	-0.565	0.0663
	(-0.45)	(2.30)	(1.00)	(0.86)	(-0.65)	(-0.60)	(-1.32)	(-0.99)	(-1.43)	(0.24)
$S_{5H,1}$	0.0119	-0.00536	-0.188	0.0183	-0.326	0.146	0.00884	-0.122	0.644*	-0.235
	(0.04)	(-0.02)	(-0.54)	(0.05)	(-1.26)	(0.48)	(0.03)	(-0.41)	(1.79)	(-0.67)
$S_{5H,2}$	0.119	0.167	0.00353	0.00140	-0.149	0.102	-0.234*	0.188	-0.0580	0.0899
	(0.90)	(1.25)	(0.03)	(0.01)	(-1.09)	(0.83)	(-1.73)	(1.33)	(-0.41)	(0.70)
$S_{5H,3}$	-0.000741	0.0361	-0.0657	-0.0956	-0.198	-0.126	-0.336**	0.386**	0.356**	-0.220
	(-0.00)	(0.22)	(-0.42)	(-0.49)	(-1.29)	(-0.87)	(-2.01)	(2.33)	(2.33)	(-1.36)
$S_{5H,4}$	0.0125	-0.349	0.288	-0.432	0.179	-0.257	0.0393	0.0338	0.418	0.346
	(0.04)	(-1.16)	(0.90)	(-1.10)	(0.75)	(-0.88)	(0.14)	(0.11)	(1.47)	(1.27)
$S_{5H,5}$	0.0468	-0.441	-0.465	-0.0309	0.125	0.454	0.221	0.258	0.00815	-0.343
	(0.13)	(-1.10)	(-1.39)	(-0.06)	(0.28)	(1.25)	(0.54)	(0.73)	(0.02)	(-0.96)
$S_{6,1}$	-0.123	-0.508**	0.839***	0.0184	0.238	-0.106	-0.559*	-0.501*	-0.133	-0.247
	(-0.46)	(-2.09)	(2.73)	(0.06)	(1.11)	(-0.41)	(-1.91)	(-1.96)	(-0.46)	(-0.67)
$S_{6,2}$	-0.0895	-0.0612	0.0280	0.0706	0.0117	0.0707	-0.105	-0.253**	-0.0253	-0.174
	(-0.84)	(-0.56)	(0.25)	(0.50)	(0.10)	(0.68)	(-0.92)	(-2.32)	(-0.22)	(-1.47)
$S_{6,3}$	0.00395	0.770***	-0.108	0.136	-0.107	0.0570	-0.0761	-0.329***	-0.543***	-0.187
	(0.04)	(5.95)	(-0.89)	(0.92)	(-1.03)	(0.56)	(-0.61)	(-3.05)	(-4.74)	(-1.64)
$S_{6,4}$	-0.0198	0.189	0.129	0.246	-0.0693	0.210	-0.165	-0.566***	-0.814***	-0.0919
	(-0.10)	(0.76)	(0.56)	(0.98)	(-0.44)	(1.06)	(-0.86)	(-2.62)	(-3.37)	(-0.40)
$S_{6,5}$	0.465*	0.543*	0.188	-0.0993	-0.0939	-0.370	-0.435	0.0802	-0.855**	0.0500
	(1.78)	(1.77)	(0.68)	(-0.21)	(-0.28)	(-1.46)	(-1.47)	(0.31)	(-2.43)	(0.17)
$S_{6H,1}$	0.218	0.573*	-1.037***	0.0827	-0.0844	-0.231	0.379	0.287	0.318	0.0657
	(0.70)	(1.85)	(-2.75)	(0.23)	(-0.31)	(-0.77)	(1.14)	(0.98)	(0.92)	(0.16)
$S_{6H,2}$	0.0908	0.450***	-0.0665	-0.1000	0.0895	-0.0792	-0.139	0.135	-0.0330	-0.0726
	(0.67)	(3.19)	(-0.46)	(-0.59)	(0.64)	(-0.60)	(-0.98)	(0.96)	(-0.22)	(-0.51)
$S_{6H,3}$	0.0165	0.0941	0.0141	0.148	-0.0690	-0.177	-0.259*	0.136	0.0868	-0.386**
	(0.12)	(0.57)	(0.09)	(0.79)	(-0.49)	(-1.33)	(-1.72)	(0.90)	(0.59)	(-2.55)
$S_{6H,4}$	0.214	0.490	0.0160	-0.0886	0.0369	-0.555**	-0.274	0.359	0.163	-0.110
	(0.85)	(1.58)	(0.05)	(-0.28)	(0.18)	(-2.22)	(-1.07)	(1.28)	(0.60)	(-0.39)
$S_{6H,5}$	-0.614*	0.343	0.0525	0.215	-0.0637	0.550*	0.189	-0.112	0.0634	-0.317
	(-1.90)	(0.89)	(0.16)	(0.41)	(-0.16)	(1.70)	(0.48)	(-0.34)	(0.16)	(-0.88)
$S_{7,1}$	-0.300	-0.289	0.513*	0.0803	0.149	0.139	-0.312	-0.185	-0.359*	-0.424*
	(-1.27)	(-1.28)	(1.71)	(0.30)	(0.64)	(0.62)	(-1.47)	(-0.81)	(-1.81)	(-1.83)
$S_{7,2}$	-0.251**	-0.0426	0.0290	-0.134	0.0896	0.468***	-0.159	-0.322***	0.0231	-0.316***
	(-2.43)	(-0.41)	(0.26)	(-0.97)	(0.87)	(4.54)	(-1.44)	(-3.18)	(0.20)	(-2.96)
$S_{7,3}$	-0.140	0.374***	0.0393	0.135	-0.159	0.425***	0.141	-0.376***	-0.530***	-0.354***
	(-1.18)	(2.97)	(0.32)	(0.86)	(-1.45)	(3.46)	(1.12)	(-3.06)	(-4.43)	(-2.94)
$S_{7,4}$	0.142	0.434	-0.268	0.194	-0.0963	0.606***	-0.527***	-0.142	-0.732***	-0.331*
	(0.69)	(1.58)	(-1.24)	(0.63)	(-0.51)	(2.65)	(-2.64)	(-0.59)	(-3.16)	(-1.88)
$S_{7,5}$	0.427	0.197	-0.110	0.547*	-0.485*	-0.115	-0.0790	-0.0385	-0.283	-0.515
	(1.31)	(0.67)	(-0.28)	(1.79)	(-1.74)	(-0.35)	(-0.30)	(-0.14)	(-0.71)	(-1.56)
$S_{7H,1}$	0.378	0.286	-0.634*	0.184	-0.241	0.0992	-0.232	0.0221	0.629**	0.123
	(1.38)	(1.07)	(-1.85)	(0.59)	(-0.87)	(0.36)	(-0.87)	(0.08)	(2.46)	(0.46)
$S_{7H,2}$	0.0636	0.113	0.0318	0.231	-0.0755	-0.0394	-0.0368	0.168	-0.00712	0.0177
	(0.48)	(0.87)	(0.23)	(1.42)	(-0.57)	(-0.29)	(-0.27)	(1.18)	(-0.05)	(0.14)
$S_{7H,3}$	0.0357	-0.172	-0.421***	0.168	0.00498	-0.172	-0.379**	0.307*	0.124	-0.0217
	(0.24)	(-1.05)	(-2.59)	(0.82)	(0.03)	(-1.05)	(-2.34)	(1.82)	(0.79)	(-0.14)
$S_{7H,4}$	-0.333	-0.260	0.781***	-0.175	0.0753	-0.261	0.0939	0.0783	0.161	0.126
	(-1.27)	(-0.79)	(2.72)	(-0.47)	(0.31)	(-0.87)	(0.37)	(0.26)	(0.58)	(0.52)
$S_{7H,5}$	-0.476	0.709*	0.254	-0.597	0.325	0.346	0.0201	-0.373	-0.238	0.301
	(-1.25)	(1.87)	(0.59)	(-1.56)	(0.95)	(0.86)	(0.05)	(-1.08)	(-0.53)	(0.73)

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
$S_{8,1}$	-0.353	-0.191	0.278	-0.182	0.155	0.0524	-0.456**	0.391*	-0.430	-0.707**
	(-1.34)	(-0.77)	(0.96)	(-0.40)	(0.70)	(0.20)	(-2.03)	(1.79)	(-1.49)	(-2.13)
$S_{8,2}$	-0.147	0.0757	0.0236	-0.0461	0.0662	0.355***	-0.118	-0.330***	-0.171	-0.232**
	(-1.35)	(0.70)	(0.20)	(-0.32)	(0.60)	(3.42)	(-1.03)	(-3.05)	(-1.50)	(-2.03)
$S_{8,3}$	0.0474	0.580***	-0.0103	-0.0157	-0.0257	0.386***	-0.220*	-0.527***	-0.490***	-0.297**
	(0.42)	(4.41)	(-0.08)	(-0.11)	(-0.24)	(3.16)	(-1.80)	(-4.47)	(-4.34)	(-2.56)
$S_{8,4}$	0.116	0.409**	-0.430**	0.443**	-0.272	0.260	-0.324*	-0.0555	-0.552***	-0.186
	(0.56)	(2.06)	(-2.08)	(2.38)	(-1.45)	(1.27)	(-1.67)	(-0.22)	(-2.74)	(-0.82)
$S_{8,5}$	0.572**	0.398	0.658**	0.0557	-0.358	0.145	-0.448	-0.361	-0.740***	-0.380
	(2.13)	(1.35)	(2.27)	(0.17)	(-1.13)	(0.55)	(-1.63)	(-1.15)	(-2.84)	(-1.30)
$S_{8H,1}$	0.226	0.479*	-0.344	0.780	-0.318	-0.0382	0.0214	-0.449*	0.477	0.110
	(0.76)	(1.68)	(-1.01)	(1.60)	(-1.15)	(-0.12)	(0.08)	(-1.74)	(1.40)	(0.30)
$S_{8H,2}$	0.0208	0.387***	0.0514	-0.0339	-0.106	-0.0446	-0.236	0.242	-0.00464	-0.0275
	(0.15)	(2.67)	(0.35)	(-0.19)	(-0.76)	(-0.32)	(-1.60)	(1.62)	(-0.03)	(-0.20)
$S_{8H,3}$	-0.0526	0.0849	-0.245	0.0899	-0.198	-0.0675	-0.0644	0.407**	-0.0531	-0.183
	(-0.37)	(0.51)	(-1.63)	(0.47)	(-1.36)	(-0.44)	(-0.42)	(2.52)	(-0.34)	(-1.26)
$S_{8H,4}$	-0.348	0.0911	1.076***	-0.581**	0.183	-0.113	-0.168	-0.110	-0.119	0.0926
	(-1.32)	(0.35)	(3.64)	(-1.98)	(0.78)	(-0.39)	(-0.62)	(-0.36)	(-0.49)	(0.32)
$S_{8H,5}$	-0.542	0.564	-0.465	0.235	0.314	-0.117	0.0113	-0.272	0.110	0.246
	(-1.63)	(1.53)	(-1.43)	(0.61)	(0.85)	(-0.35)	(0.03)	(-0.74)	(0.33)	(0.69)
Threshold parameters										
$\widehat{\nu_1}$	-2.206***	-2.299***	-0.151	1.025***	-2.629***	-1.672***	-2.430***	-1.556***	-2.259***	-1.965***
	(-16.26)	(-15.22)	(-0.93)	(5.34)	(-17.94)	(-11.11)	(-14.82)	(-9.87)	(-14.06)	(-12.19)
$\widehat{\nu_2}$	-1.199***	-1.350***	1.163***	2.110***	-1.467***	-0.773***	-1.327***	-0.138	-1.239***	-0.567***
	(-9.01)	(-9.15)	(7.13)	(10.81)	(-10.37)	(-5.22)	(-8.33)	(-0.88)	(-7.90)	(-3.60)
$\widehat{\nu_3}$	-0.235*	-0.279*	2.031***	3.021***	-0.416***	0.383***	-0.369**	0.792***	-0.407***	0.553***
	(-1.78)	(-1.92)	(12.20)	(14.87)	(-2.99)	(2.60)	(-2.34)	(5.05)	(-2.63)	(3.52)
$\widehat{\nu_4}$	0.921***	0.924***	2.729***	3.814***	0.802***	1.756***	0.787***	1.817***	0.606***	1.603***
	(6.96)	(6.35)	(15.86)	(17.74)	(5.71)	(11.71)	(5.00)	(11.38)	(3.93)	(10.00)
Random effect										
$\widehat{\sigma}_u^2$	1.279***	1.735***	1.731***	2.649***	1.494***	1.811***	2.074***	2.153***	1.963***	1.694***
	(16.01)	(17.01)	(15.39)	(14.32)	(16.71)	(16.93)	(17.03)	(17.05)	(17.07)	(15.82)
	56.1%	63.4%	63.4%	72.6%	59.9%	64.4%	67.5%	68.3%	66.3%	62.9%
Groups	1796	1770	1778	1848	1847	1831	1836	1785	1813	1788
Observations	8386	8279	8315	8645	8545	8650	8568	8390	8541	8381
Log-likelihood	-11694.9	-10795.1	-9892.2	-7091.7	-11342.5	-11193.6	-11114.5	-10869.2	-10631.3	-10641.7

Notes: *, ** and *** denote significance at 90%, 95%, and 99% respectively. t-statistics clustered by individual in parentheses. Recall that $m=1$ denotes the precautionary motive, $m=2$ the precautionary health motive, $m=3$ the life-span risk motive, $m=4$ the intended bequest motive, $m=5$ the liquidity motive, $m=6$ the intra-household bequest motive, $m=7$ the autonomy motive, $m=8$ the security motive, $m=9$ the self-gratification motive, and $m=10$ the political risk motive. See Table 2 for the full-text saving motives.

Table D.2: Robustness check 2. RE Ordered Probit estimates per saving motive with standardization per motive.

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
Personal characteristics										
male	-0.0732	-0.307***	0.0116	0.308***	0.0177	0.153**	-0.0745	-0.0000742	0.0571	-0.0340
	(-1.20)	(-4.24)	(0.15)	(3.26)	(0.26)	(2.11)	(-0.97)	(-0.00)	(0.74)	(-0.46)
partner	-0.0405	-0.157*	0.0166	0.125	-0.0842	0.552***	0.0109	-0.0793	-0.0740	-0.0382
	(-0.55)	(-1.87)	(0.20)	(1.18)	(-1.11)	(6.60)	(0.12)	(-0.89)	(-0.85)	(-0.47)
children	0.0357	0.0345	-0.0542	0.363***	0.0230	-0.0930	-0.0359	-0.0813	-0.0685	0.0300
	(0.58)	(0.48)	(-0.74)	(3.93)	(0.35)	(-1.29)	(-0.48)	(-1.03)	(-0.87)	(0.40)
INC_3_4	-0.0409	0.0797	0.0507	-0.0613	-0.0171	-0.0839	0.119	-0.0166	0.267***	-0.277***
	(-0.59)	(0.99)	(0.62)	(-0.60)	(-0.22)	(-1.03)	(1.41)	(-0.19)	(2.95)	(-3.47)
homeowner	-0.00851	-0.00739	-0.0389	-0.117	0.00714	0.0302	-0.0204	-0.0228	0.225**	-0.172**
	(-0.11)	(-0.08)	(-0.44)	(-1.02)	(0.09)	(0.33)	(-0.22)	(-0.24)	(2.50)	(-2.00)
religious	-0.0839	0.142*	0.0702	0.0401	0.155**	-0.0901	-0.00880	0.00797	-0.284***	0.0212
	(-1.31)	(1.91)	(0.94)	(0.42)	(2.32)	(-1.20)	(-0.11)	(0.10)	(-3.63)	(0.30)
born_country	-0.0858	0.0221	-0.135	-0.0581	0.0495	0.185*	0.0489	-0.172*	0.181*	-0.118
	(-0.95)	(0.23)	(-1.21)	(-0.46)	(0.56)	(1.86)	(0.46)	(-1.66)	(1.71)	(-1.15)
SLE1_high	-0.0288	-0.0621	0.0775	-0.101	-0.0886	0.0269	0.0403	0.0186	0.122	-0.0178
	(-0.47)	(-0.87)	(1.07)	(-1.13)	(-1.35)	(0.38)	(0.54)	(0.24)	(1.60)	(-0.26)
Personality related										
ret_plan	-0.202***	-0.0106	-0.0232	-0.237**	-0.146**	0.115	0.102	0.0440	0.0491	0.0916
	(-2.94)	(-0.13)	(-0.28)	(-2.29)	(-1.96)	(1.50)	(1.21)	(0.50)	(0.59)	(1.14)
pens_cap	0.170**	0.254***	0.103	-0.408***	0.0840	-0.0816	0.0351	0.0789	0.127	-0.379***
	(2.50)	(3.21)	(1.29)	(-4.00)	(1.21)	(-1.07)	(0.42)	(0.89)	(1.49)	(-4.99)
pens_kno_std	0.00954	0.0322	-0.0160	-0.0447	0.0542	-0.0887**	0.00413	-0.0177	0.00577	-0.0147
	(0.30)	(0.81)	(-0.41)	(-0.90)	(1.50)	(-2.24)	(0.11)	(-0.42)	(0.15)	(-0.40)
risk1_std	-0.0747**	-0.0640*	0.0119	0.0300	-0.0423	-0.0269	0.0882**	0.0419	0.0552	0.0452
	(-2.49)	(-1.77)	(0.33)	(0.65)	(-1.35)	(-0.77)	(2.44)	(1.11)	(1.42)	(1.34)
imp_fin_beh_std	-0.00225	-0.0610*	-0.0135	-0.00378	0.0173	0.0692*	-0.0316	0.00771	0.0329	-0.104***
	(-0.07)	(-1.65)	(-0.36)	(-0.08)	(0.48)	(1.84)	(-0.82)	(0.19)	(0.82)	(-2.84)
fut_or_std	0.0880***	0.0929**	-0.0288	-0.0160	-0.0671**	-0.00686	-0.0360	0.00830	-0.0753*	0.0137
	(2.79)	(2.22)	(-0.72)	(-0.33)	(-1.98)	(-0.18)	(-0.93)	(0.21)	(-1.78)	(0.37)
TIPI_Con_std	0.0660**	0.0435	-0.0916**	-0.128***	0.0446	0.0495	0.0447	-0.0486	0.0817**	-0.0582
	(2.20)	(1.19)	(-2.49)	(-2.72)	(1.30)	(1.36)	(1.18)	(-1.27)	(2.08)	(-1.61)
AUSTRALIA	-0.179**	-0.278***	1.194***	0.225**	-0.900***	-0.425***	0.0401	1.175***	-0.0310	-0.613***
	(-2.43)	(-3.32)	(13.56)	(2.07)	(-11.54)	(-5.23)	(0.47)	(12.60)	(-0.34)	(-7.48)
Interaction terms (1st stage)										
$S_{1,1}$	-0.179*	-0.0430	0.252**	-0.181	-0.0917	0.0472	0.0185	0.0735	-0.0782	0.0179
	(-1.65)	(-0.40)	(1.98)	(-1.17)	(-0.79)	(0.48)	(0.17)	(0.66)	(-0.60)	(0.18)
$S_{1,2}$	-0.159***	-0.0126	-0.0385	0.153*	0.116*	-0.0468	0.00703	0.0251	0.0754	-0.00590
	(-2.60)	(-0.20)	(-0.52)	(1.65)	(1.74)	(-0.72)	(0.10)	(0.38)	(1.01)	(-0.09)
$S_{1,3}$	-0.0685	0.284***	-0.00681	0.400***	-0.0988	-0.0157	-0.145	0.0207	-0.138	-0.00495
	(-0.78)	(3.26)	(-0.07)	(3.48)	(-1.10)	(-0.18)	(-1.55)	(0.24)	(-1.43)	(-0.05)
$S_{1,4}$	0.303**	0.189	0.0161	0.0180	-0.177	-0.114	0.200	0.0960	-0.300**	0.335**
	(2.38)	(1.50)	(0.11)	(0.10)	(-1.40)	(-0.85)	(1.38)	(0.78)	(-2.39)	(2.50)
$S_{1,5}$	-0.0848	0.306**	0.142	0.213	0.0205	-0.184	0.0898	0.0931	-0.396***	0.0661
	(-0.56)	(2.16)	(0.88)	(1.22)	(0.13)	(-1.26)	(0.52)	(0.62)	(-2.77)	(0.41)
$S_{2,1}$	-0.227**	0.0768	0.0343	-0.202	-0.209*	0.249**	0.0161	0.00983	0.0734	0.00919
	(-2.16)	(0.64)	(0.28)	(-1.22)	(-1.80)	(2.20)	(0.13)	(0.09)	(0.56)	(0.08)
$S_{2,2}$	-0.0688	0.0236	-0.0502	0.0369	0.0270	0.0648	-0.0560	-0.0683	0.0690	0.0357
	(-1.09)	(0.40)	(-0.70)	(0.42)	(0.40)	(1.09)	(-0.80)	(-1.14)	(0.94)	(0.57)
$S_{2,3}$	0.0160	0.272***	0.00649	0.409***	-0.0966	-0.0476	-0.0496	0.164*	-0.300***	-0.102
	(0.19)	(3.16)	(0.07)	(3.54)	(-1.14)	(-0.58)	(-0.55)	(1.85)	(-3.23)	(-1.15)
$S_{2,4}$	0.0946	0.609***	-0.106	0.379**	-0.0848	-0.0796	0.112	0.212	-0.307**	-0.0861
	(0.64)	(4.49)	(-0.66)	(2.43)	(-0.61)	(-0.51)	(0.70)	(1.44)	(-2.19)	(-0.50)
$S_{2,5}$	0.0956	0.404**	-0.216	0.777***	0.0202	0.00783	-0.0983	-0.333	-0.524***	0.196
	(0.54)	(2.32)	(-0.94)	(3.30)	(0.09)	(0.04)	(-0.42)	(-1.50)	(-2.96)	(1.00)
$S_{3,1}$	-0.389**	0.0312	0.114	0.113	-0.145	0.263	-0.211	-0.113	0.331*	-0.223
	(-2.52)	(0.18)	(0.66)	(0.53)	(-0.84)	(1.63)	(-1.04)	(-0.59)	(1.87)	(-1.33)
$S_{3,2}$	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
$S_{3,3}$	-0.0106	0.371***	0.0131	0.384***	-0.0598	0.00172	-0.00627	-0.00275	-0.378***	0.0277
	(-0.12)	(4.35)	(0.14)	(3.31)	(-0.69)	(0.02)	(-0.07)	(-0.03)	(-3.81)	(0.32)
$S_{3,4}$	0.0570	0.532***	0.0742	0.395**	0.111	0.151	-0.135	-0.0749	-0.611***	0.103
	(0.39)	(3.39)	(0.42)	(2.03)	(0.77)	(0.91)	(-0.79)	(-0.37)	(-3.69)	(0.60)
$S_{3,5}$	0.213	0.291	-0.242	0.502**	-0.149	-0.0741	0.0710	-0.168	-0.420**	0.181
	(1.17)	(1.60)	(-1.17)	(2.05)	(-0.76)	(-0.37)	(0.32)	(-0.80)	(-2.20)	(0.90)

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
Interaction terms (2nd stage)										
$S_{5,1}$	-0.187	-0.372	0.383	0.197	0.292	-0.198	-0.105	0.0340	-0.494	0.186
	(-0.62)	(-1.44)	(1.24)	(0.54)	(1.32)	(-0.79)	(-0.45)	(0.13)	(-1.55)	(0.58)
$S_{5,2}$	-0.201*	-0.197*	-0.0998	0.0528	0.0666	0.149	0.0962	-0.0844	0.0620	-0.0298
	(-1.95)	(-1.94)	(-0.92)	(0.39)	(0.65)	(1.58)	(0.86)	(-0.81)	(0.59)	(-0.30)
$S_{5,3}$	-0.121	0.267**	-0.0556	0.459***	-0.100	0.117	0.0367	-0.424***	-0.365***	0.00218
	(-1.04)	(2.10)	(-0.43)	(3.09)	(-0.91)	(1.04)	(0.28)	(-3.70)	(-3.03)	(0.02)
$S_{5,4}$	-0.225	0.676***	0.332	0.404	-0.248	0.189	-0.0750	-0.286	-1.009***	-0.387*
	(-0.95)	(2.72)	(1.20)	(1.16)	(-1.33)	(0.84)	(-0.34)	(-1.18)	(-4.36)	(-1.79)
$S_{5,5}$	-0.135	0.736**	0.335	0.424	-0.320	-0.0835	-0.402	-0.317	-0.557	0.234
	(-0.49)	(2.18)	(1.17)	(1.05)	(-0.89)	(-0.30)	(-1.17)	(-1.22)	(-1.47)	(0.86)
$S_{5H,1}$	0.0893	0.00177	-0.182	-0.0608	-0.411	0.143	0.0376	-0.201	0.657*	-0.238
	(0.27)	(0.01)	(-0.51)	(-0.15)	(-1.61)	(0.48)	(0.13)	(-0.68)	(1.84)	(-0.66)
$S_{5H,2}$	0.0771	0.137	0.0122	-0.00995	-0.219*	0.108	-0.299**	0.116	-0.0646	0.0522
	(0.60)	(1.05)	(0.09)	(-0.06)	(-1.67)	(0.86)	(-2.21)	(0.85)	(-0.46)	(0.43)
$S_{5H,3}$	-0.0201	0.0110	-0.0480	-0.134	-0.226	-0.129	-0.324*	0.344**	0.374**	-0.224
	(-0.13)	(0.07)	(-0.30)	(-0.68)	(-1.48)	(-0.91)	(-1.94)	(2.10)	(2.47)	(-1.40)
$S_{5H,4}$	-0.0212	-0.453	0.300	-0.460	0.186	-0.294	-0.0924	-0.0221	0.448	0.299
	(-0.07)	(-1.50)	(0.93)	(-1.17)	(0.77)	(-1.02)	(-0.34)	(-0.07)	(1.60)	(1.12)
$S_{5H,5}$	0.0883	-0.438	-0.518	-0.0879	0.200	0.358	0.176	0.399	-0.00995	-0.568
	(0.25)	(-1.09)	(-1.50)	(-0.19)	(0.47)	(0.96)	(0.42)	(1.07)	(-0.02)	(-1.60)
$S_{6,1}$	-0.143	-0.502**	0.924***	0.130	0.335	-0.0639	-0.578**	-0.411	-0.136	-0.215
	(-0.56)	(-2.02)	(2.87)	(0.43)	(1.61)	(-0.25)	(-1.99)	(-1.64)	(-0.48)	(-0.58)
$S_{6,2}$	-0.0584	-0.0300	0.0315	0.101	0.0664	0.112	-0.0637	-0.204*	-0.00697	-0.137
	(-0.56)	(-0.28)	(0.30)	(0.71)	(0.63)	(1.11)	(-0.56)	(-1.89)	(-0.06)	(-1.24)
$S_{6,3}$	0.0294	0.783***	-0.0933	0.201	-0.101	0.0788	-0.0752	-0.287***	-0.554***	-0.146
	(0.27)	(6.08)	(-0.79)	(1.35)	(-0.97)	(0.79)	(-0.61)	(-2.64)	(-4.86)	(-1.32)
$S_{6,4}$	0.00127	0.229	0.176	0.340	-0.0901	0.253	-0.107	-0.521**	-0.812***	-0.0578
	(0.01)	(0.92)	(0.76)	(1.31)	(-0.54)	(1.26)	(-0.55)	(-2.44)	(-3.35)	(-0.25)
$S_{6,5}$	0.476*	0.514*	0.210	-0.0232	-0.110	-0.311	-0.388	0.0347	-0.857**	0.225
	(1.74)	(1.70)	(0.75)	(-0.05)	(-0.36)	(-1.22)	(-1.26)	(0.13)	(-2.56)	(0.76)
$S_{6H,1}$	0.323	0.562*	-1.123***	0.0139	-0.198	-0.241	0.379	0.181	0.334	0.0320
	(1.07)	(1.80)	(-2.91)	(0.04)	(-0.75)	(-0.82)	(1.14)	(0.62)	(0.99)	(0.08)
$S_{6H,2}$	0.0385	0.417***	-0.0647	-0.116	0.0206	-0.0873	-0.194	0.0568	-0.0441	-0.111
	(0.29)	(3.01)	(-0.46)	(-0.68)	(0.15)	(-0.66)	(-1.38)	(0.42)	(-0.30)	(-0.80)
$S_{6H,3}$	-0.000293	0.0817	0.0458	0.113	-0.0668	-0.161	-0.260*	0.108	0.104	-0.400***
	(-0.00)	(0.50)	(0.32)	(0.61)	(-0.48)	(-1.23)	(-1.73)	(0.72)	(0.71)	(-2.69)
$S_{6H,4}$	0.217	0.409	0.0113	-0.145	0.0319	-0.586**	-0.361	0.294	0.189	-0.146
	(0.84)	(1.32)	(0.04)	(-0.47)	(0.15)	(-2.32)	(-1.41)	(1.07)	(0.69)	(-0.52)
$S_{6H,5}$	-0.643*	0.324	0.0704	0.171	-0.0646	0.463	0.0968	-0.00724	0.0631	-0.570
	(-1.93)	(0.84)	(0.21)	(0.34)	(-0.18)	(1.41)	(0.24)	(-0.02)	(0.17)	(-1.56)
$S_{7,1}$	-0.301	-0.273	0.534*	0.137	0.211	0.171	-0.304	-0.121	-0.363*	-0.373
	(-1.34)	(-1.18)	(1.77)	(0.52)	(0.92)	(0.76)	(-1.44)	(-0.57)	(-1.77)	(-1.50)
$S_{7,2}$	-0.223**	-0.0157	0.0369	-0.0932	0.144	0.508***	-0.123	-0.264***	0.0347	-0.273***
	(-2.17)	(-0.15)	(0.35)	(-0.66)	(1.47)	(5.01)	(-1.14)	(-2.66)	(0.30)	(-2.75)
$S_{7,3}$	-0.114	0.384***	0.0642	0.199	-0.151	0.459***	0.147	-0.340***	-0.540***	-0.327***
	(-0.98)	(3.06)	(0.53)	(1.27)	(-1.39)	(3.76)	(1.16)	(-2.81)	(-4.51)	(-2.73)
$S_{7,4}$	0.132	0.473*	-0.253	0.300	-0.132	0.632***	-0.490**	-0.131	-0.736***	-0.310*
	(0.63)	(1.71)	(-1.16)	(0.98)	(-0.66)	(2.84)	(-2.50)	(-0.54)	(-3.14)	(-1.74)
$S_{7,5}$	0.452	0.171	-0.0780	0.622**	-0.549**	-0.0532	-0.0278	-0.0830	-0.264	-0.358
	(1.38)	(0.57)	(-0.19)	(2.03)	(-2.11)	(-0.17)	(-0.10)	(-0.29)	(-0.67)	(-1.09)
$S_{7H,1}$	0.419	0.263	-0.653*	0.156	-0.330	0.118	-0.262	-0.0581	0.640**	0.0751
	(1.58)	(0.97)	(-1.90)	(0.51)	(-1.20)	(0.43)	(-0.99)	(-0.24)	(2.47)	(0.26)
$S_{7H,2}$	0.0160	0.0814	0.0364	0.212	-0.148	-0.0465	-0.0995	0.0920	-0.0135	-0.0230
	(0.13)	(0.64)	(0.28)	(1.30)	(-1.18)	(-0.34)	(-0.75)	(0.67)	(-0.09)	(-0.18)
$S_{7H,3}$	0.0238	-0.179	-0.394**	0.135	0.00750	-0.172	-0.362**	0.281*	0.149	-0.0138
	(0.16)	(-1.10)	(-2.54)	(0.66)	(0.05)	(-1.05)	(-2.24)	(1.69)	(0.95)	(-0.09)
$S_{7H,4}$	-0.306	-0.351	0.789***	-0.235	0.114	-0.283	0.00477	0.0253	0.194	0.0887
	(-1.16)	(-1.06)	(2.75)	(-0.65)	(0.46)	(-0.96)	(0.02)	(0.08)	(0.69)	(0.36)
$S_{7H,5}$	-0.506	0.697*	0.259	-0.659*	0.351	0.241	-0.0452	-0.281	-0.272	0.0658
	(-1.34)	(1.81)	(0.58)	(-1.75)	(1.07)	(0.60)	(-0.11)	(-0.80)	(-0.61)	(0.16)
$S_{8,1}$	-0.388	-0.197	0.339	-0.0714	0.253	0.103	-0.425**	0.472**	-0.426	-0.665**
	(-1.53)	(-0.77)	(1.10)	(-0.15)	(1.16)	(0.39)	(-1.97)	(2.26)	(-1.49)	(-2.10)
$S_{8,2}$	-0.114	0.104	0.0167	-0.00581	0.119	0.399***	-0.0817	-0.276**	-0.156	-0.198*
	(-1.05)	(0.98)	(0.15)	(-0.04)	(1.12)	(3.82)	(-0.72)	(-2.57)	(-1.36)	(-1.86)

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
$S_{8,3}$	0.0744	0.597***	0.0192	0.0486	-0.0164	0.419***	-0.219*	-0.485***	-0.501***	-0.251**
	(0.68)	(4.56)	(0.16)	(0.33)	(-0.15)	(3.44)	(-1.81)	(-4.17)	(-4.46)	(-2.25)
$S_{8,4}$	0.154	0.446**	-0.409*	0.519***	-0.257	0.271	-0.276	-0.0346	-0.563***	-0.149
	(0.73)	(2.28)	(-1.91)	(2.73)	(-1.34)	(1.34)	(-1.51)	(-0.14)	(-2.79)	(-0.66)
$S_{8,5}$	0.547**	0.376	0.686**	0.0843	-0.419	0.209	-0.423	-0.397	-0.728***	-0.260
	(2.05)	(1.28)	(2.27)	(0.27)	(-1.38)	(0.81)	(-1.48)	(-1.25)	(-2.92)	(-0.88)
$S_{8H,1}$	0.316	0.485*	-0.381	0.724	-0.433	-0.0356	-0.0267	-0.520**	0.491	0.0681
	(1.09)	(1.66)	(-1.08)	(1.47)	(-1.58)	(-0.12)	(-0.10)	(-2.09)	(1.46)	(0.19)
$S_{8H,2}$	-0.0367	0.357**	0.0629	-0.0667	-0.179	-0.0553	-0.311**	0.170	-0.0169	-0.0672
	(-0.26)	(2.48)	(0.44)	(-0.37)	(-1.32)	(-0.40)	(-2.15)	(1.18)	(-0.11)	(-0.50)
$S_{8H,3}$	-0.0710	0.0626	-0.247*	0.0566	-0.222	-0.0698	-0.0626	0.363**	-0.0274	-0.196
	(-0.51)	(0.38)	(-1.68)	(0.30)	(-1.52)	(-0.45)	(-0.41)	(2.26)	(-0.18)	(-1.38)
$S_{8H,4}$	-0.379	0.00614	1.128***	-0.595**	0.161	-0.0989	-0.203	-0.167	-0.0946	0.0428
	(-1.41)	(0.02)	(3.65)	(-2.01)	(0.67)	(-0.35)	(-0.78)	(-0.56)	(-0.38)	(0.15)
$S_{8H,5}$	-0.512	0.552	-0.456	0.205	0.399	-0.218	-0.0574	-0.215	0.0936	0.0770
	(-1.56)	(1.50)	(-1.31)	(0.55)	(1.15)	(-0.67)	(-0.16)	(-0.58)	(0.28)	(0.21)
Nuisance parameters										
A_1	0	0.112	-0.129	0.0837	0.109	-0.143*	-0.00206	0.166**	0.132	0.152**
	(.)	(1.43)	(-1.49)	(0.88)	(1.51)	(-1.87)	(-0.02)	(2.06)	(1.49)	(2.00)
A_2	-0.198**	0	-0.127	0.00745	0.0564	-0.133*	-0.0643	-0.0354	0.0940	0.0992
	(-2.51)	(.)	(-1.49)	(0.08)	(0.73)	(-1.80)	(-0.68)	(-0.44)	(0.99)	(1.29)
A_3	0.432***	0.204**	0	0.399***	0.371***	0.250***	0.254***	0.431***	0.345***	0.525***
	(5.32)	(2.46)	(.)	(3.82)	(4.89)	(3.24)	(2.91)	(5.09)	(3.84)	(6.54)
A_4	0.478***	0.369***	0.705***	0	0.673***	0.309***	0.499***	0.626***	0.378***	0.801***
	(6.12)	(4.70)	(8.81)	(.)	(9.13)	(4.18)	(5.55)	(7.44)	(4.41)	(9.96)
A_5	0.0314	-0.0313	-0.129	-0.0641	0	0	-0.0250	0.0821	0.0421	0.165**
	(0.40)	(-0.38)	(-1.60)	(-0.66)	(.)	(.)	(-0.28)	(0.97)	(0.52)	(2.25)
A_6	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
A_7	-0.294***	-0.215***	-0.212***	-0.385***	-0.517***	-0.175**	0	-0.411***	-0.225***	0.00712
	(-3.92)	(-2.68)	(-2.76)	(-4.04)	(-7.13)	(-2.34)	(.)	(-5.04)	(-2.65)	(0.10)
A_8	0.0707	-0.0982	-0.134	-0.160*	-0.415***	-0.0208	-0.226***	0	-0.154*	0.244***
	(0.95)	(-1.35)	(-1.64)	(-1.67)	(-6.34)	(-0.28)	(-2.59)	(.)	(-1.84)	(3.12)
A_9	-0.226***	-0.337***	-0.191**	-0.181**	-0.549***	-0.211***	-0.587***	-0.512***	0	0
	(-3.16)	(-4.51)	(-2.46)	(-2.04)	(-7.71)	(-2.94)	(-6.93)	(-6.43)	(.)	(.)
A_{10}	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Threshold parameters										
$\widehat{\nu}_1$	-2.188***	-2.355***	-0.234	0.831***	-2.917***	-1.758***	-2.326***	-1.277***	-1.891***	-1.025***
	(-11.31)	(-11.22)	(-1.13)	(3.21)	(-14.82)	(-8.91)	(-9.55)	(-5.46)	(-7.79)	(-4.54)
$\widehat{\nu}_2$	-1.161***	-1.398***	1.123***	1.923***	-1.725***	-0.847***	-1.203***	0.168	-0.860***	0.410*
	(-6.11)	(-6.75)	(5.35)	(7.36)	(-8.94)	(-4.33)	(-4.95)	(0.71)	(-3.53)	(1.83)
$\widehat{\nu}_3$	-0.177	-0.319	2.002***	2.838***	-0.644***	0.320	-0.229	1.115***	-0.0187	1.545***
	(-0.94)	(-1.55)	(9.36)	(10.58)	(-3.36)	(1.64)	(-0.94)	(4.71)	(-0.08)	(6.80)
$\widehat{\nu}_4$	0.996***	0.890***	2.698***	3.629***	0.598***	1.699***	0.941***	2.154***	1.000***	2.595***
	(5.23)	(4.33)	(12.39)	(12.99)	(3.11)	(8.65)	(3.86)	(8.98)	(4.06)	(11.27)
Random effect										
$\widehat{\sigma}_u^2$	1.203***	1.689***	1.688***	2.566***	1.427***	1.739***	1.942***	2.007***	1.949***	1.606***
	(15.77)	(16.64)	(14.89)	(14.20)	(16.53)	(16.72)	(16.88)	(16.81)	(16.97)	(15.54)
	54.6%	62.8%	62.8%	72.0%	58.8%	63.5%	66.0%	66.7%	66.1%	61.6%
Groups	1796	1770	1778	1848	1847	1831	1836	1785	1813	1788
Observations	8386	8279	8315	8645	8545	8650	8568	8390	8541	8381
Log-likelihood	-11528.1	-10735.6	-9712.7	-7048.9	-11146.0	-11110.7	-10971.7	-10707.8	-10581.2	-10473.8

Notes: *, ** and *** denote significance at 90%, 95%, and 99% respectively. t-statistics clustered by individual in parentheses. Recall that $m=1$ denotes the precautionary motive, $m=2$ the precautionary health motive, $m=3$ the life-span risk motive, $m=4$ the intended bequest motive, $m=5$ the liquidity motive, $m=6$ the intra-household bequest motive, $m=7$ the autonomy motive, $m=8$ the security motive, $m=9$ the self-gratification motive, and $m=10$ the political risk motive. See Table 2 for the full-text saving motives.

Table D.3: Robustness check 3. Random Effects Ordered Probit estimates per saving motive clustered on household.

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
Personal characteristics										
male	-0.0732	-0.307***	0.0116	0.308***	0.0177	0.153**	-0.0745	-0.0000742	0.0571	-0.0340
	(-1.20)	(-4.27)	(0.15)	(3.32)	(0.27)	(2.13)	(-0.97)	(-0.00)	(0.74)	(-0.47)
partner	-0.0405	-0.157*	0.0166	0.125	-0.0842	0.552***	0.0109	-0.0793	-0.0740	-0.0382
	(-0.55)	(-1.87)	(0.20)	(1.16)	(-1.11)	(6.56)	(0.12)	(-0.88)	(-0.84)	(-0.47)
children	0.0357	0.0345	-0.0542	0.363***	0.0230	-0.0930	-0.0359	-0.0813	-0.0685	0.0300
	(0.58)	(0.47)	(-0.73)	(3.84)	(0.35)	(-1.27)	(-0.48)	(-1.01)	(-0.87)	(0.40)
INC_3_4	-0.0409	0.0797	0.0507	-0.0613	-0.0171	-0.0839	0.119	-0.0166	0.267***	-0.277***
	(-0.59)	(0.98)	(0.62)	(-0.59)	(-0.22)	(-1.01)	(1.40)	(-0.18)	(2.97)	(-3.49)
homeowner	-0.00851	-0.00739	-0.0389	-0.117	0.00714	0.0302	-0.0204	-0.0228	0.225**	-0.172**
	(-0.11)	(-0.08)	(-0.43)	(-1.01)	(0.09)	(0.32)	(-0.22)	(-0.24)	(2.49)	(-2.05)
religious	-0.0839	0.142*	0.0702	0.0401	0.155**	-0.0901	-0.00880	0.00797	-0.284***	0.0212
	(-1.32)	(1.89)	(0.93)	(0.42)	(2.32)	(-1.20)	(-0.11)	(0.10)	(-3.60)	(0.30)
born_country	-0.0858	0.0221	-0.135	-0.0581	0.0495	0.185*	0.0489	-0.172*	0.181*	-0.118
	(-0.95)	(0.23)	(-1.20)	(-0.46)	(0.56)	(1.83)	(0.46)	(-1.65)	(1.73)	(-1.15)
SLE1_high	-0.0288	-0.0621	0.0775	-0.101	-0.0886	0.0269	0.0403	0.0186	0.122	-0.0178
	(-0.47)	(-0.87)	(1.07)	(-1.12)	(-1.34)	(0.38)	(0.54)	(0.24)	(1.58)	(-0.26)
Personality related										
ret_plan	-0.202***	-0.0106	-0.0232	-0.237**	-0.146**	0.115	0.102	0.0440	0.0491	0.0916
	(-2.94)	(-0.13)	(-0.28)	(-2.26)	(-1.96)	(1.50)	(1.21)	(0.51)	(0.59)	(1.13)
pens_cap	0.170**	0.254***	0.103	-0.408***	0.0840	-0.0816	0.0351	0.0789	0.127	-0.379***
	(2.52)	(3.18)	(1.29)	(-4.04)	(1.21)	(-1.07)	(0.42)	(0.88)	(1.50)	(-5.03)
pens_kno_std	0.00954	0.0321	-0.0161	-0.0444	0.0545	-0.0888**	0.00421	-0.0178	0.00566	-0.0146
	(0.31)	(0.82)	(-0.40)	(-0.90)	(1.49)	(-2.20)	(0.11)	(-0.42)	(0.15)	(-0.39)
risk1_std	-0.0744**	-0.0644*	0.0117	0.0301	-0.0422	-0.0271	0.0887**	0.0419	0.0544	0.0456
	(-2.49)	(-1.76)	(0.33)	(0.65)	(-1.35)	(-0.78)	(2.42)	(1.11)	(1.41)	(1.34)
imp_fin_beh_std	-0.00226	-0.0594	-0.0135	-0.00380	0.0176	0.0694*	-0.0316	0.00778	0.0331	-0.103***
	(-0.07)	(-1.64)	(-0.36)	(-0.08)	(0.48)	(1.83)	(-0.81)	(0.19)	(0.82)	(-2.81)
fut_or_std	0.0874***	0.0910**	-0.0288	-0.0160	-0.0679**	-0.00699	-0.0351	0.00852	-0.0762*	0.0135
	(2.76)	(2.21)	(-0.72)	(-0.32)	(-1.98)	(-0.18)	(-0.92)	(0.21)	(-1.76)	(0.37)
TIPI_Con_std	0.0666**	0.0429	-0.0918**	-0.128***	0.0444	0.0497	0.0449	-0.0492	0.0806**	-0.0581
	(2.19)	(1.19)	(-2.46)	(-2.72)	(1.29)	(1.34)	(1.19)	(-1.26)	(2.06)	(-1.60)
AUSTRALIA	-0.179**	-0.278***	1.194***	0.225**	-0.900***	-0.425***	0.0401	1.175***	-0.0310	-0.613***
	(-2.43)	(-3.29)	(13.50)	(2.04)	(-11.49)	(-5.19)	(0.47)	(12.43)	(-0.34)	(-7.43)
Interaction terms (1st stage)										
$S_{1,1}$	-0.179*	-0.0430	0.252**	-0.181	-0.0917	0.0472	0.0185	0.0735	-0.0782	0.0179
	(-1.68)	(-0.40)	(2.00)	(-1.17)	(-0.80)	(0.48)	(0.17)	(0.66)	(-0.60)	(0.18)
$S_{1,2}$	-0.159***	-0.0126	-0.0385	0.153	0.116*	-0.0468	0.00703	0.0251	0.0754	-0.00590
	(-2.61)	(-0.20)	(-0.52)	(1.63)	(1.76)	(-0.72)	(0.10)	(0.38)	(1.01)	(-0.09)
$S_{1,3}$	-0.0685	0.284***	-0.00681	0.400***	-0.0988	-0.0157	-0.145	0.0207	-0.138	-0.00495
	(-0.78)	(3.25)	(-0.07)	(3.48)	(-1.10)	(-0.18)	(-1.56)	(0.24)	(-1.43)	(-0.05)
$S_{1,4}$	0.303**	0.189	0.0161	0.0180	-0.177	-0.114	0.200	0.0960	-0.300**	0.335**
	(2.39)	(1.50)	(0.11)	(0.10)	(-1.39)	(-0.85)	(1.37)	(0.79)	(-2.42)	(2.46)
$S_{1,5}$	-0.0848	0.306**	0.142	0.213	0.0205	-0.184	0.0898	0.0931	-0.396***	0.0661
	(-0.56)	(2.15)	(0.88)	(1.22)	(0.12)	(-1.26)	(0.54)	(0.62)	(-2.78)	(0.41)
$S_{2,1}$	-0.227**	0.0768	0.0343	-0.202	-0.209*	0.249**	0.0161	0.00983	0.0734	0.00919
	(-2.16)	(0.64)	(0.27)	(-1.21)	(-1.83)	(2.22)	(0.13)	(0.09)	(0.55)	(0.07)
$S_{2,2}$	-0.0688	0.0236	-0.0502	0.0369	0.0270	0.0648	-0.0560	-0.0683	0.0690	0.0357
	(-1.09)	(0.40)	(-0.70)	(0.42)	(0.40)	(1.09)	(-0.80)	(-1.14)	(0.94)	(0.58)
$S_{2,3}$	0.0160	0.272***	0.00649	0.409***	-0.0966	-0.0476	-0.0496	0.164*	-0.300***	-0.102
	(0.19)	(3.14)	(0.07)	(3.55)	(-1.14)	(-0.58)	(-0.55)	(1.84)	(-3.21)	(-1.14)
$S_{2,4}$	0.0946	0.609***	-0.106	0.379**	-0.0848	-0.0796	0.112	0.212	-0.307**	-0.0861
	(0.64)	(4.48)	(-0.66)	(2.43)	(-0.61)	(-0.51)	(0.71)	(1.45)	(-2.19)	(-0.50)
$S_{2,5}$	0.0956	0.404**	-0.216	0.777***	0.0202	0.00783	-0.0983	-0.333	-0.524***	0.196
	(0.54)	(2.31)	(-0.94)	(3.30)	(0.09)	(0.04)	(-0.42)	(-1.51)	(-2.97)	(1.00)
$S_{3,1}$	-0.389**	0.0312	0.114	0.113	-0.145	0.263	-0.211	-0.113	0.331*	-0.223
	(-2.54)	(0.18)	(0.68)	(0.54)	(-0.85)	(1.63)	(-1.03)	(-0.57)	(1.88)	(-1.30)
$S_{3,2}$	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
$S_{3,3}$	-0.0106	0.371***	0.0131	0.384***	-0.0598	0.00172	-0.00627	-0.00275	-0.378***	0.0277
	(-0.12)	(4.32)	(0.14)	(3.33)	(-0.69)	(0.02)	(-0.07)	(-0.03)	(-3.80)	(0.32)
$S_{3,4}$	0.0570	0.532***	0.0742	0.395**	0.111	0.151	-0.135	-0.0749	-0.611***	0.103
	(0.38)	(3.40)	(0.41)	(2.03)	(0.77)	(0.91)	(-0.79)	(-0.38)	(-3.69)	(0.60)
$S_{3,5}$	0.213	0.291	-0.242	0.502**	-0.149	-0.0741	0.0710	-0.168	-0.420**	0.181
	(1.16)	(1.60)	(-1.18)	(2.05)	(-0.75)	(-0.37)	(0.33)	(-0.79)	(-2.21)	(0.89)

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
Interaction terms (2nd stage)										
$S_{5,1}$	-0.187	-0.372	0.383	0.197	0.292	-0.198	-0.105	0.0340	-0.494	0.186
	(-0.62)	(-1.45)	(1.32)	(0.54)	(1.32)	(-0.79)	(-0.44)	(0.13)	(-1.55)	(0.57)
$S_{5,2}$	-0.201**	-0.197*	-0.0998	0.0528	0.0666	0.149	0.0962	-0.0844	0.0620	-0.0298
	(-1.96)	(-1.95)	(-0.92)	(0.39)	(0.66)	(1.59)	(0.87)	(-0.81)	(0.59)	(-0.30)
$S_{5,3}$	-0.121	0.267**	-0.0556	0.459***	-0.100	0.117	0.0367	-0.424***	-0.365***	0.00218
	(-1.04)	(2.12)	(-0.43)	(3.11)	(-0.92)	(1.04)	(0.28)	(-3.72)	(-3.02)	(0.02)
$S_{5,4}$	-0.225	0.676***	0.332	0.404	-0.248	0.189	-0.0750	-0.286	-1.009***	-0.387*
	(-0.95)	(2.72)	(1.20)	(1.15)	(-1.33)	(0.84)	(-0.34)	(-1.18)	(-4.35)	(-1.79)
$S_{5,5}$	-0.135	0.736**	0.335	0.424	-0.320	-0.0835	-0.402	-0.317	-0.557	0.234
	(-0.49)	(2.17)	(1.17)	(1.05)	(-0.88)	(-0.30)	(-1.17)	(-1.18)	(-1.48)	(0.87)
$S_{5H,1}$	0.0893	0.00177	-0.182	-0.0608	-0.411	0.143	0.0376	-0.201	0.657*	-0.238
	(0.27)	(0.01)	(-0.53)	(-0.15)	(-1.61)	(0.49)	(0.13)	(-0.66)	(1.85)	(-0.66)
$S_{5H,2}$	0.0771	0.137	0.0122	-0.00995	-0.219*	0.108	-0.299**	0.116	-0.0646	0.0522
	(0.60)	(1.04)	(0.09)	(-0.06)	(-1.66)	(0.86)	(-2.20)	(0.84)	(-0.45)	(0.43)
$S_{5H,3}$	-0.0201	0.0110	-0.0480	-0.134	-0.226	-0.129	-0.324*	0.344**	0.374**	-0.224
	(-0.13)	(0.07)	(-0.30)	(-0.68)	(-1.47)	(-0.92)	(-1.93)	(2.10)	(2.48)	(-1.40)
$S_{5H,4}$	-0.0212	-0.453	0.300	-0.460	0.186	-0.294	-0.0924	-0.0221	0.448	0.299
	(-0.07)	(-1.51)	(0.93)	(-1.17)	(0.77)	(-1.02)	(-0.34)	(-0.07)	(1.61)	(1.12)
$S_{5H,5}$	0.0883	-0.438	-0.518	-0.0879	0.200	0.358	0.176	0.399	-0.00995	-0.568
	(0.25)	(-1.09)	(-1.51)	(-0.19)	(0.47)	(0.96)	(0.44)	(1.06)	(-0.02)	(-1.61)
$S_{6,1}$	-0.143	-0.502**	0.924***	0.130	0.335	-0.0639	-0.578**	-0.411	-0.136	-0.215
	(-0.56)	(-2.03)	(3.02)	(0.43)	(1.61)	(-0.25)	(-1.98)	(-1.55)	(-0.48)	(-0.58)
$S_{6,2}$	-0.0584	-0.0300	0.0315	0.101	0.0664	0.112	-0.0637	-0.204*	-0.00697	-0.137
	(-0.56)	(-0.28)	(0.30)	(0.70)	(0.63)	(1.11)	(-0.57)	(-1.87)	(-0.06)	(-1.24)
$S_{6,3}$	0.0294	0.783***	-0.0933	0.201	-0.101	0.0788	-0.0752	-0.287***	-0.554***	-0.146
	(0.27)	(6.06)	(-0.79)	(1.31)	(-0.98)	(0.79)	(-0.60)	(-2.64)	(-4.86)	(-1.32)
$S_{6,4}$	0.00127	0.229	0.176	0.340	-0.0901	0.253	-0.107	-0.521**	-0.812***	-0.0578
	(0.01)	(0.92)	(0.76)	(1.31)	(-0.54)	(1.26)	(-0.56)	(-2.43)	(-3.35)	(-0.25)
$S_{6,5}$	0.476*	0.514*	0.210	-0.0232	-0.110	-0.311	-0.388	0.0347	-0.857**	0.225
	(1.79)	(1.69)	(0.75)	(-0.05)	(-0.35)	(-1.23)	(-1.27)	(0.13)	(-2.57)	(0.75)
$S_{6H,1}$	0.323	0.562*	-1.123***	0.0139	-0.198	-0.241	0.379	0.181	0.334	0.0320
	(1.07)	(1.80)	(-3.03)	(0.04)	(-0.75)	(-0.82)	(1.14)	(0.59)	(0.99)	(0.08)
$S_{6H,2}$	0.0385	0.417***	-0.0647	-0.116	0.0206	-0.0873	-0.194	0.0568	-0.0441	-0.111
	(0.29)	(3.02)	(-0.47)	(-0.68)	(0.15)	(-0.66)	(-1.37)	(0.42)	(-0.29)	(-0.80)
$S_{6H,3}$	-0.000293	0.0817	0.0458	0.113	-0.0668	-0.161	-0.260*	0.108	0.104	-0.400***
	(-0.00)	(0.50)	(0.32)	(0.60)	(-0.48)	(-1.24)	(-1.73)	(0.73)	(0.71)	(-2.69)
$S_{6H,4}$	0.217	0.409	0.0113	-0.145	0.0319	-0.586**	-0.361	0.294	0.189	-0.146
	(0.84)	(1.32)	(0.04)	(-0.46)	(0.15)	(-2.32)	(-1.41)	(1.08)	(0.71)	(-0.52)
$S_{6H,5}$	-0.643**	0.324	0.0704	0.171	-0.0646	0.463	0.0968	-0.00724	0.0631	-0.570
	(-1.97)	(0.84)	(0.22)	(0.34)	(-0.17)	(1.41)	(0.26)	(-0.02)	(0.17)	(-1.56)
$S_{7,1}$	-0.301	-0.273	0.534*	0.137	0.211	0.171	-0.304	-0.121	-0.363*	-0.373
	(-1.34)	(-1.19)	(1.83)	(0.52)	(0.92)	(0.76)	(-1.42)	(-0.55)	(-1.77)	(-1.49)
$S_{7,2}$	-0.223**	-0.0157	0.0369	-0.0932	0.144	0.508***	-0.123	-0.264***	0.0347	-0.273***
	(-2.17)	(-0.15)	(0.35)	(-0.66)	(1.47)	(5.02)	(-1.14)	(-2.64)	(0.30)	(-2.75)
$S_{7,3}$	-0.114	0.384***	0.0642	0.199	-0.151	0.459***	0.147	-0.340***	-0.540***	-0.327***
	(-0.98)	(3.06)	(0.53)	(1.26)	(-1.41)	(3.76)	(1.17)	(-2.83)	(-4.54)	(-2.72)
$S_{7,4}$	0.132	0.473*	-0.253	0.300	-0.132	0.632***	-0.490**	-0.131	-0.736***	-0.310*
	(0.63)	(1.72)	(-1.16)	(0.98)	(-0.66)	(2.82)	(-2.52)	(-0.53)	(-3.14)	(-1.74)
$S_{7,5}$	0.452	0.171	-0.0780	0.622**	-0.549**	-0.0532	-0.0278	-0.0830	-0.264	-0.358
	(1.43)	(0.57)	(-0.19)	(2.03)	(-2.10)	(-0.17)	(-0.11)	(-0.29)	(-0.72)	(-1.08)
$S_{7H,1}$	0.419	0.263	-0.653**	0.156	-0.330	0.118	-0.262	-0.0581	0.640**	0.0751
	(1.58)	(0.98)	(-1.96)	(0.50)	(-1.20)	(0.43)	(-0.97)	(-0.23)	(2.47)	(0.26)
$S_{7H,2}$	0.0160	0.0814	0.0364	0.212	-0.148	-0.0465	-0.0995	0.0920	-0.0135	-0.0230
	(0.13)	(0.63)	(0.27)	(1.29)	(-1.16)	(-0.33)	(-0.75)	(0.66)	(-0.09)	(-0.18)
$S_{7H,3}$	0.0238	-0.179	-0.394**	0.135	0.00750	-0.172	-0.362**	0.281*	0.149	-0.0138
	(0.16)	(-1.10)	(-2.55)	(0.66)	(0.05)	(-1.05)	(-2.24)	(1.69)	(0.96)	(-0.09)
$S_{7H,4}$	-0.306	-0.351	0.789***	-0.235	0.114	-0.283	0.00477	0.0253	0.194	0.0887
	(-1.16)	(-1.06)	(2.75)	(-0.65)	(0.46)	(-0.96)	(0.02)	(0.08)	(0.68)	(0.36)
$S_{7H,5}$	-0.506	0.697*	0.259	-0.659*	0.351	0.241	-0.0452	-0.281	-0.272	0.0658
	(-1.38)	(1.81)	(0.58)	(-1.75)	(1.07)	(0.61)	(-0.12)	(-0.79)	(-0.64)	(0.16)
$S_{8,1}$	-0.388	-0.197	0.339	-0.0714	0.253	0.103	-0.425*	0.472**	-0.426	-0.665**
	(-1.53)	(-0.77)	(1.16)	(-0.15)	(1.16)	(0.39)	(-1.95)	(2.19)	(-1.48)	(-2.10)
$S_{8,2}$	-0.114	0.104	0.0167	-0.00581	0.119	0.399***	-0.0817	-0.276**	-0.156	-0.198*
	(-1.06)	(0.99)	(0.14)	(-0.04)	(1.12)	(3.82)	(-0.72)	(-2.55)	(-1.35)	(-1.84)

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
$S_{8,3}$	0.0744	0.597***	0.0192	0.0486	-0.0164	0.419***	-0.219*	-0.485***	-0.501***	-0.251**
	(0.67)	(4.58)	(0.16)	(0.32)	(-0.15)	(3.45)	(-1.81)	(-4.16)	(-4.47)	(-2.24)
$S_{8,4}$	0.154	0.446**	-0.409*	0.519***	-0.257	0.271	-0.276	-0.0346	-0.563***	-0.149
	(0.73)	(2.29)	(-1.93)	(2.73)	(-1.34)	(1.34)	(-1.52)	(-0.14)	(-2.80)	(-0.66)
$S_{8,5}$	0.547**	0.376	0.686**	0.0843	-0.419	0.209	-0.423	-0.397	-0.728***	-0.260
	(2.11)	(1.23)	(2.28)	(0.27)	(-1.38)	(0.80)	(-1.48)	(-1.25)	(-2.92)	(-0.88)
$S_{8H,1}$	0.316	0.485*	-0.381	0.724	-0.433	-0.0356	-0.0267	-0.520**	0.491	0.0681
	(1.09)	(1.65)	(-1.12)	(1.47)	(-1.58)	(-0.12)	(-0.10)	(-2.04)	(1.45)	(0.19)
$S_{8H,2}$	-0.0367	0.357**	0.0629	-0.0667	-0.179	-0.0553	-0.311**	0.170	-0.0169	-0.0672
	(-0.26)	(2.48)	(0.44)	(-0.37)	(-1.31)	(-0.40)	(-2.15)	(1.17)	(-0.11)	(-0.50)
$S_{8H,3}$	-0.0710	0.0626	-0.247*	0.0566	-0.222	-0.0698	-0.0626	0.363**	-0.0274	-0.196
	(-0.51)	(0.38)	(-1.69)	(0.30)	(-1.52)	(-0.45)	(-0.41)	(2.26)	(-0.18)	(-1.38)
$S_{8H,4}$	-0.379	0.00614	1.128***	-0.595**	0.161	-0.0989	-0.203	-0.167	-0.0946	0.0428
	(-1.40)	(0.02)	(3.60)	(-2.01)	(0.69)	(-0.35)	(-0.77)	(-0.56)	(-0.39)	(0.15)
$S_{8H,5}$	-0.512	0.552	-0.456	0.205	0.399	-0.218	-0.0574	-0.215	0.0936	0.0770
	(-1.59)	(1.46)	(-1.33)	(0.55)	(1.15)	(-0.66)	(-0.16)	(-0.58)	(0.28)	(0.21)
Nuisance parameters										
A_1	0	0.112	-0.129	0.0837	0.109	-0.143*	-0.00206	0.166**	0.132	0.152**
	(.)	(1.44)	(-1.48)	(0.88)	(1.52)	(-1.86)	(-0.02)	(2.09)	(1.50)	(1.99)
A_2	-0.198**	0	-0.127	0.00745	0.0564	-0.133*	-0.0643	-0.0354	0.0940	0.0992
	(-2.50)	(.)	(-1.49)	(0.08)	(0.72)	(-1.81)	(-0.70)	(-0.44)	(0.99)	(1.31)
A_3	0.432***	0.204**	0	0.399***	0.371***	0.250***	0.254***	0.431***	0.345***	0.525***
	(5.30)	(2.46)	(.)	(3.83)	(4.83)	(3.25)	(2.94)	(5.08)	(3.82)	(6.58)
A_4	0.478***	0.369***	0.705***	0	0.673***	0.309***	0.499***	0.626***	0.378***	0.801***
	(6.13)	(4.70)	(8.81)	(.)	(9.03)	(4.19)	(5.60)	(7.44)	(4.45)	(10.02)
A_5	0.0314	-0.0313	-0.129	-0.0641	0	0	-0.0250	0.0821	0.0421	0.165**
	(0.40)	(-0.38)	(-1.59)	(-0.66)	(.)	(.)	(-0.27)	(0.96)	(0.52)	(2.26)
A_6	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
A_7	-0.294***	-0.215***	-0.212***	-0.385***	-0.517***	-0.175**	0	-0.411***	-0.225***	0.00712
	(-3.89)	(-2.67)	(-2.75)	(-4.04)	(-7.15)	(-2.34)	(.)	(-4.99)	(-2.63)	(0.10)
A_8	0.0707	-0.0982	-0.134	-0.160*	-0.415***	-0.0208	-0.226***	0	-0.154*	0.244***
	(0.94)	(-1.35)	(-1.63)	(-1.68)	(-6.32)	(-0.28)	(-2.64)	(.)	(-1.84)	(3.13)
A_9	-0.226***	-0.337***	-0.191**	-0.181**	-0.549***	-0.211***	-0.587***	-0.512***	0	0
	(-3.15)	(-4.50)	(-2.45)	(-2.05)	(-7.72)	(-2.94)	(-7.03)	(-6.35)	(.)	(.)
A_{10}	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Threshold parameters										
$\widehat{\nu_1}$	-2.186***	-2.361***	-0.234	0.830***	-2.916***	-1.757***	-2.327***	-1.276***	-1.893***	-1.025***
	(-11.30)	(-11.16)	(-1.12)	(3.20)	(-14.78)	(-8.84)	(-9.76)	(-5.47)	(-7.86)	(-4.55)
$\widehat{\nu_2}$	-1.159***	-1.404***	1.123***	1.922***	-1.724***	-0.846***	-1.205***	0.168	-0.862***	0.410*
	(-6.10)	(-6.74)	(5.34)	(7.33)	(-8.90)	(-4.29)	(-5.06)	(0.72)	(-3.57)	(1.83)
$\widehat{\nu_3}$	-0.175	-0.325	2.002***	2.836***	-0.643***	0.321	-0.231	1.115***	-0.0204	1.545***
	(-0.93)	(-1.57)	(9.35)	(10.52)	(-3.35)	(1.63)	(-0.97)	(4.71)	(-0.08)	(6.83)
$\widehat{\nu_4}$	0.998***	0.884***	2.697***	3.628***	0.599***	1.700***	0.939***	2.155***	0.998***	2.595***
	(5.24)	(4.28)	(12.34)	(12.92)	(3.10)	(8.59)	(3.92)	(8.98)	(4.08)	(11.31)
Random effect										
$\widehat{\sigma}_u^2$	1.203***	1.689***	1.688***	2.566***	1.427***	1.739***	1.942***	2.007***	1.949***	1.606***
	(15.81)	(16.63)	(14.98)	(14.12)	(16.50)	(16.55)	(16.68)	(16.71)	(16.98)	(15.33)
	54.6%	62.8%	62.8%	72.0%	58.8%	63.5%	66.0%	66.7%	66.1%	61.6%
Groups	1796	1770	1778	1848	1847	1831	1836	1785	1813	1788
Observations	8386	8279	8315	8645	8545	8650	8568	8390	8541	8381
Log-likelihood	-11528.1	-10735.6	-9712.7	-7048.9	-11146.0	-11110.7	-10971.7	-10707.8	-10581.2	-10473.8

Notes: *, ** and *** denote significance at 90%, 95%, and 99% respectively. t-statistics clustered by individual in parentheses. Recall that $m = 1$ denotes the precautionary motive, $m = 2$ the precautionary health motive, $m = 3$ the life-span risk motive, $m = 4$ the intended bequest motive, $m = 5$ the liquidity motive, $m = 6$ the intra-household bequest motive, $m = 7$ the autonomy motive, $m = 8$ the security motive, $m = 9$ the self-gratification motive, and $m = 10$ the political risk motive. See Table 2 for the full-text saving motives.

Table D.4: Robustness check 4. Ordered Probit estimates per saving motive.

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
Personal characteristics										
male	-0.0346	-0.170***	-0.0138	0.168***	-0.0116	0.0768*	-0.0214	0.0334	0.0523	-0.0359
	(-0.85)	(-3.82)	(-0.29)	(3.16)	(-0.27)	(1.72)	(-0.46)	(0.72)	(1.14)	(-0.78)
partner	-0.0238	-0.114**	-0.0190	0.0734	-0.0619	0.314***	0.0174	-0.0832	-0.0546	-0.0272
	(-0.49)	(-2.17)	(-0.37)	(1.24)	(-1.26)	(6.14)	(0.33)	(-1.55)	(-1.05)	(-0.54)
children	0.0143	0.0216	-0.0494	0.190***	0.0124	-0.0382	-0.0183	-0.0828*	-0.0437	0.0104
	(0.34)	(0.48)	(-1.09)	(3.67)	(0.29)	(-0.86)	(-0.41)	(-1.77)	(-0.95)	(0.23)
INC_3_4	-0.0198	0.0448	0.0161	-0.000590	-0.0196	-0.0405	0.0447	-0.0244	0.146***	-0.164***
	(-0.42)	(0.90)	(0.32)	(-0.01)	(-0.40)	(-0.82)	(0.89)	(-0.47)	(2.73)	(-3.35)
homeowner	-0.00188	-0.00639	0.00867	-0.0399	0.0202	-0.0171	-0.00906	-0.0000466	0.119**	-0.112**
	(-0.04)	(-0.11)	(0.16)	(-0.61)	(0.38)	(-0.30)	(-0.16)	(-0.00)	(2.20)	(-2.08)
religious	-0.0702	0.0920**	0.0441	0.0332	0.106**	-0.0573	-0.00539	0.0179	-0.147***	0.00475
	(-1.63)	(1.97)	(0.96)	(0.63)	(2.43)	(-1.25)	(-0.12)	(0.39)	(-3.17)	(0.11)
born_country	-0.0560	0.0186	-0.0941	-0.0118	0.0140	0.148**	0.0625	-0.108*	0.0807	-0.0636
	(-0.90)	(0.32)	(-1.39)	(-0.17)	(0.24)	(2.37)	(1.00)	(-1.78)	(1.29)	(-1.04)
SLE1_high	-0.0217	-0.0386	0.0322	-0.0370	-0.0620	0.0171	0.00609	0.0236	0.0759*	-0.00543
	(-0.53)	(-0.88)	(0.72)	(-0.74)	(-1.46)	(0.39)	(0.14)	(0.52)	(1.69)	(-0.13)
Personality related										
ret_plan	-0.117***	0.0232	-0.0206	-0.154***	-0.0926*	0.0879*	0.0515	0.0294	0.0467	0.0533
	(-2.59)	(0.46)	(-0.41)	(-2.66)	(-1.94)	(1.84)	(1.02)	(0.57)	(0.96)	(1.07)
pens_cap	0.0996**	0.122**	0.0789	-0.182***	0.0406	-0.0475	-0.0233	0.0797	0.0367	-0.252***
	(2.25)	(2.45)	(1.62)	(-3.27)	(0.90)	(-1.01)	(-0.47)	(1.54)	(0.73)	(-5.35)
pens_kno_std	0.0100	0.0136	0.0101	-0.0179	0.0477**	-0.0485**	0.00405	-0.0248	-0.00177	0.00674
	(0.46)	(0.56)	(0.42)	(-0.64)	(2.07)	(-1.99)	(0.17)	(-0.99)	(-0.08)	(0.30)
risk1_std	-0.0566***	-0.0420*	0.0152	0.0228	-0.0244	-0.0263	0.0468**	0.0207	0.0239	0.0221
	(-2.77)	(-1.88)	(0.70)	(0.90)	(-1.21)	(-1.20)	(2.18)	(0.92)	(1.06)	(1.04)
imp_fin_beh_std	-0.00191	-0.0317	-0.00642	0.0219	0.00209	0.0337	-0.0146	0.00911	0.0295	-0.0639***
	(-0.09)	(-1.41)	(-0.27)	(0.82)	(0.09)	(1.45)	(-0.64)	(0.38)	(1.26)	(-2.80)
fut_or_std	0.0585***	0.0605**	-0.0263	-0.0136	-0.0450**	-0.0114	-0.0136	-0.0153	-0.0448*	0.0184
	(2.80)	(2.30)	(-1.08)	(-0.51)	(-1.99)	(-0.48)	(-0.60)	(-0.64)	(-1.72)	(0.79)
TIPI_Con_std	0.0470**	0.00720	-0.0438*	-0.0821***	0.0334	0.0251	0.0195	-0.0255	0.0590***	-0.0448*
	(2.32)	(0.32)	(-1.90)	(-3.06)	(1.51)	(1.08)	(0.85)	(-1.11)	(2.62)	(-1.93)
AUSTRALIA	-0.140***	-0.175***	0.712***	0.101*	-0.599***	-0.232***	0.0383	0.673***	-0.00634	-0.399***
	(-2.82)	(-3.42)	(13.44)	(1.66)	(-11.64)	(-4.64)	(0.75)	(12.41)	(-0.12)	(-7.76)
Interaction terms (1st stage)										
$S_{1,1}$	-0.143*	-0.0611	0.210**	-0.00126	0.00963	-0.0928	-0.0880	0.155*	-0.0644	0.0672
	(-1.75)	(-0.81)	(2.30)	(-0.01)	(0.11)	(-1.19)	(-1.04)	(1.94)	(-0.71)	(0.84)
$S_{1,2}$	-0.0641	0.0438	-0.0204	0.113*	0.0711	-0.0279	-0.0599	-0.0559	0.0458	-0.00491
	(-1.34)	(0.93)	(-0.39)	(1.88)	(1.40)	(-0.59)	(-1.22)	(-1.21)	(0.87)	(-0.10)
$S_{1,3}$	0.0204	0.191***	-0.0723	0.366***	-0.0415	-0.0852	-0.103	0.0183	-0.229***	-0.0127
	(0.30)	(2.76)	(-0.98)	(4.80)	(-0.61)	(-1.28)	(-1.51)	(0.28)	(-3.16)	(-0.19)
$S_{1,4}$	0.312***	0.0431	-0.00251	0.129	-0.169*	-0.106	0.185*	-0.0105	-0.427***	0.225**
	(3.04)	(0.42)	(-0.02)	(1.08)	(-1.69)	(-1.02)	(1.80)	(-0.11)	(-4.63)	(2.07)
$S_{1,5}$	0.0309	0.131	0.271**	0.249*	-0.0384	-0.262**	-0.0397	-0.0416	-0.332***	0.119
	(0.27)	(1.20)	(2.18)	(1.95)	(-0.32)	(-2.36)	(-0.35)	(-0.37)	(-3.08)	(1.07)
$S_{2,1}$	-0.169**	-0.0369	0.0794	0.0311	-0.0658	0.0676	-0.0818	0.0754	-0.0297	0.111
	(-2.06)	(-0.47)	(0.88)	(0.31)	(-0.74)	(0.83)	(-0.95)	(0.88)	(-0.33)	(1.30)
$S_{2,2}$	-0.0116	0.0785*	-0.0179	0.0348	0.0154	0.0594	-0.0389	-0.107**	0.00804	-0.0199
	(-0.24)	(1.72)	(-0.35)	(0.60)	(0.31)	(1.36)	(-0.80)	(-2.41)	(0.16)	(-0.41)
$S_{2,3}$	0.0980	0.164***	-0.0802	0.365***	-0.0504	-0.131**	-0.0723	0.0967	-0.266***	-0.0364
	(1.49)	(2.60)	(-1.22)	(4.86)	(-0.75)	(-2.13)	(-1.12)	(1.52)	(-3.90)	(-0.55)
$S_{2,4}$	0.127	0.357***	-0.0122	0.411***	-0.167	-0.261**	-0.0676	0.116	-0.414***	0.0256
	(1.08)	(3.24)	(-0.09)	(3.16)	(-1.50)	(-2.09)	(-0.62)	(1.01)	(-3.94)	(0.21)
$S_{2,5}$	0.169	0.177	0.0928	0.416***	-0.00636	-0.0420	-0.133	-0.359**	-0.446***	0.178
	(1.09)	(1.23)	(0.59)	(2.59)	(-0.04)	(-0.29)	(-0.84)	(-2.35)	(-3.62)	(1.40)
$S_{3,1}$	-0.267**	-0.0642	0.178	0.404***	0.0137	-0.0596	-0.161	-0.0763	-0.0123	-0.0147
	(-2.15)	(-0.58)	(1.42)	(2.96)	(0.10)	(-0.49)	(-1.07)	(-0.56)	(-0.10)	(-0.11)
$S_{3,2}$	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
$S_{3,3}$	0.103	0.266***	-0.0309	0.337***	-0.0246	-0.0747	-0.108	-0.0244	-0.349***	-0.0226
	(1.52)	(3.85)	(-0.43)	(4.24)	(-0.36)	(-1.14)	(-1.57)	(-0.35)	(-4.69)	(-0.33)
$S_{3,4}$	0.161	0.423***	-0.0470	0.499***	0.0843	-0.114	-0.167	-0.183	-0.639***	0.251**
	(1.28)	(3.29)	(-0.34)	(3.40)	(0.71)	(-0.86)	(-1.21)	(-1.32)	(-5.02)	(1.96)
$S_{3,5}$	0.262*	0.0294	0.121	0.321**	-0.284*	-0.141	-0.00595	-0.212	-0.328**	0.208
	(1.87)	(0.23)	(0.82)	(1.97)	(-1.91)	(-0.90)	(-0.04)	(-1.51)	(-2.55)	(1.43)

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
Interaction terms (2nd stage)										
$S_{5,1}$	-0.369*	-0.411**	0.461**	0.531**	0.116	-0.0912	-0.199	0.133	-0.473**	0.256
	(-1.88)	(-2.45)	(2.09)	(2.37)	(0.65)	(-0.40)	(-1.02)	(0.68)	(-2.39)	(1.00)
$S_{5,2}$	-0.0551	-0.110	-0.0329	0.0940	0.0416	0.0882	0.0598	-0.0557	-0.0325	0.0252
	(-0.77)	(-1.64)	(-0.44)	(1.15)	(0.58)	(1.36)	(0.82)	(-0.79)	(-0.46)	(0.35)
$S_{5,3}$	0.0268	0.144*	-0.00131	0.426***	-0.0235	0.0353	-0.0362	-0.261***	-0.286***	0.0636
	(0.32)	(1.65)	(-0.01)	(4.42)	(-0.29)	(0.42)	(-0.41)	(-3.03)	(-3.41)	(0.69)
$S_{5,4}$	-0.124	0.349*	0.356*	0.0682	-0.0947	0.238	-0.103	-0.0783	-0.605***	0.0140
	(-0.70)	(1.89)	(1.65)	(0.29)	(-0.61)	(1.37)	(-0.62)	(-0.44)	(-3.52)	(0.08)
$S_{5,5}$	-0.459**	0.313	0.515**	0.370	-0.246	-0.186	-0.128	-0.345	-0.319	0.347*
	(-2.30)	(1.43)	(2.13)	(1.44)	(-1.06)	(-0.87)	(-0.52)	(-1.52)	(-1.28)	(1.94)
$S_{5H,1}$	0.252	0.137	-0.180	-0.180	-0.0287	-0.00765	0.201	-0.243	0.298	-0.186
	(1.09)	(0.67)	(-0.71)	(-0.70)	(-0.14)	(-0.03)	(0.90)	(-1.07)	(1.29)	(-0.66)
$S_{5H,2}$	0.0503	0.125	-0.0231	0.00472	-0.131	0.178**	-0.214**	0.0355	-0.00348	0.0565
	(0.56)	(1.42)	(-0.24)	(0.05)	(-1.43)	(2.01)	(-2.33)	(0.39)	(-0.04)	(0.63)
$S_{5H,3}$	-0.0842	0.0273	-0.112	-0.0160	-0.210*	-0.0393	-0.103	0.215*	0.223**	-0.00358
	(-0.76)	(0.24)	(-0.94)	(-0.12)	(-1.78)	(-0.38)	(-0.90)	(1.83)	(1.98)	(-0.03)
$S_{5H,4}$	0.000661	-0.167	0.0273	0.301	0.00697	-0.347	0.0422	-0.0229	0.187	-0.0563
	(0.00)	(-0.73)	(0.11)	(1.12)	(0.04)	(-1.51)	(0.20)	(-0.10)	(0.86)	(-0.26)
$S_{5H,5}$	0.575**	-0.204	-0.446	0.0383	0.0811	0.307	0.123	0.325	-0.190	-0.370
	(2.27)	(-0.76)	(-1.58)	(0.13)	(0.31)	(1.13)	(0.42)	(1.16)	(-0.69)	(-1.48)
$S_{6,1}$	-0.219	-0.314*	0.784***	0.699***	0.0156	0.0733	-0.351	-0.0196	-0.336*	-0.193
	(-1.14)	(-1.79)	(3.45)	(2.69)	(0.08)	(0.32)	(-1.50)	(-0.11)	(-1.73)	(-0.70)
$S_{6,2}$	0.0433	-0.0336	0.0481	0.137	0.0494	0.0548	-0.0593	-0.122*	-0.0591	0.0292
	(0.58)	(-0.44)	(0.62)	(1.55)	(0.67)	(0.78)	(-0.78)	(-1.67)	(-0.79)	(0.38)
$S_{6,3}$	0.0996	0.462***	0.0242	0.243**	-0.0151	-0.00692	-0.0561	-0.158**	-0.406***	-0.0875
	(1.22)	(5.13)	(0.30)	(2.56)	(-0.19)	(-0.09)	(-0.69)	(-2.02)	(-5.44)	(-1.03)
$S_{6,4}$	0.106	0.156	0.107	0.239	-0.161	0.339**	-0.178	-0.326**	-0.595***	0.232
	(0.57)	(0.82)	(0.66)	(1.29)	(-1.11)	(2.31)	(-1.17)	(-2.28)	(-3.70)	(1.37)
$S_{6,5}$	0.0526	0.216	0.401*	0.0401	0.0258	-0.253	-0.302	-0.288	-0.261	0.279
	(0.23)	(0.98)	(1.72)	(0.14)	(0.12)	(-1.20)	(-1.47)	(-1.37)	(-1.18)	(1.48)
$S_{6H,1}$	0.288	0.301	-0.926***	-0.311	0.181	-0.359	0.243	-0.0249	0.241	0.198
	(1.27)	(1.33)	(-3.36)	(-1.08)	(0.76)	(-1.46)	(0.94)	(-0.12)	(1.03)	(0.65)
$S_{6H,2}$	-0.0191	0.307***	-0.0440	-0.0425	0.0220	0.0431	-0.0768	-0.00283	-0.0340	-0.112
	(-0.19)	(3.11)	(-0.43)	(-0.39)	(0.24)	(0.47)	(-0.79)	(-0.03)	(-0.35)	(-1.17)
$S_{6H,3}$	0.0155	0.152	-0.0704	0.143	-0.0641	-0.0224	-0.210**	0.0193	0.0809	-0.0999
	(0.15)	(1.28)	(-0.70)	(1.14)	(-0.61)	(-0.24)	(-2.02)	(0.18)	(0.80)	(-0.95)
$S_{6H,4}$	0.0269	0.237	0.0775	0.132	0.0652	-0.510***	0.0135	0.217	0.107	-0.274
	(0.12)	(1.04)	(0.37)	(0.60)	(0.37)	(-2.64)	(0.07)	(1.14)	(0.56)	(-1.32)
$S_{6H,5}$	0.0506	0.170	-0.0223	0.341	-0.245	0.225	0.307	0.260	-0.469*	-0.403
	(0.18)	(0.59)	(-0.08)	(1.07)	(-0.94)	(0.84)	(1.22)	(1.00)	(-1.83)	(-1.56)
$S_{7,1}$	-0.227	-0.217	0.217	0.407*	-0.0336	0.162	-0.197	0.226	-0.312*	-0.0309
	(-1.26)	(-1.35)	(1.10)	(1.92)	(-0.19)	(0.85)	(-1.16)	(1.41)	(-1.89)	(-0.14)
$S_{7,2}$	-0.0479	0.0413	0.0754	0.0112	0.0924	0.294***	-0.142**	-0.162**	-0.0308	-0.102
	(-0.67)	(0.60)	(1.04)	(0.13)	(1.34)	(4.19)	(-2.03)	(-2.45)	(-0.41)	(-1.44)
$S_{7,3}$	-0.0239	0.152	0.139	0.251**	-0.00657	0.232**	0.116	-0.222**	-0.433***	-0.167*
	(-0.28)	(1.59)	(1.59)	(2.46)	(-0.08)	(2.52)	(1.36)	(-2.51)	(-5.19)	(-1.79)
$S_{7,4}$	0.103	0.156	-0.0404	0.289	-0.130	0.750***	-0.376**	-0.179	-0.404**	0.0400
	(0.59)	(0.83)	(-0.26)	(1.59)	(-0.82)	(4.03)	(-2.42)	(-1.17)	(-2.01)	(0.27)
$S_{7,5}$	0.0120	-0.0469	0.278	0.651***	-0.360*	-0.255	0.0322	-0.162	-0.0927	-0.179
	(0.05)	(-0.22)	(1.02)	(2.90)	(-1.86)	(-1.13)	(0.18)	(-0.80)	(-0.45)	(-0.83)
$S_{7H,1}$	0.329	0.230	-0.221	-0.00162	0.0444	0.0174	-0.233	-0.306*	0.309	-0.106
	(1.57)	(1.22)	(-0.96)	(-0.01)	(0.22)	(0.08)	(-1.18)	(-1.65)	(1.56)	(-0.44)
$S_{7H,2}$	-0.0621	0.0163	-0.00227	0.159	-0.0953	0.0882	-0.0133	0.0427	0.0461	-0.0422
	(-0.68)	(0.19)	(-0.02)	(1.49)	(-1.06)	(0.95)	(-0.15)	(0.46)	(0.46)	(-0.47)
$S_{7H,3}$	0.0197	0.0297	-0.372***	0.168	-0.0556	-0.0779	-0.161	0.141	0.0756	0.160
	(0.18)	(0.24)	(-3.21)	(1.28)	(-0.50)	(-0.68)	(-1.44)	(1.20)	(0.67)	(1.36)
$S_{7H,4}$	-0.195	-0.0941	0.390*	0.0908	0.0921	-0.438*	0.113	0.152	-0.114	-0.0669
	(-0.94)	(-0.41)	(1.94)	(0.41)	(0.46)	(-1.86)	(0.57)	(0.75)	(-0.48)	(-0.35)
$S_{7H,5}$	0.185	0.375	0.0694	-0.404	0.0970	0.152	0.135	-0.0968	-0.463*	0.176
	(0.65)	(1.29)	(0.23)	(-1.47)	(0.43)	(0.51)	(0.52)	(-0.37)	(-1.81)	(0.65)
$S_{8,1}$	-0.406*	-0.123	0.215	0.324	-0.00254	-0.00266	-0.112	0.401**	-0.294	-0.286
	(-1.95)	(-0.69)	(1.02)	(1.09)	(-0.01)	(-0.01)	(-0.61)	(2.20)	(-1.45)	(-0.98)
$S_{8,2}$	0.0606	0.0426	0.0105	0.0801	0.0784	0.236***	-0.0927	-0.149**	-0.165**	-0.0411
	(0.82)	(0.58)	(0.13)	(0.91)	(1.05)	(3.24)	(-1.23)	(-2.04)	(-2.24)	(-0.55)

	$m=1$	$m=2$	$m=3$	$m=4$	$m=5$	$m=6$	$m=7$	$m=8$	$m=9$	$m=10$
$S_{8,3}$	0.0799	0.380***	0.0978	0.181*	0.0442	0.233***	-0.189**	-0.279***	-0.341***	-0.114
	(1.00)	(4.11)	(1.18)	(1.86)	(0.55)	(2.66)	(-2.41)	(-3.42)	(-4.46)	(-1.34)
$S_{8,4}$	0.256	0.0600	-0.101	0.423***	-0.196	0.356**	-0.107	-0.144	-0.483***	0.0456
	(1.48)	(0.42)	(-0.76)	(2.72)	(-1.36)	(2.47)	(-0.77)	(-0.86)	(-3.39)	(0.28)
$S_{8,5}$	0.0186	0.333	0.784***	0.113	-0.273	-0.0590	-0.269	-0.286	-0.476***	-0.0501
	(0.09)	(1.39)	(3.61)	(0.50)	(-1.46)	(-0.31)	(-1.45)	(-1.27)	(-2.61)	(-0.28)
$S_{8H,1}$	0.304	0.288	-0.114	0.333	-0.0233	0.0337	-0.213	-0.424**	0.178	-0.0114
	(1.32)	(1.43)	(-0.46)	(1.06)	(-0.11)	(0.14)	(-1.01)	(-2.05)	(0.77)	(-0.04)
$S_{8H,2}$	-0.136	0.270***	0.0395	-0.00240	-0.0763	0.0426	-0.126	0.0818	0.00353	-0.0626
	(-1.34)	(2.76)	(0.39)	(-0.02)	(-0.79)	(0.44)	(-1.32)	(0.84)	(0.04)	(-0.66)
$S_{8H,3}$	0.0127	0.117	-0.232**	0.0731	-0.187*	-0.0233	0.0225	0.145	-0.00485	-0.0353
	(0.12)	(1.00)	(-2.22)	(0.59)	(-1.77)	(-0.22)	(0.22)	(1.33)	(-0.05)	(-0.34)
$S_{8H,4}$	-0.312	0.244	0.482**	-0.237	0.0202	-0.183	-0.0656	0.0203	-0.0538	0.113
	(-1.44)	(1.27)	(2.45)	(-1.16)	(0.11)	(-0.87)	(-0.37)	(0.09)	(-0.29)	(0.54)
$S_{8H,5}$	0.128	0.0239	-0.426*	0.334	0.185	0.0743	0.0636	-0.0218	-0.231	0.0142
	(0.49)	(0.08)	(-1.70)	(1.23)	(0.81)	(0.30)	(0.27)	(-0.08)	(-1.00)	(0.06)
Nuisance parameters										
A_1	0	0.0625	-0.0588	0.0264	0.0773*	-0.0632	0.0580	0.0676	-0.0104	0.0843*
	(.)	(1.29)	(-1.17)	(0.48)	(1.65)	(-1.31)	(1.15)	(1.40)	(-0.20)	(1.73)
A_2	-0.172***	0	-0.0937*	0.0186	-0.0148	-0.0377	0.0122	-0.0244	0.0378	0.0822*
	(-3.61)	(.)	(-1.84)	(0.32)	(-0.31)	(-0.80)	(0.25)	(-0.50)	(0.74)	(1.68)
A_3	0.301***	0.152***	0	0.294***	0.311***	0.213***	0.209***	0.282***	0.157***	0.383***
	(6.19)	(3.03)	(.)	(5.16)	(6.48)	(4.51)	(4.19)	(5.65)	(3.10)	(7.51)
A_4	0.342***	0.249***	0.449***	0	0.457***	0.305***	0.400***	0.436***	0.219***	0.512***
	(7.46)	(5.14)	(9.17)	(.)	(9.86)	(6.40)	(8.23)	(8.79)	(4.42)	(10.28)
A_5	0.0204	-0.0359	-0.0211	-0.0662	0	0	0.0334	0.0527	-0.00858	0.0365
	(0.43)	(-0.72)	(-0.43)	(-1.12)	(.)	(.)	(0.67)	(1.07)	(-0.18)	(0.75)
A_6	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
A_7	-0.199***	-0.111**	-0.173***	-0.231***	-0.329***	-0.144***	0	-0.319***	-0.120**	0.0230
	(-4.42)	(-2.34)	(-3.66)	(-4.37)	(-7.17)	(-3.22)	(.)	(-6.58)	(-2.53)	(0.50)
A_8	0.00345	0.0815*	-0.0893*	-0.0531	-0.216***	-0.0385	-0.232***	0	-0.118**	0.197***
	(0.07)	(1.77)	(-1.86)	(-0.99)	(-4.85)	(-0.84)	(-4.81)	(.)	(-2.47)	(4.15)
A_9	-0.227***	-0.194***	-0.206***	-0.0713	-0.356***	-0.225***	-0.434***	-0.372***	0	0
	(-4.97)	(-4.22)	(-4.38)	(-1.34)	(-7.95)	(-4.90)	(-8.98)	(-7.85)	(.)	(.)
A_{10}	0	0	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
Threshold parameters										
$\widehat{\nu_1}$	-1.537***	-1.394***	-0.204	0.667***	-1.899***	-1.098***	-1.312***	-0.784***	-1.384***	-0.591***
	(-12.40)	(-10.80)	(-1.57)	(4.51)	(-15.16)	(-8.92)	(-9.51)	(-5.63)	(-9.87)	(-4.13)
$\widehat{\nu_2}$	-0.784***	-0.757***	0.673***	1.250***	-1.089***	-0.495***	-0.606***	0.108	-0.706***	0.348**
	(-6.39)	(-5.96)	(5.16)	(8.41)	(-8.84)	(-4.05)	(-4.42)	(0.77)	(-5.06)	(2.43)
$\widehat{\nu_3}$	-0.104	-0.0740	1.221***	1.745***	-0.379***	0.238*	-0.0172	0.658***	-0.194	1.057***
	(-0.85)	(-0.59)	(9.23)	(11.51)	(-3.10)	(1.95)	(-0.13)	(4.69)	(-1.39)	(7.27)
$\widehat{\nu_4}$	0.681***	0.667***	1.640***	2.198***	0.425***	1.074***	0.674***	1.248***	0.401***	1.707***
	(5.54)	(5.28)	(12.14)	(14.10)	(3.46)	(8.76)	(4.92)	(8.80)	(2.87)	(11.55)
Observations	8386	8279	8315	8645	8545	8650	8568	8390	8541	8381
Log-likelihood	-12747.4	-12336.6	-11143.7	-8576.0	-12595.7	-12875.4	-12808.9	-12626.1	-12282.4	-12012.8

Notes: *, ** and *** denote significance at 90%, 95%, and 99% respectively. t-statistics clustered by individual in parentheses. Recall that $m=1$ denotes the precautionary motive, $m=2$ the precautionary health motive, $m=3$ the life-span risk motive, $m=4$ the intended bequest motive, $m=5$ the liquidity motive, $m=6$ the intra-household bequest motive, $m=7$ the autonomy motive, $m=8$ the security motive, $m=9$ the self-gratification motive, and $m=10$ the political risk motive. See Table 2 for the full-text saving motives.