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## The Relative Importance of Bequests and Long-Term Care

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### Abstract

In this thesis we investigate the preferences of the dutch elderly with respect to saving for long-term care (LTC) or for a bequest. We handle the identification problem of the intentional bequest by using hypothetical survey questions in which we register the taken saving strategies with respect to these two purposes. We find that the most important factor in chosing between bequest and LTC is having children or not. Bequest motives are found to be similar across all wealth and income distributions.

**Keywords:** Savings; Elderly

# 1   Introduction

Because of the aging of the population, many Western countries will reform the health- and long-term care insurance system in the coming years to make government finances sustainable. For 2015 the Dutch government intends to considerably change the long term care insurance system (AWBZ). In short, people will have to contribute more to their health costs and are encouraged to live longer in their own homes either by receiving informal care from relatives or neighbours or by purchasing private care when informal care is not available. It is important to know whether this increase in uncertainty on future health costs will result in additional saving by the current (and future generation) of retirees.

In this paper we examine the relative importance of the bequest and precautionary motivations to explain saving of the Dutch elderly. Do elderly prefer to make provisions for private long term health care (LTC) or are they more inclined to leave a bequest? We will relate this to certain socio-economic factors (marital status, income, children, education, etc.) health status and psychological concepts of saving behaviour such as risk aversity and planning horizons. We will do this by estimating regression models.

A popular model to predict consumption and saving is the life-cycle model. Assuming neither uncertainty nor bequest motives, people are expected to accumulate wealth during their working period and decumulate wealth after retirement (Ando and Modigliani, 1963; Yaari, 1965). Considerable debate exists on the validity of these assumptions. Several studies show that precautionary saving to cover uncertain health and long-term care expenses is an important motive to save in the U.S. where insurance against these contingencies is limited (see for instance Kotlikoff, 1989). The importance to cover uncertain health and long-term care expenses is also reported in countries with almost complete health and long-term care insurance (Alessie et al., 1999; Börsch-Supan and Stahl, 1991). In addition, several studies show that the elderly leave considerable bequests (Love et al., 2009; Alessie et al., 1999; Börsch-Supan, 1992; Hurd and Smith, 2001).

A recent analysis on the saving behaviour of the elderly in the Netherlands Van Ooijen et. al (2014) suggests that bequests and transfers after death of first spouse are important. An important question is whether these large observed bequests are intended or accidental because of uncertainty about the time of death and health status.

Dynan et al. (2002) argue that by incorporating uncertainty in the life-cycle model both precautionary and bequest motives are important for capital accumulation but that the identification of both motives is difficult without extra information. They find that saving rates of the young and elderly increase considerably after incorporating uncertainty and modestly when the bequest motive is added as well. Their findings are consistent with earlier findings in the US that even though leaving a bequest is considered important, it is the precautionary motive that primarily drives saving. Savings will serve to cope with future contingencies as health or marital status shocks and will be left as a bequest in case these contingencies did not compromise total wealth.

Ameriks et al. (2011) try to resolve this identification problem by introducing two strategic survey questions. These questions represent thought experiments concerning saving behaviour with respect to contingencies. Respondents (55+ years old) have to choose the percentages of a given wealth they wish to allocate to LTC and to a bequest. The first question is situated

in the present and the second question one year before the end of life when these motivations come into play. They find that precautionary motives are very significant and bequest motives are more prevalent than earlier findings. They also find bequest motives to differ significantly for respondents with children compared with those without.

Inspired by this we asked the same hypothetical questions to participants of the Dutch CentER panel. This panel consists of more than 2000 households representative of the Dutch population. It serves as a basis for many projects such as the DNB Household Survey (DHS), a longitudinal study on household finances and on economic and psychological aspects of financial behaviour. The availability of these psychological data makes the DHS unique and highly suitable for studying individual preferences and financial choices.

The outline of this thesis is as follows. In Section 2 we review the relevant literature. In section 3 we describe our data and selected sample. Section 4 presents our model and the results of our estimations. The implications of these results are described in the concluding section 5.

# 2    Theory on bequests and the precautionary motive for saving

There has been a vivid debate over the relative importance of bequest and precautionary motives for saving. Ando and Modigliani (1963) state that a key assumption of the basis life-cycle model for consumption and saving is that agents are not inclined to leave an inheritance. In their empirical work they find that precautionary motives are the main reasons for capital accumulation (Modigliani, 1988). However, many studies in Western countries with different health care and pension systems find evidence that elderly keep large amounts of assets even at old age and leave considerable bequests (Love et al., 2009; Alessie et al., 1999; Börsch-Supan, 1992; Hurd and Smith, 2001).

## 2.1    Dynan et al (2002)

Dynan et al. (2002) set out to solve this controversy and argue that by incorporating uncertainty into the life-cycle model both bequest and precautionary motives are relevant for capital accumulation. However these motives overlap and cannot be distinguished. They use a simple two period model where households maximize lifetime utility while having a bequest motive and facing uncertainty about future earnings, life-time and health costs. The expected utility function is

$$U_t = E_t \left[ (U(C_1) + (1 - D_2)V(B_1) + D_2 \left( \frac{U(C_2)}{1 + \delta} + V(B_2) \right) \right]$$

where $C_s$ is non medical consumption in period $s$, $\delta$ is the rate of time preference, $B_s$ is the bequest left in the event of death and $V(.)$ is the utility of leaving a bequest. $D_2$ indicates if the household lives through the second period. The two periods comprise pre-retirement

(ages 30-60) and post-retirement (ages 60-90). The utility functions for consumption and bequests are isoelastic:

$$U(C_s) = \frac{C_s^{1-\gamma}}{1-\gamma} \quad , \quad V(B_s) = \frac{B_s^{1-\gamma}}{1-\gamma}$$

These functions correspond with constant relative risk aversion ($\gamma$, set to 3) which is widely used to model consumption under uncertainty since it allows for precautionary motives. The annual rates of time preference and risk free rate are set to 0.03. The households are subjected to a budget constraint which states that end-of-period wealth should be nonnegative. This is defined as initial wealth plus period earnings minus consumption. As a consequence, the bequests being the product of end of period wealth and a rate of return factor are also nonnegative.

In the second period the household faces uncertainty on medical consumption on which it receives no extra utility. This is captured by introducing two health states. The bad health state has a 20 % probability and requires a medical expense of 13 % of income. The good health state requires no extra expenses.

To model uncertainty of life time, the probability of dying in the first period is set to 18 %. Income in the second period is either 25 % above or below average, both occurring half of the time.

Their parametrization may overstate uncertainty as it implicitly assumes that a health shock persists for 30 years. On the other hand, it might underestimate costs as the upper tail of the medical expense distribution is not captured and certain end-of-life expenses might be missed. However the authors content that this is a plausible representation of the low probability combined with high costs linked to these shocks.

The model creates saving among the young and dissaving among the elderly. They find that saving rates increase considerably after incorporating uncertainty to the life-cycle model and modestly when the bequest motive is added as well. These findings are consistent with earlier evidence in the US that even though leaving a bequest is considered important, it is the precautionary motive that primarily drives saving (e.g. Gale and Scholz, 1994). Savings will serve to cope with future contingencies as health or marital status shocks and will be left as a bequest in case these events did not compromise total wealth. The authors conclude that it is not useful or even possible to estimate life-cycle and bequest motives for saving on an ex ante basis, because each dollar saved can serve both goals.

## 2.2 Ameriks et al. (2011)

Ameriks et al. (2011) try to resolve this identification problem in order to explain the annuity puzzle, i.e. the apparent lower interest of elderly in longevity insurance than predicted by economic models. A possible reason for this is that elderly instead of buying an annuity prefer to save because of public care aversion (PCA), i.e. the risk of having insufficient wealth when in need of LTC and hence having to rely on publicly provided care. Another reason is that elderly save with the intention to leave a bequest.

They introduce a PCA parameter into the life-cycle model and to disentangle this from the bequest motive two types of strategic survey questions are used. These questions represent thought experiments concerning saving behaviour with respect to contingencies. The first question is situated in the present and lets the participants win a prize (either $100K of $250K) which has to be divided over two lock boxes: one for a bequest and one for LTC. The money in these boxes can only be used for that single purpose. Specifically, the bequest box cannot be accessed during the lifetime of the respondents and will be left to their heirs. The LTC box can only be used to pay for private long-term care for themselves or their partner (stated as costing $50K per year). The answer to this question depends strongly on socio-economic factors such as age, wealth, income, health status and gender. Most respondents divide the money evenly over the boxes, followed by a polar division (100% to either bequest or LTC). However, a non trivial part of the sample chooses another division. This is a first indication that both bequest and precautionary motives are important to retirees.

The second question is situated one year before the end of life when these motivations come into play. All respondents are placed in the hypothetical situation in which they are 85 years old, are the only survivor of the household, have one year to live, and need to spend it in a LTC facility. They sold their house, have a total wealth of $200K and have an annual net income of $25K. The respondents are asked to choose out of two options, either publicly provided long term care where their income is forfeited to the government but $200K can be left as a bequest or private LTC costing $50K and leaving $150K for a bequest. In the latter option income is free to spend as they wish but any left-over income will not be part of the bequest. Responses to this question show a clear indication of PCA as 85 % of the respondents opted for private care. As a follow-up question they were asked which amount of the $200K they were willing to pay for private care. Results indicate again that a bequest motive is still relevant as the middle 50 % of the respondents (the interquartile range) are prepared to pay between $20K and $100K .

Although both single and multiple person households participated to a web based survey, the estimation is focused on the sample of singles who are at least 55 years of age, are not working full-time and have no household income from work higher than $25000. This resulted in 498 singles. Next to the two types of strategic survey questions, data on demographics, wealth, income, consumption and health are collected. They model individuals to maximize expected utility of consumption and leaving a bequest during the retired lifetime. Expected utility is the discounted sum of yearly utility functions for consumption and leaving a bequest,

$$E_0 \sum_{t=0}^{T} \beta^t \left( \prod_{j=0}^{t-1} (1 - \delta_j) \right) \{(1 - \delta_t)u(c_t) + \delta_t v(b_t)\}$$

where $\beta$ is the intemporal discount rate, $\delta_t$ the health dependent death rate in year $t$ of retirement and $b_t$ the bequest. The utility function of consumption $u(.)$ is again isoelastic with $\gamma = 3$. Following De Nardi et al. (2010) the utility of a bequest is based on a warm glow utility function,

$$v(b) = \frac{\omega}{1 - \gamma} \left( \phi + \frac{b}{\omega} \right)^{1-\gamma}$$

including parameters for the strength of the bequest motive ($\omega$) and the measure of bequest as a luxury good ($\phi$). The bequests are set to be nonnegative.

Uncertainty on lifetime is handled by introducing annual health-dependent death rates into the expected utility function. Lifetime is set to be 100 years old at maximum. Uncertainty of health is treated by using four health states: good health, medical problems but no need for LTC, bad health in need of LTC and death. The health state of the individual follows a Markov chain with age varying annual transition matrices. The parameters that determine these matrices are based on age dependent mortality rates and statistics on LTC utilization from Brown and Finkelstein (2008). The matrices are different for men and women, because the latter not only live longer, they also face higher LTC risks.

The health states influence the maximization problem in an indirect manner. Given initial health of the individual and the transition matrices, the probability of a health state in a certain period can be derived and hence the death rates used in the maximization problem as well. Each year a new health state is drawn for the individual using the state transition probabilities. He then incurs deterministic health costs linked to the health states (in case of death these are end of life costs). These costs are subtracted from current wealth cq. bequest and receive no utility. The costs for the non long term health states are chosen in such a way that the average out of pocket medical costs are $2000 per annum, a figure corresponding with the survey used by French and Jones (2004). The out of pocket costs for long term care are set to $50000 based on an estimate by Institute (2006) and the coverage of these expenses by Medicaid, the American provider of public LTC benefits.

If individuals in the non LTC states cannot pay their medical costs, welfare will step in to help cover these costs and guarantee them a minimum level of non medical consumption, $C^f$. Their wealth at the end of the period will be zero. In state 3 people with insufficient wealth have to rely on Medicaid. They have to forfeit all wealth to the government which in turn will provide public LTC. The individuals are guaranteed the public care level of consumption $C^{PC}$. This level is important because it relates to the public care aversion. If this level is low, people are more inclined to save for private LTC. However, if it is closer to annual consumption before needing LTC, saving for private care becomes less necessary and individuals will sooner choose to run down wealth and be comfortable with public LTC. The individuals may choose any amount of consumption $c_t$ that satisfies the budget constraint, stating that end of period wealth should be positive

$$X_t + y_t - h(s_t) - c_t > 0$$

where $X_t$ is initial wealth at period $t$, $y_t$ income and $h(.)$ health costs depending on state $s_t$. In non LTC states consumption should be higher than $C^f$, otherwise the individual gets welfare and consumes exactly the consumption floor. In the LTC state $c_t = C^{PC}$.

This modelling is more realistic than that of Dynan et al. (2002) as it allows for more time periods and therefore accounts more accurately for the distribution of the impact (duration) of health shocks. Moreover their treatment of health dynamics enriches the model and is a contribution to the existing literature. The authors note that for their purposes they could have used only one state for those not in need of LTC. They used two states to capture the differences in present health and corresponding costs revealed by the survey.

Using the survey data on consumption, demographics and the answers to the hypothetical questions the relevant parameters $(C^f, C^{PC}, \omega, \phi)$ are estimated by maximum likelihood. When only the consumption and demographic data are used, the model suggests that bequests are not prevalent and are only important to the wealthy. Public care aversion is a significant saving motive for the rest of the population. However these motives suffer from identification problems.

If the hypothetical survey questions are added, both motives are indeed identified and they find that bequest are considered less luxurious (lower $\phi$) than earlier findings. The reason is that de answers to strategic survey questions indicate that there is little difference across wealth groups with respect to bequest preferences. PCA is still a strong saving motive as they find the consumption floor for the LTC health state ($C^{PC}$) to be only half the corresponding value for the better health states ($C^f$). Which is consistent with the response to the qualitative end of life question noted earlier.

The data suggests heterogeneity in bequest motives as respondents with children dedicate smaller fractions to LTC in the strategic questions than those without. Allowing for this resulted in a better fitting model and the hypothesis that bequest motives were the same for both groups is soundly rejected.

Lastly the willingness to pay for annuities is investigated. They conclude that both a bequest motive as PCA are causes for the lack of interest in standard annuities. If however these annuities would provide for long term care insurance their analysis indicates that these would become more popular.

As a point of improvement, more flexibility in the modelling of risk aversion and time preference could have been incorporated. These concepts influence the bequest and precautionary motives of an individual. They performed a sensitivity analysis which indicates that with increasing risk aversity both the strength of the bequest motive as the PCA are decreasing.

## 2.3  Ameriks et al. (2014)

In a following study Ameriks et al. (2014) extend their model to allow for heterogeneous retirees and health state dependent utility functions. Expenditures on LTC can be valued differently than consumption in non LTC states. The retirees can choose the amount of money they wish to spend on private LTC given a certain minimum threshold or opt for publicly provided care. Strategic survey questions (SSQ) are used to identify the preferences of the respondents concerning risk aversion, PCA, bequest motive, LTC motive and intemporal discounting. Their objective is again to resolve the annuity puzzle by quantifying the relative importance of bequests and precautionary saving for annuity demand. They find that across wealth and income there is almost no demand for annuities that are available in the US market.

The estimation procedure is set in two stages using data on wealth, income and stated preferences from the Vanguard Research Initiative Panel. First, a set of parameters is estimated outside of the structural model. This set comprises health transition probabilities, health costs and income profiles. Next, following work by De Nardi et al. (2010), the Method of Simulated Moments is used to jointly estimate the preference parameters conditional on the

data and the estimations in the first stage.

The second stage parameters are estimated three times: using only the wealth data, only the SSQ data and finally both wealth and SSQs. The first method utilizes frequently used moment conditions based on wealth percentiles conditional on age. The second method estimates the preference parameters with moments based solely on the SSQs. The last method combines both moment conditions using appropriate weights.

To model heterogeneity, retirees are assigned to one of two preference sets. Conditional on individual variables, this assignment follows a logistic probability function. Primarily using the behavioural data, variables are selected that are indicative for one's preferences such as wealth, age, marital status, gender and education. When the SSQ data are used, individuals are assigned to certain groups containing values on the nine questions. Individuals are placed in the group closest to their answers. The authors expect this assignment to be a good indicator of one's preference set as different preferences would imply different answers to the SSQ. When both behavioural and SSQ data are used a union of these predictor variables is used.

The utility for bequests and precautionary motives are modelled using the warm glow utility function developed in De Nardi (2004). This function discerns two important parameters: one describing the strength or the marginal utility of the motive ($\omega_{BEQ}, \omega_{LTC}$) and the other indicating the degree to which the motive is seen as a luxury good ($\phi_{BEQ}, \phi_{LTC}$). These parameters combined with relative risk aversion, $\sigma$, intemporal discounting, $\beta$ , and the consumption floors for the healthy ($C_F$) and LTC states ($LTC_{PC}$) are the focus of the second stage estimation.

## 3   Data, selected sample and SSQs

We conducted a survey about saving behaviour among the 55+ population to measure their relative attitudes towards long-term care and bequest saving. We augment this survey with data from the DNB Household Survey (DHS) on wealth and psychological factors from 2013. We augment this data with the strategic survey conducted by CentER in April 2014. We select all 55+ year old respondents who are either single or living with a partner and are not in the LTC state, i.e. living in a nursery home or using care at home. This results in a sample of 806 households of which 210 are single (26%) and 596 are couples.

The mean age of the respondents is 68 with 90% being between 57 and 82. The majority is retired (58%) and 23% is either working or looking for a job. The most of them, 82%, have children. Our respondents are healthy with 75% reporting good or excellent health. Only 5% has not so good or poor health. The head of the married household is predominantly male (95%). In 35% of the cases both the head and the spouse of the couple responded to the survey. The singles in our sample are mostly is female (62%).

### 3.1   Strategic Survey Questions

Following Ameriks et al. (2011) we intent to identify the bequest and precautionary motive by asking two types of strategic questions. The respondents are placed in a hypothetical

situation and are asked how they would divide a certain level of wealth over bequest and long-term care saving. The questions differ in the timing that the situation would play out, the wealth situation and marital status. The first question is situated in the present where all households receive a prize. The initial wealth of the respondents is not explicitly ruled out in this situation. In the second question all respondents are now single, are at an advance age where they know they have only one more year to live and have the same level of wealth.

### 3.1.1   The Immediate Prize Question

The respondents are asked what they would do if they would win the sum of 250,000€the next day. They have to divide this money over two lock boxes. One is a bequest box. The money in this box will be left to their relatives after their death. The other is a LTC box, which can only be used to buy extra private care for the respondents or their partners, such as assisted living or a luxurious nursing home. This money in this box will not be part of a bequest. The costs for the extra private care are stated to be 50,000€. This question specifically will give us insight in the relative importance of the bequest and precautionary motives which cannot be identified by administrative data on actual bequests. The issue with that data is that it is impossible to tell whether the bequest was intended or simply the wealth which is left over after consumption and health care costs during retirement. By specifically asking the respondents to choose between both motives we will get more insight in the bequest intentions.

Figure 1 shows that the largest group of respondents prefer to put all money in the LTC box. However many respondents like to divide the money almost evenly, between 40-60%. This is a first indication that both the precautionary as the bequest motives are important to the elderly. On average the elderly are willing to reserve 154K€ for extra private care, the equivalence of three years private LTC. The Dutch distribution of the relative preferences is quite comparable to that of Ameriks et al. (2011) who conducted the survey on single elderly in the US. The American single is on average a bit more altruistic: the proportion of assigning 50% or more to the bequest box is about 55% whereas for the Dutch households this proportion is around 37%.

In Table 1, Panel A we present statistics for some subgroups of our sample. Singles are more inclined to put money towards LTC than couples. This can be explained by the lower percentage of singles having children (61 vs 84%). In the next panel we see a clear difference between elderly with kids and those without. Having kids makes a bequest motive more relevant and results in a on average lower assignment to the LTC box. A t-test that both means are the same is soundly rejected with a p-value of 0.

We also asked if the respondents could rely on friends or relatives in case they need assistance with the activities of daily living. Only 9% knew this to be true. Almost half, 48%, responded that this was not the case and the rest didn't know. The availability of informal care seems to result in a lower proportion of money in the LTC box. Having children might again be the reason as the available group are more often parents than the unavailable group. Interestingly, the proportion of parents who do not know if informal care is available is the same as that of the group who said yes. A t-test on the same mean for the available and unavailable group is not rejected with a p-value of 0.16.
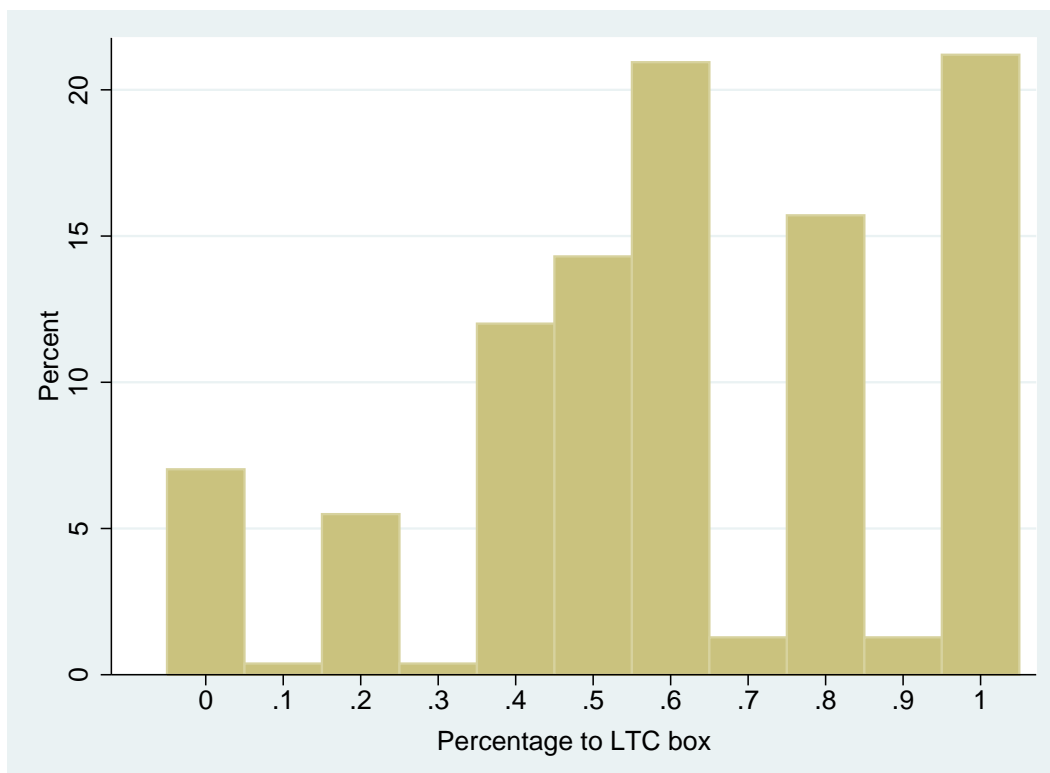
Figure 1: The trade off between long-term care and bequest saving in the immediate prize situation

Retired people also assign less money to the LTC box. Again, the retirees in our sample are more often a parent, but this can also be the result of a lower PCA of retirees. Being older than their non retired counterparts, retirees may have more friends living in public care facilities making a move of their own to such a facility more attractive. A declining social life can be another reason.

Being a homeowner results in a lower assignment to LTC in the immediate prize question. The t-test on the same same mean assignment for home owners and renters is rejected. This can be explained by the higher wealth of homeowners. On average, homeowners are eight times more wealthy than renters (318K vs 44K). Having enough wealth already, homeowners see the extra prize money as a good opportunity to secure their heirs of an inheritance.

Having a good health in stead of poor health without using LTC, does seem to lead to a higher preference towards LTC. It might be that when LTC is more of a reality because of bad health that people's reluctance towards public care diminishes. A lower life expectancy related to a lower health state can also result in an increase in altruistic saving motives like saving for a bequest. However, the t-test for the same mean LTC assignment in both groups was not rejected.

### 3.1.2 The End-of-Life Question

In the second question all the respondents are placed in same situation where they are 85 years old and single. They have only one year left to live and are in need of LTC. Their house has been sold, total wealth is 200.000€ and annual income is 20.000€. They are asked to choose out of two options:

(A) I will use public health care provided by AWBZ. I will have to forfeit my annual income of 20k to the government and will leave 200k as a bequest.

(B) I will use private health care and will either reside in a luxury nursing home or use professional care at home. In both cases I will have to pay 50k and can leave 170k as a bequest.

In a follow up question the respondents are asked to state the maximum amount of the 200K they wish to spend on extra health care next to the public care provided by AWBZ. This will reduce the bequest they can leave with the same amount. The summary statistics for this question are presented in Table 1, Panel B.

When faced with the same end-of-life situation, 78 % of the respondents show a public care aversion by choosing the private care option. Again the childless and the non-retired tend to have a higher preference for private care (t-tests are rejected). However, in the follow up question the respondents assign a much lower percentage to private care than in the immediate prize question. In that question the lifespan is still uncertain and the elderly probably account for that by willing to reserve on average 62% (154K) of the prize money for private care. In the last question where time of death is certain this proportion drops to 34%. In monetary terms the average senior puts with 68K a higher value to this care than the stated 50K. So at the end of life private care is still considered very important by the elderly but not to the extreme. A fair amount is reserved for extra care but the rest will be left as a bequest to their relatives.

Marital status and home ownership are not relevant anymore (for both grouping variables the t-tests for same means are not rejected). This is fitting with the setting of this question where all respondents are asked to place themselves in the situation that they are single and have sold their home.

Informal care availability is now relevant for the assignment to LTC. People who know that relatives or friends can help out with the activities of daily living are more inclined to opt for public care. This extra help reduces their supplementary private care needs. Besides, they might want to reward these relatives with a relatively larger bequest. If informal care is not available, there is less incentive to leave a bequest and possible supplementary care has to be purchased, leading to a higher LTC proportion. The end of life questions are coherently answered: For those who preferred public care in the qualitative question, the mean amount they are willing to pay extra for private care (21,000€) is much lower than those who opted for private care (80,000€).

In Table 2 we present correlations between the responses to the strategic survey questions and various socio-economic variables. The two types of questions have a positive correlation indicating that both questions are answered coherently. The qualitative end-of-life question also shows a strong positive correlation with the percentages assigned to LTC. This can be

interpreted as PCA being a strong driver for precautionary saving.

Wealth and income measures do not seem to be very relevant for the assignment to LTC in the immediate prize question. In the end-of-life question wealth and particularly income become quite relevant. Both are positively correlated with the proportion assigned to private LTC. This can be explained by a reluctance of yielding all yearly income to the government in return for public care. A similar result is found by Ameriks et al. (2011). As an explanation they considered a wealthy household with public care aversion. Having enough wealth to provide for private care already, this household would assign a higher proportion of the immediate prize money to the bequest box to ensure an inheritance for their heirs. When however put on the spot in the end-of-life question where they have little wealth left this household would assign more to LTC.

Again we find clear indications that being a parent or retired are important factors in determining the relevant importance between precautionary and bequest motives.

## 3.2 Wealth and income distribution

We expect wealth and income to be influential for the decision between precautionary and bequest saving. For instance, the wealthy may have a stronger bequest motive than poor housholds. Table 3 presents summary statistics on wealth and income across age (Panel A) and marital status (Panel B). We use three definitions of wealth. Net worth is the difference between total assets and total debt. Total assets is the sum of real estate, financial assets and durables. Total debt exists of mortgages consumer credit, study loans and other debt like loans from family or friends. Home equity is the net worth of the primary residence if owned. It equals home value minus outstanding mortgage debt. Net financial assets is defined as the balance between financial assets and non mortgage debt.

The inequality in wealth is apparent when comparing the mean and median of the wealth measures. Overall, mean net worth is 25% higher than the median, indicating that a large proportion of wealth is held by the rich. This inequality is decreasing with age. The oldest group has only a 7% higher mean, whereas for the youngest group this is 47%. The dispersion of the wealth is high with standard deviations being larger than the mean in almost all age groups. We also note that the wealth distribution is hump-shaped with median net worth rising from €152K in ages 55-59 to €219K for the 70-74 years old and then falling to 205K for the oldest agegroup.

This inequality seems not be due to inequality in housing wealth. The mean and median of home equity are practically the same. Home ownership is with 76% quite high compared to earlier studies on Dutch elderly. In a recent study using administrative data from Statistics Netherlands, Van Ooijen et al. (2014) found that between 2005 and 2010 home ownership of the retired, 65+ year olds, was quite constant around 57% for couples and 42% for the widowed. A possible explanation might be the good health of our respondents, making the probabilities of needing LTC and selling the house in anticipation of this risk smaller. Another reason might be the falling house prices (-6,4 %) in 2013. Only in the last age group the home ownership is falling a bit to 71%.

The inequality in wealth is largely due to financial wealth. Average net financial wealth is

three times the median. This inequality is largest for the youngest agegroup. This combined with the high standard deviations indicate a wide range of fortunes and financial strategies among the elderly.

Current income seems to be fairly distributed with mean and median almost equal and only slightly decreasing over age.

Single households have lower wealth than couples but the average net worth of singles is more than half the mean net worth of couples. The mean financial wealth does not differ a lot between both groups. We observe quite a difference in home ownership. The proportion of home owners among singles is 59%, whereas for couples this is 82%. This results in a higher share of riskier (financial) assets in the portfolio of singles which partly explains a higher inequality in net worth: the mean to median ratio is 137% for singles compared to 129% for couples.

## 3.3 DHS Questionnaire on Economic and Psychological Concepts

We have included this questionnaire to obtain information on important factors for saving behaviour. We use data in this module on saving, risk aversion, expectations for the future when compared to the current situation, financial planning, and personal characteristics.

### 3.3.1 Motives for saving

In the DHS questionnaire the respondents are asked to indicate the importance of fourteen different saving motives on a scale from one to seven, one being very unimportant and seven very important. If the motive was not applicable to the individual the importance is set to zero. Following Browning and Lusardi (1996) we have grouped these motives into nine categories.

1. To leave a bequest.

2. Inter-vivos transfers, i.e. the donations of money or assets to relatives or children while alive

3. As a precaution in order to cope with unforeseen expenses.

4. A life-cycle motive to smooth consumption during retirement.

5. To be independent in a financial sense and have the freedom to do what you want.

6. To improve your future economic situation.

7. To buy movable durables (furniture electrical equipment or bikes).

8. To generate income from interest or dividends

9. To set up a business

For some categories there were multiple indicative questions. We have taken the mean response over these questions as the individual valuation of that particular motive. Keynes

(1936) also notes avarice, the pure miserliness or the persistent inhibition to spend as a reason to save. The DHS questionnaire did not include a question to identify this motive. It does include questions on the inter-vivos transfer motives. As there have been important policy changes in 2013 with respect to transfers we have added it to the list.

Table 4 reports the mean and standard deviations of the nine saving motives for non-retirees, retirees and the total sample. The three most prevalent motivations for saving are precautionary, life-cycle and independence. Attitudes towards these motivations are practically the same for retirees as non-retirees. People want enough wealth to cope with possible financial or health shocks and to be able to meet their future liabilities and consumption without financial assistance from others. We do see some differences when it comes to bequests and transfers. The retired value sharing their wealth with the next generation or relatives more than non-retirees. Having a shorter expected lifespan the retirees are more inclined to think about the future of their heirs than their own.

Transfers are more important to the elderly than bequests. This can be caused by a temporary relief in the taxation of transfers as of October 1st , 2013. It is now allowed to transfer up to €100K to anyone without the recipient paying taxes if the money is used for the purchase of a primary home. Before, this tax-free sum was €24.676,- for transfers to children and €2.057,- for transfers to others. For higher sums the recipient had to pay a tax of between 18% and 30% . The new regulation will end in December 2014. We also note that on average saving for a better future in either economic terms or to be able to buy extra durables is preferred over the altruistic saving motives.

In Table 5 we correlate the answers to the SSQs with these motives. There are clearly negative correlations between the altruistic saving motives and the percentages assigned to LTC. These correlations in the end-of-life question are a bit smaller. This is again an indication of PCA when put on the spot of needing LTC and having fixed wealth.

The precautionary motive does not seem very relevant for the answers to the SSQs. The respondents to the SSQs are aware that they are specifically asked for their saving preferences with respect to LTC expenses. This distinction is not made in the DHS questionnaire, where the precautionary motive is formulated as saving for unforeseen expenses in general. This can be a reason for this result.

### 3.3.2  Strategic and Intentional Bequest Motives

The notion of a strategic bequest motive, i.e. the beneficiaries will receive a bequest conditional on certain behaviour, has been studied considerably. See for instance Bernheim et al. (1985). In the DHS survey, the respondents with children are asked if they attach any restrictions to leaving a bequest. Out of the 612 respondents with children only 3% responded that they would leave a bequest if their children would take good care of them when they get old. So for our sample we do not find a high strategic motive. The intentional bequest motive is much higher as 22% will leave a bequest irrespective of whether their children will take care of them. 4% of the parents does not intend to leave a bequest at all. The most do not have preconceived plans (58%) or has other plans (12%) on this subject.

# 4  Model and results

To model the relative preference of the bequest and precautionary motive we use linear regression models with the percentage assigned to LTC in both SSQs as dependent variable. As the respondents can only choose out of two options, we could have arbitrarily used the percentage assigned to bequest as the dependent variable. Since we are also interested in the effects of the availability of informal care we decided for the former.

The set of explanatory variables exists of socio-economic factors such as age, gender, marital status, wealth and income. The Center data panel reports subjective information about many variables that can explain saving and we use some these variables in our regressions. For instance, we include a variable describing attitude towards risk, where respondents have to indicate on a seven point scale if they agree with the statement that they are prepared to risk losing money when there is also a chance to gain money. We also included a dummy to indicate respondents with a long plan horizon (i.e. longer than 5 years). This variable can be related to the degree of time preference. Also the information on health status and the availability of informal care of the SSQ questionnaire are included as regressors. We use the basic linear model

$$y_i = x_i'\beta + u_i,$$

where $y_i$ is in the bounded interval $[0, 100]$ and we assume $E[u_i|x_i] = 0$. As we are using data on individuals who can be of the same household we have used cluster-robust standard errors. Table 6 reports the results of the regression analysis of relative importance of precautionary and bequest motives in 2013.

The results confirm some of the findings of the univariate correlation analysis in the previous section. The most important factor in the choice between bequest and precautionary saving is having children. Respondents with children assign a much lower percentage to LTC. Female singles are more altruistic than male singles as they leave more money for a bequest. Married spouses, who are predominantly female, reduce this proportion a bit but the effect is not statistically significant. Married heads (of which 95% are male) assign more to a bequest compared to singles. The coefficient is not statistically significant but the sign is as expected as married men want to ensure the well-being of their spouses (who frequently outlive them) after their death. Preference for LTC seems to decrease with age until the last agegroup. Being retired also reduces the LTC preference but both effects are not statistically significant. Both wealth and income are not very relevant for the decision between bequest and long term care. The effects are stronger in the end-of-life situation and wealth is even statistically significant but not economically. This means that across wealth and income there are roughly the same preferences with respect to bequest and precautionary saving. These results mirror those of Ameriks et al. (2011) who also did not find evidence for the popular view that bequest motives start to become relevant for the higher echelons of wealth.

The respondents with higher education (university or high vocational) respond strongly to the end-of-life question. The public care aversion is particularly high in this group resulting in a significant increase in private care saving. This effect is less apparent in the immediate prize question in which the respondents still have uncertain life time and consequently are not put in the spot of having to choose a solution for their LTC needs. Moreover they are not

confined to a total wealth of 200K, which is for the highly educated much lower than their mean wealth of 340K.

As in the univariate analysis, respondents with good health have a slightly higher preference for LTC, but the effect is again not statistically significant. The availability of informal care reduces the need for LTC saving but the effect is small in the immediate prize situation. At the end-of-life this effect more than triples, but it is still not statistically significant.

The attitude towards risk has a significant effect in the end-of-life situation. This is also presented in Table 7 which reports a probit analysis of the probability of choosing the private care option (B) in the qualitative question. It appears that a respondent who is prepared to take more financial risks is less averse to public care. This is not an unreasonable result: taking financial risk hazards the ability to pay for private care in the future. An individual with sufficient wealth and strong PCA might not be willing to take those risks. This contrasts the findings of Ameriks et al. (2011). Sensitivity analysis on their structural model shows a lower PCA with increasing risk aversity.

The results of the probit analysis resemble those of the analysis of the quantitative questions. Interestingly, income is now quite significant. People with higher income are more likely to choose the private care option reflecting an unwillingness to yield their income to the government which is a prerequisite for receiving public care.

## 4.1  Realization of saving intentions

As an extra set of regressors we added information of DHS Psychological questionnaire on saving intentions. In particular we used the bequest, precautionary and life-cycle motives mentioned in the previous section. This will give us an idea of the extent to which these intentions will be 'realized' in the saving strategies for the given hypothetical situations. Respondents may find bequest and precautionary saving very important, but actual saving for these purposes might differ due to insufficient means. Table 8 reports the regression analyses for both SSQs with these additional regressors. Of the three motives it is the bequest motive that plays a significant role in choosing between saving for bequest and LTC. In the immediate prize situation the 'bonus effect' might again be the reason. The respondents see this unexpected extra money as an opportunity to realize their bequest intentions. The precautionary motive is not relevant. The reason for this can be the difference in phrasing mentioned before or that most elderly already have made provisions for LTC.

In the end of life situation the respondents with a strong bequest intention will certainly realize this by saving a higher proportion of their wealth for this purpose. When people reach old age they start to think more about the next generation in the sense that leaving a bequest becomes relatively more important than saving for LTC. In our data we see that the mean valuation of a bequest motive rises with age whereas the mean precautionary motive is relatively stable across age groups. As we are using cross sectional data we cannot rule out cohort effects and differential mortality (i.e. the wealthy and women live longer and might have higher bequest motives). However in the hypothetical situation every respondent has to visualize his strategy at the age of 85. This effectively rules out these effects so the significant bequest motive is an indication that the relative importance of bequest with respect to LTC saving rises with age.

In the second half of Table 8 we present the regression results where we use the subjective probability of leaving a bequest larger than 10,000€as a regressor in stead of the bequest motive. This regressor is statistically significant and has the the expected sign in the immediate prize situation, but has less economic relevance. The stated probability is more an assessment of ones own economic situation at the end of life than a motivation for saving. People who think it is more likely that they will leave a bequest will also expect to cover expected future LTC costs as on average this is deemed more important than bequest saving. When there is more certainty on the coverage of their LTC saving, the elderly are more inclined to leave the immediate prize money as a bequest.

## 4.2 Life expectancy

The DHS also holds data on subjective life expectancy. The respondents are asked to state the probability of reaching a certain age. We recoded this data into one variable describing for each individual the subjective probability of living 11-15 more years. For the 55-64 year olds this is 11-20 more years. A closely related topic, lifetime uncertainty, has been shown to be relevant for saving and consumption, see e.g. Yaari (1965). We studied whether the subjective life expectancy has an effect on the household decision between saving for a bequest and saving for LTC. For both SSQs the effect was insignificant. This result is quite counter intuitive. In the immediate prize question households are still uncertain on how long they will live and how many years they might be needing LTC. This uncertainty combined with a prevalent public care aversion should motivate people to save more for private care. It could be that the bonus prize combined with the initial wealth of most households are already sufficient for their expected LTC needs and associated costs. This would agree with the results of Ameriks et al. (2014) where saving for health care is found to be a necessary good. On average, the households reserve 3 years worth of private care needs against the stated costs of 50K per year. It would be interesting to know if this complies what (younger) elderly expect for their LTC needs, i.e. how long they will be needing assistance for the activities of daily living until their end of life.

## 5 Conclusion

Dutch elderly both value long term care and leaving a bequest as important reasons for saving. On average, households prefer saving for LTC over leaving a bequest in their current situation. If, however, they place themselves in a situation where they have only one more year to live, most will reserve the largest part of their wealth for a bequest. The most likely reason for this result is that, in their current situation, people are uncertain about how long they will live and expect that their LTC needs will be longer than one year. Our results indicate that on average people would like to reserve wealth to cover three years of private LTC.

The most important factor in the choice between bequest and private care saving is having children. Parents assign a lower proportion of their wealth to LTC than elderly without children. The parents will forego some of their own future well-being in favour of assuring a better future for their offspring.

We do not find economically significant effects for wealth and homeowners, which indicates that bequest saving is not simply for the rich. Across wealth all households have roughly the same relative preferences between LTC and bequest. In other words, all care in a same way for the future well-being of their children after their passing regardless of their economic situation.

Throughout the population we find a strong public care aversion. People prefer to have some form of private LTC either at home or at luxury nursery homes in stead of living the last years of their lives in public facilities. This preference is even stronger for the highly educated. We find that PCA is a strong driver for precautionary LTC saving.

Elderly state consumption smoothing (life-cycle), precautionary reasons and indepence as the three most important motives for saving. We find evidence that people find leaving a bequest or transferring part of their wealth to relatives more important when they get older, while the precautionary motive does not change with age. In the determination between LTC and bequest saving only the stated bequest motive will be realized. Many respondents see the immediate prize as a bonus to realize their bequest intentions. They may already have made provisions for LTC. At the end of life the future of their heirs becomes more important for the elderly compared to their own, making the bequest motive relevant in that situation.

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Table 1: Summary Statistics on SSQs

| Panel A: Immediate Prize percentage to LTC | | | | | Panel B: End of Life percentage to LTC and Proportion Option B | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Marital Status | | | | | Marital Status | | | | |
| | count | mean | sd | | | count | mean | sd | Prop. Option B |
| single | 201 | 0.661 | 0.285 | | single | 201 | 0.360 | 0.349 | 0.821 |
| couple | 582 | 0.600 | 0.287 | | couple | 582 | 0.330 | 0.323 | 0.770 |
| Total | 783 | 0.615 | 0.287 | | Total | 783 | 0.338 | 0.330 | 0.783 |
| Kids | | | | | Kids | | | | |
| | count | mean | sd | | | count | mean | sd | Prop. Option B |
| No | 169 | 0.769 | 0.265 | | No | 169 | 0.508 | 0.376 | 0.888 |
| yes | 614 | 0.573 | 0.279 | | yes | 614 | 0.291 | 0.300 | 0.754 |
| Total | 783 | 0.615 | 0.287 | | Total | 783 | 0.338 | 0.330 | 0.783 |
| Informal Care available | | | | | Informal Care available | | | | |
| | count | mean | sd | | | count | mean | sd | Prop. Option B |
| yes | 69 | 0.566 | 0.286 | | yes | 69 | 0.249 | 0.299 | 0.754 |
| No | 382 | 0.622 | 0.311 | | No | 382 | 0.377 | 0.361 | 0.777 |
| not sure | 332 | 0.618 | 0.257 | | not sure | 332 | 0.311 | 0.290 | 0.795 |
| Total | 783 | 0.615 | 0.287 | | Total | 783 | 0.338 | 0.330 | 0.783 |
| Retired | | | | | Retired | | | | |
| | count | mean | sd | | | count | mean | sd | Prop. Option B |
| No | 328 | 0.648 | 0.289 | | No | 328 | 0.375 | 0.339 | 0.835 |
| yes | 455 | 0.592 | 0.284 | | yes | 455 | 0.311 | 0.320 | 0.745 |
| Total | 783 | 0.615 | 0.287 | | Total | 783 | 0.338 | 0.330 | 0.783 |
| Home owner | | | | | Home Owner | | | | |
| | count | mean | sd | | | count | mean | sd | Prop. Option B |
| No | 183 | 0.657 | 0.274 | | No | 183 | 0.341 | 0.341 | 0.740 |
| yes | 600 | 0.603 | 0.290 | | yes | 600 | 0.337 | 0.327 | 0.787 |
| Total | 783 | 0.615 | 0.287 | | Total | 783 | 0.338 | 0.330 | 0.783 |
| Health | | | | | Health | | | | |
| | count | mean | sd | | | count | mean | sd | Prop. Option B |
| Poor, no LTC | 73 | 0.567 | 0.327 | | Poor, no LTC | 73 | 0.318 | 0.362 | 0.760 |
| Good | 710 | 0.620 | 0.283 | | Good | 710 | 0.340 | 0.327 | 0.790 |
| Total | 783 | 0.615 | 0.287 | | Total | 783 | 0.338 | 0.330 | 0.783 |

Table 2: Household wealth and income in 2013 across age and marital status

| Panel A: Wealth and Income across age | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Net Worth | | | | | Net Financial Wealth | | | |
| age | N | mean | sd | median | | N | mean | sd | median |
| 55-59 | 94 | 223,871 | 272,677 | 152,156 | | 100 | 65,950 | 160,505 | 15,000 |
| 60-64 | 145 | 265,818 | 339,450 | 195,118 | | 153 | 77,240 | 162,117 | 27,950 |
| 65-69 | 175 | 253,717 | 240,354 | 205,060 | | 184 | 62,852 | 113,124 | 26,025 |
| 70-74 | 117 | 284,187 | 276,388 | 219,413 | | 120 | 68,995 | 119,351 | 25,250 |
| 75+ | 145 | 215,688 | 468,963 | 201,547 | | 149 | 56,005 | 84,434 | 26,725 |
| Total | 676 | 249,279 | 332,220 | 200,688 | | 706 | 66,008 | 128,684 | 24,833 |
| | Home Equity | | | | | Net Monthly Income | | | |
| age | N | mean | sd | median | Home Owner | N | mean | sd | median |
| 55-59 | 102 | 126,971 | 130,977 | 129,000 | 0.755 | 117 | 2,653 | 1,133 | 2,500 |
| 60-64 | 156 | 137,136 | 133,264 | 140,679 | 0.731 | 175 | 2,471 | 1,406 | 2,300 |
| 65-69 | 185 | 158,759 | 132,147 | 145,000 | 0.800 | 210 | 2,643 | 1,111 | 2,515 |
| 70-74 | 122 | 181,049 | 180,046 | 159,217 | 0.779 | 133 | 2,590 | 1,171 | 2,374 |
| 75+ | 150 | 136,852 | 430,726 | 162,000 | 0.713 | 171 | 2,504 | 1,094 | 2,400 |
| Total | 715 | 148,714 | 235,208 | 146,000 | 0.757 | 806 | 2,569 | 1,190 | 2,418 |
| | | | | | | | | | |
| Panel B: Wealth and Income across marital status | | | | | | | | | |
| | Net Worth | | | | | Net Financial Wealth | | | |
| marital status | N | mean | sd | median | | N | mean | sd | median |
| single | 171 | 190,976 | 228,392 | 138,721 | | 171 | 54,006 | 109,775 | 15,660 |
| couple | 505 | 269,021 | 358,718 | 208,850 | | 535 | 69,844 | 134,034 | 27,797 |
| Total | 676 | 249,279 | 332,220 | 200,688 | | 706 | 66,008 | 128,684 | 24,833 |
| | Home Equity | | | | | Net Monthly Income | | | |
| marital status | N | mean | sd | median | Home Owner | N | mean | sd | median |
| single | 186 | 119,131 | 132,377 | 103,550 | 0.591 | 210 | 1,817 | 827 | 1,679 |
| couple | 529 | 159,116 | 261,256 | 160,000 | 0.815 | 596 | 2,834 | 1,185 | 2,700 |
| Total | 715 | 148,714 | 235,208 | 146,000 | 0.757 | 806 | 2,569 | 1,190 | 2,418 |

Table 3: Correlations SSQS, wealth, income, kids and retirement

| | pctltc_box | pctltc_eol | PCA | net worth | net house worth | net fin assets | net income | baby | retired |
|---|---|---|---|---|---|---|---|---|---|
| pctltc_box | 1 | | | | | | | | |
| pctltc_eol | 0.447*** | 1 | | | | | | | |
| PCA | 0.336*** | 0.373*** | 1 | | | | | | |
| bal_twealth | 0.00731 | 0.0945* | 0.0819* | 1 | | | | | |
| net house worth | -0.0736 | 0.011 | 0.0267 | 0.694*** | 1 | | | | |
| net fin assets | 0.0364 | 0.0939* | 0.0453 | 0.534*** | 0.211*** | 1 | | | |
| net income | -0.00317 | 0.110** | 0.0756* | 0.274*** | 0.297*** | 0.162*** | 1 | | |
| baby | -0.281*** | -0.270*** | -0.133*** | 0.0277 | 0.104** | -0.0508 | 0.0821* | 1 | |
| retired | -0.0975** | -0.0969** | -0.108** | 0.052 | 0.0825* | 0.0454 | 0.0781* | 0.159*** | 1 |

* $p<0.05$, ** $p<0.01$, *** $p<0.001$

Table 4: Summary Statistics on Saving Motives

| motive | Not Retired (n=313) | | Retired (n=438) | | Total (n=751) | |
|---|---|---|---|---|---|---|
| | mean | sd | mean | sd | mean | sd |
| bequest | 2.502 | 2.105 | 3.196 | 2.031 | 2.907 | 2.089 |
| transfer | 3.542 | 2.310 | 4.203 | 2.041 | 3.927 | 2.181 |
| precautionary | 5.974 | 1.152 | 5.977 | 1.269 | 5.976 | 1.221 |
| lifecycle | 5.682 | 1.257 | 5.712 | 1.292 | 5.700 | 1.276 |
| independence | 5.458 | 1.406 | 5.477 | 1.462 | 5.469 | 1.438 |
| improvement | 4.958 | 1.568 | 4.277 | 1.878 | 4.561 | 1.786 |
| durables | 4.942 | 1.784 | 4.886 | 1.946 | 4.909 | 1.879 |
| interest | 2.655 | 2.101 | 2.626 | 2.122 | 2.638 | 2.112 |
| business | 1.029 | 1.277 | 0.699 | 0.971 | 0.836 | 1.120 |

Table 5: Correlations SSQs and Saving Motives

| | pctltc_box | pctltc_eol | bequest | transfer | precaut. | lifecycle | indep. | improve | durables | interest | business |
|---|---|---|---|---|---|---|---|---|---|---|---|
| pctltc_box | 1 | | | | | | | | | | |
| pctltc_eol | 0.447*** | 1 | | | | | | | | | |
| bequest | -0.348*** | -0.274*** | 1 | | | | | | | | |
| transfer | -0.332*** | -0.283*** | 0.710*** | 1 | | | | | | | |
| precaut | 0,003 | 0,0658 | 0.122*** | 0.159*** | 1 | | | | | | |
| lifecycle | 0,0206 | 0,0616 | 0.0772* | 0.0849* | 0.545*** | 1 | | | | | |
| independence | -0,0243 | 0,0538 | 0.123*** | 0.0861* | 0.353*** | 0.484*** | 1 | | | | |
| improve | 0,055 | 0,0453 | 0,0145 | -0,00108 | 0.254*** | 0.337*** | 0.341*** | 1 | | | |
| durables | 0,0311 | 0,0164 | 0,0413 | 0,0675 | 0.337*** | 0.442*** | 0.291*** | 0.312*** | 1 | | |
| interest | -0,0651 | -0,0367 | 0.273*** | 0.142*** | 0.0928* | 0.0894* | 0.233*** | 0.256*** | 0.116** | 1 | |
| business | -0,0603 | -0,0533 | 0.0795* | 0,041 | -0.0828* | -0,0685 | -0,0284 | 0.104** | -0,0229 | 0.111** | 1 |

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6: Regression Analysis of the relative importance of LTC and Bequests

| | % LTC prize | % LTC end of life |
|---|---|---|
| 60-64 years old | -5.166 | -2.124 |
| | (3.912) | (4.813) |
| 65-69 years old | -0.413 | -3.787 |
| | (4.566) | (5.100) |
| 70-74 years old | -0.114 | -4.682 |
| | (4.633) | (5.326) |
| 75+ years old | 1.128 | 1.002 |
| | (4.508) | (5.224) |
| Female | -7.196* | -6.581 |
| | (3.073) | (4.151) |
| Children | -22.353*** | -21.743*** |
| | (3.031) | (3.845) |
| Retired | -4.48 | -3.356 |
| | (3.107) | (3.422) |
| Log Income | 0.868 | 6.067 |
| | (3.790) | (4.531) |
| Home Owner | -2.633 | -4.56 |
| | (2.730) | (3.540) |
| Net Worth | 0.003 | 0.008** |
| | (0.003) | (0.003) |
| Risk Loving | -1.001 | -2.478** |
| | (0.795) | (0.874) |
| High Education | 3.464 | 10.947*** |
| | (2.725) | (3.052) |
| Long Plan-Horizon | -1.682 | 2.417 |
| | (3.056) | (3.307) |
| Couple, head | -4.299 | -2.477 |
| | (3.467) | (4.293) |
| Couple, spouse | 2.458 | 8.546 |
| | (3.536) | (4.716) |
| Good Health | 7.014 | 2.922 |
| | (4.132) | (4.416) |
| Informal Care Unavailable | 2.512 | 8.447 |
| | (3.968) | (4.631) |
| Informal Care Don't know | 2.527 | 4.011 |
| | (3.898) | (4.680) |
| Constant | 75.656** | 4.467 |
| | (28.729) | (35.293) |
| R-squared | 0.095 | 0.128 |
| N | 627 | 627 |
| df model | 18 | 18 |
| df residuals | 529 | 529 |
| F(df_m,df_r) | 5.91 | 6.34 |
| Prob > F | 0 | 0 |
| ln L | -2945.32 | -3028.59 |

* $p<0.05$ ** $p<0.01$ *** $p<0.001$
Clustered standard errors at the household level in parenthesis.

Table 7: Probit analysis of the qualitative end-of-life SSQ

| | Probit end-of-life | Marginal effects |
|---|---|---|
| 60-64 years old | -0.149 | -0.04 |
| | (0.226) | (0.060) |
| 65-69 years old | 0.025 | 0.006 |
| | (0.246) | (0.063) |
| 70-74 years old | -0.216 | -0.06 |
| | (0.265) | (0.072) |
| 75+ years old | 0.001 | 0 |
| | (0.257) | (0.066) |
| Female | -0.12 | -0.032 |
| | (0.203) | (0.055) |
| Children | -0.720*** | -0.158*** |
| | (0.198) | (0.034) |
| Retired | -0.347* | -0.091* |
| | (0.172) | (0.044) |
| Log Income | 0.474* | 0.127* |
| | (0.203) | (0.054) |
| Home Owner | 0.047 | 0.013 |
| | (0.150) | (0.041) |
| Net Worth | 0 | 0 |
| | (0.000) | (0.000) |
| Risk Loving | -0.096* | -0.026* |
| | (0.041) | (0.011) |
| High Education | 0.191 | 0.05 |
| | (0.144) | (0.037) |
| Long Plan-Horizon | 0.231 | 0.059 |
| | (0.154) | (0.037) |
| Couple, head | -0.417* | -0.107* |
| | (0.203) | (0.049) |
| Couple, spouse | -0.217 | -0.051 |
| | (0.213) | (0.051) |
| Good Health | 0.209 | 0.059 |
| | (0.199) | (0.059) |
| Informal Care  Unavailable | 0.04 | 0.011 |
| | (0.213) | (0.060) |
| Informal Care  Don't know | 0.131 | 0.035 |
| | (0.212) | (0.059) |
| Constant | -1.911 | |
| | (1.528) | |
| Pseudo $R^2$ | 0.083 | |
| N | 627 | |
| df model | 18 | |
| $X^2$(df_m) | 56.09 | |
| Prob >$X^2$ | 0.000 | |
| ln L | -300.67 | |

* p<0.05 ** p<0.01 *** p<0.001
Clustered standard errors at the household level in parenthesis.

Table 8: Regression Analysis of the relative importance of LTC and Bequests with saving intentions as added regressors

| | Bequest motive | | P(Bequest>10,000) | |
|---|---|---|---|---|
| | % LTC prize | % LTC end of life | % LTC prize | % LTC end of life |
| 60-64 years old | -3,405 | -0,907 | -4,202 | -2,185 |
| | (3.890) | (4.856) | (3.914) | (4.810) |
| 65-69 years old | 0,88 | -3,053 | 0,614 | -4,11 |
| | (4.516) | (5.114) | (4.526) | (5.112) |
| 70-74 years old | 2,289 | -2,961 | 0,795 | -4,938 |
| | (4.559) | (5.313) | (4.546) | (5.307) |
| 75+ years old | 3,344 | 2,33 | 3,119 | 0,663 |
| | (4.474) | (5.165) | (4.396) | (5.244) |
| Female | -6.385* | -6,292 | -7.586* | -6,79 |
| | (3.043) | (4.091) | (3.084) | (4.170) |
| Children | -13.684*** | -14.204** | -22.307*** | -21.363*** |
| | (3.512) | (4.517) | (3.049) | (3.866) |
| Retired | -3,963 | -3,044 | -4,944 | -3,37 |
| | (3.021) | (3.340) | (3.021) | (3.473) |
| Log Income | 0,747 | 5,919 | 1,599 | 6,292 |
| | (3.725) | (4.453) | (3.778) | (4.602) |
| Home Owner | -0,828 | -3,03 | -0,422 | -4,794 |
| | (2.731) | (3.523) | (3.067) | (3.722) |
| Net Worth | 0.006* | 0.010** | 0,004 | 0.008** |
| | (0.003) | (0.003) | (0.003) | (0.003) |
| Risk Loving | -0,763 | -2.205* | -1,02 | -2.523** |
| | (0.785) | (0.888) | (0.798) | (0.897) |
| High Education | 2,9 | 10.509*** | 3,613 | 10.809*** |
| | (2.660) | (3.008) | (2.711) | (3.047) |
| Long Plan-Horizon | -0,552 | 3,037 | -0,883 | 2,272 |
| | (2.930) | (3.271) | (3.062) | (3.351) |
| Couple, head | -4,044 | -2,387 | -4,678 | -2,895 |
| | (3.346) | (4.250) | (3.373) | (4.344) |
| Couple, spouse | 2,449 | 8,476 | 2,043 | 8,228 |
| | (3.451) | (4.591) | (3.475) | (4.739) |
| Good Health | 7,903 | 3,396 | 7,014 | 2,501 |
| | (4.064) | (4.390) | (4.034) | (4.434) |
| Informal Care Unavailable | 1,725 | 7,231 | 2,429 | 8,311 |
| | (3.717) | (4.443) | (3.953) | (4.585) |
| Informal Care Don't know | 2,479 | 3,427 | 2,581 | 3,833 |
| | (3.638) | (4.473) | (3.862) | (4.598) |
| Bequest motive | -3.215*** | -2.695*** | | |
| | (0.671) | (0.777) | | |
| P(Bequest>10,000) | | | -0.074* | 0,007 |
| | | | (0.032) | (0.040) |
| Precautionary motive | -0,984 | 0,332 | -1,569 | -0,338 |
| | (1.094) | (1.310) | (1.118) | (1.262) |
| Life-Cycle motive | 0,693 | 0,863 | 0,678 | 0,827 |
| | (0.640) | (0.789) | (0.651) | (0.795) |
| Constant | 75.764** | -2,426 | 77.925** | 1,142 |
| | (28.523) | (36.583) | (29.161) | (37.454) |
| R-squared | 0,132 | 0,144 | 0,105 | 0,126 |
| N | 627 | 627 | 626 | 626 |
| df model | 21 | 21 | 21 | 21 |
| df residuals | 529 | 529 | 528 | 528 |
| F(df_m, df_r) | 7,09 | 6,8 | 6,12 | 5,5 |
| Prob > F | 0 | 0 | 0 | 0 |
| ln L | -2930,78 | -3021,1 | -2933,59 | -3023,41 |

* $p<0.05$ ** $p<0.01$ *** $p<0.001$

Clustered standard errors at the household level in parenthesis.