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*Publication date:*  
2019

[Link to publication in Tilburg University Research Portal](#)

*Citation for published version (APA):*

van Ooijen, R., de Bresser, J., & Knoef, M. G. (2019). *Preferences for Long-Term Care Services: Bequests, Informal Care and Health Expectations*.

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# Preferences for long-term care services: bequests, informal care and health expectations\*

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January 2019

## Abstract

This paper studies people's preferences for formal long-term care services provided at home, and examines how long-term care preferences relate to saving motives, such as the relative importance and type of the bequest motive, the availability of informal care, and health expectations. To elicit long-term care preferences, we use a stated choice experiment fielded in the Dutch LISS panel in which we ask people to choose between long-term care insurance plans offering in-kind benefits provided at home that differ in generosity. The results show that there is viable demand for insurance that covers long-term care services at home. Long-term care services represent a different value for different people depending on individual characteristics and expectations about long-term care needs. Having children, access to informal care, and a strong strategic-bequest motive reduces the willingness to pay for formal long-term care services. These results contribute to the understanding of saving behavior after retirement and design of long-term care insurance policies.

**Keywords:** long-term care insurance, bequest motives, health expectations, informal care, life cycle

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# 1 Introduction

Encouraging people to age in their homes rather than in expensive nursing homes is a priority of many OECD countries. This shift from inpatient to outpatient care is a response to rising long-term care (LTC) costs and the belief that many individuals prefer to receive LTC at home (see e.g. Swartz 2013, Costa-Font et al. 2015). At the same time, LTC reforms—especially in countries with large public LTC spending—also tend to shift part of the long-term care responsibilities to individuals and their families. Given that the availability of informal care by family members is declining because of changing family structures (Costa-Font et al. 2017), individuals — who do not meet the criteria for state provision of basic care — become more reliant on private finance to pay for professional formal care provided at home.

People can save money to self-insure against the risk of care that spans the gap between independent life at home and the nursing home. There may also be scope for insurance products, since the onset of care needs is unpredictable and the distribution of costs incurred is skewed. While the benefits of insurance are obvious in countries where private financing of LTC expenditures is important, such as the U.S., the demand for private insurance remains relatively small (see e.g. Brown et al. 2012). Yet demand for products that add supplementary benefits to basic public care at home is growing in countries such as France and Germany (Costa-Font et al. 2015). In this paper we investigate preferences for different attributes of home care insurance in order to understand demand for LTC insurance and aid the design of products that enhance the wellbeing of the elderly.

The aim of this paper is to examine the demand for home care insurance and how this relates to people’s preferences and the availability of substitutes for formal care. Furthermore, we examine to which extent adverse selection may play a role in individual choice among LTC insurance policies. Ideally we would like to apply revealed preference methods and infer elasticities from observed variation in prices of insurance products and corresponding purchases. However, take-up of LTC insurance is low around the world and such policies do not exist yet in the Netherlands. Therefore, we fielded a discrete choice experiment in a large, representative household panel to measure willingness to pay for insurance that provides different types of services. These include support for home-keeping, personal care, social care, and a budget for home adaptation or supporting devices; see also De Bekker-Grob et al. (2012) on the increasing use of discrete choice experiments to elicit preferences in the field of health economics and the

recent survey by Tinelli (2016) about implementing them in the field of social care and support.

The Netherlands provides an ideal setting to examine this question as the government aims to move care out of the nursing home and into the patient’s home. The rise in home care coincided with the transfer of responsibility for less-catastrophic long-term care from the national government to municipalities as of January 2015. Housekeeping services and personal care, among other things, are no longer financed by a national scheme, and the provision of care may now differ from one municipality to another. The 2015 long-term care reform was accompanied by substantial budget cuts, and thus implied a shift away from public provision to more individual responsibility. These changes to the institutions that govern the provision of LTC make it more important to understand peoples’ priorities when it comes to care.

We fielded the discrete choice experiment in the Longitudinal Internet Studies for the Social Sciences (LISS) in January 2016. The experiment elicits preferences for different in-kind services provided by hypothetical insurance policies. In addition to these vignettes, the survey also included questions on risk en time preferences, expectations regarding LTC needs, and different saving motives such as the relative importance of saving for a bequest or long-term care. Furthermore, the questionnaire covers the availability of informal care, such as that provided by spouses, children or neighbours. Hence, we can relate heterogeneity in preferences for different types of in-home care services to variation in preferences, expectations and other factors in order to understand not only *whether* home care insurance would be viable, but also *which type* would be demanded by different types of customers.

This paper is related to the literature on long-term care financing, particularly the literature that tries to explain the limited purchase of private long-term care insurance in countries that allow those products to be sold. Brown et al. (2012) regress the ownership of long-term care insurance among US survey participants on an extensive list of survey statements about preferences (o.a. leaving a bequest) and beliefs (o.a. the availability of informal care). They conclude that both demand-side factors and market imperfections—such as a high insurance loads or a high perceived probability of bankruptcy—explain the limited purchase of private long-term care insurance. To explain the potential demand for “improved” long-term care insurance products (in a well functioning market), Ameriks et al. (2016) elicit the stated demand for private long-term care insurance. They show that there is a considerable unmet demand for long-term care insurance. Their results suggest that for middle and high wealth households the demand for private insurance is based on a complex interaction between individual’s preferences

and circumstances which are difficult to capture in a life-cycle model of saving, consumption and bequests—such as the interaction between the bequest and availability of informal care (see e.g. Pauly 1990).

Therefore, in our paper, we elicit both individual’s stated preferences for private long-term care insurance, as well as a rich set of preference parameters, expectations, and substitutes for insurance, such as the availability of informal care and strength of the bequest motive. Moreover, rather than focusing on an insurance product that protects against excessive expenditures in a long-term care facility, we consider a product that covers long-term care needs at home, which might appeal a large group of elderly in several countries.

Our results show a high overall demand for in-home care insurance. Willingness to pay is high relative to an actuarially fair insurance premium for housekeeping support, a monthly supporting budget for devices, and a lump sum for home improvement. Individuals with the highest willingness to pay, *ceteris paribus*, have a higher income, are more often single and woman, and less often expect to receive help from family members. Individuals who expect to use in-home care for longer, conditional on needing care at all, are willing to pay more. This is consistent with adverse selection into insurance. Individuals with a bequest motive have a lower willingness to pay. The results thus suggest that in-home care services represent a different value for different people depending on individual characteristics. This contributes to the design of long-term care insurance policies to improve the wellbeing of the elderly.

## 2 Data

We fielded a discrete choice experiment in the Longitudinal Internet Studies for the Social Sciences (LISS) panel in January 2016. LISS is an internet-based household panel of approximately 4500 households that is representative for the non-institutionalized Dutch population. It is administrated by CentERdata that is affiliated to Tilburg University. CentERdata uses several approaches to safeguard the representativeness of the panel. First, households are recruited through address-based sampling to avoid self-selection into the panel. Second, household members receive an incentive if they complete a questionnaire which keeps attrition to a minimum. Third, households without a computer or internet connection are provided with a computer and internet connection.

Each month, all household members in the LISS panel also receive a questionnaire on a

variety of topics which can be linked to the fielded questionnaire. Our questionnaire contains measures on, among others, expectations of home care use, risk and time preferences, the type and strength of the bequest motive, and the the existence of substitutes for LTC insurance.

We fielded our questionnaire to all panel members aged 40 years and older (i.e. the head of household and spouse) who have non-zero household income. The response rate was 86 percent which provided us with a sample of 2444 respondents of which 2412 respondents complete the questionnaire. In the empirical analysis we excluded 30 persons who reported to receive personal care at home at the time of the questionnaire, leaving us with a final sample of 2382 respondents.

### 3 Discrete choice experiment

To elicit preferences for different types of home care services we offer participants hypothetical home care insurance plans. Respondents face ten choices between two realistic insurance plans with different care levels along several dimensions. These dimensions are attributes that could improve the wellbeing of elderly with ADL problems; see e.g. Nieboer et al. (2010) for a theoretical framework. We selected the following attributes and corresponding levels:

- Premium, percentage of (equivalized) income (1.5; 3; 4.5; 6)
- Domestic care, hours per week (0; 2; 5)
- Personal care, minutes per day (0; 45; 90)
- Social services, hours per week (0; 5; 10)
- Home adaptations, lump-sum budget in euro (0; 4000; 8000)
- Assisting devices and services, euro per month (0; 50; 100)

The levels in our experiment are consistent with the long-term care situation in the Netherlands in the period before the 2015 LTC reform. We used the in-home care criteria for personal care, domestic care and social services as set by the Care Assessment Centre (Centrum Indicatiestelling Zorg, CIZ). The budget for home adaptations is based on quoted amounts on the websites of large municipalities in the Netherlands. A realistic range of premia is computed using an actuarial (gender-specific) pricing model of the duration of home-care use. We instruct participants to imagine that the premium has to be paid from age 40 onward.

The framing of the experiment also corresponds to the actual institutions that govern long-term care in the Netherlands. We first briefly explain the relevant policy changes:

*Changes to long-term care for the elderly*

Before answering the questions, we would like to draw your attention to the most important changes in long-term care for the elderly. Since January 1st 2015 the government distinguishes between two types of care:

1. Care in a nursing home (severe care needs)
  - People who require care and supervision all day are entitled to a place in an institution. This concerns severe care.
2. Home care (light or moderate care needs)
  - People whose needs are light or moderate will receive their care at home from now on instead of in an institution.
  - Health insurance entitles people to nursing and personal care by healthcare professionals.
  - The municipality is responsible for support and guidance in housekeeping. The municipality will decide on what someone can do him/herself and whether informal arrangements can be made, such as with family, friends or neighbours.

Next, we emphasize that nursing care is covered by universal health insurance and that the government provides a basic safety-net:

- Imagine that you are yourself responsible for long-term care at home. You can purchase long-term care insurance that entitles you to help by health care professionals (offered by either the government or an insurance company). Nursing care will be provided through your basic health insurance policy.
- There is a safety net for which you are eligible if your gross household income is lower than 16.000 Euro (for singles) or 22.500 (for multi-person households) and informal care is not available. Based on the safety net you will receive approximately 1 hour of support in housekeeping per week and 45 minutes of personal care per day.

Since we are interested in people's relative preferences for different attributes (rather than the decision whether or not to acquire a product), we did not to include an opt-out option in the experiment, as people have the tendency to choose an opt-out when they have to make a

complex decision (Veldwijk et al. 2014). Instead, after the discrete choice experiment we asked respondents about their willingness to buy a similar in-home care insurance product to the packages presented in the experiment. As a sensitivity check, we estimated whether results differed between respondents in both groups.

The questionnaire was tested among a small group of people to ensure that the wording used in the questionnaire was well understood.

## Model

We use a mixed logit model to approximate preferences for attributes of LTC in a flexible way; detailed descriptions of the mixed logit can be found in Revelt & Train (1998) and in Train (2003). Such model is appropriate for the setting of a stated preference experiment, because it allows for differences in tastes between individuals. Variation in preferences is a key aspect of modelling repeated choices of the same respondents. Formally, the utility individual  $i$  derives from choosing alternative  $j$  from choice set  $t$  is given by:

$$U_{ijt} = \mathbf{x}'_{ijt}\boldsymbol{\beta}_i + \varepsilon_{ijt}; \quad j = 1, 2; \quad t = 1, 2, \dots, 10 \quad (1)$$

Here  $\mathbf{x}_{ijt}$  is a vector of attributes,  $\boldsymbol{\beta}_i$  is a vector of preference parameters and error  $\varepsilon_{ijt}$  is assumed to follow a type 1 extreme value distribution. Since the errors  $\varepsilon_{ijt}$  are independent across the different choice scenarios faced by an individual, the standard logit with fixed  $\boldsymbol{\beta}$  restricts all differences in tastes to be independent across the sequence of choices. The mixed logit allows the preferences for attributes,  $\boldsymbol{\beta}_i$ , to be random and vary across individuals, inducing correlation between answers (e.g. an individual may show a preference for domestic care in all scenarios, while someone else prefers social services). We specify the mixing distribution of preferences to be multivariate normal and allow for correlations between preference parameters in some specifications. Estimation proceeds by Maximum Simulated Likelihood and 500 Halton draws are used to integrate over the mixing distribution.

The mixing distribution of preferences captures variation in the population and does not condition on observed decisions. The richness of the data, which contain 10 scenarios for each individual, allows this prior distribution to be combined with observed choices to construct a much narrower posterior distribution for the preferences of each individual in the sample. We approximate individual-specific preferences by the means of these posterior distributions and



analyze how they vary with observed characteristics of respondents.

### **Design of the choice situations**

Each choice situation consists of a choice between two insurance plans with different premiums and coverage. Careful design of these situations helps to estimate preference parameters precisely. The trick of optimal design is to simulate decisions from a pre-specified logit model and choose combinations of attribute levels that minimize the variances of estimates obtained from the simulations. The objective to be minimized is the determinant of the asymptotic covariance matrix of the estimates, resulting in a D-efficient design (Bliemer et al. 2006). Prior information on parameters is required to construct an efficient combination of choices. Though prior estimates did not exist at the time the study was designed, we did have an idea of the signs to be expected. Respondents were assumed to prefer lower premiums and place positive value on all other attributes. Moreover, we improved robustness by introducing uncertainty into these prior estimates, generating a so-called Bayesian-efficient design (Bliemer et al. 2006).

We created a Bayesian-efficient design with 36 choice situations, divided into three blocks of twelve. Within each block we dropped the two scenarios in which one alternative most clearly dominated the other. In the experiment each respondent was randomly presented one of these three blocks of ten choices. Previous research indicates that answering ten choice sets does not impose excessive burden on the respondent (see e.g. Watson et al. 2017 about the quality of the design of discrete choice experiments and response rates).

Two additional randomizations were carried out across respondents. These were (1) the order in which we presented the 10 choice situations, and (2) the order of the attributes, except for the premium. The premium was always presented first, because we want the price of insurance to be equally salient in all decisions. Figure 1 shows an example of a choice set.

Figure 1: Example of a choice set

	Plan A	Plan B
Monthly premium per person	90 euro	130 euro
Hours domestic care per week	0 hours	2 hours
Minutes personal care per day	60 minutes	0 minutes
Hours social care per week	5 hours	10 hours
Budget for devices per month	50 euro	100 euro
Budget for home adaptations	8000 euro	4000 euro

Which of these plans would you choose?

Plan A	
Plan B	

## 4 Results

### 4.1 Survey questions

In addition to the discrete choice experiment we fielded a survey to measure expectations and aspects of preferences beyond LTC. In particular, we focus on bequests, expectations regarding one’s use of LTC and the availability of informal care.

*Prevalence of home care needs and chronic health conditions.*— We gave respondents the following definition of the need for home care assistance at the beginning of the questionnaire (after explaining the relevant policy changes to LTC): “You are in need of home care assistance if daily help with personal care is required, such as help with washing, dressing, and getting in and out of bed. You also rely on help from others in the performance of general household chores.” 4% of respondents report either receiving or requiring care according to that definition. We exclude these individuals from the analysis of variation in preferences, since they would not be eligible to purchase insurance. 14 percent of the remaining sample reports to have chronic health problems which do not require assistance at home. Descriptive statistics for demographic variables can be found in Appendix A.

*Expectations regarding home care needs.*— Adverse selection is a problem in many insurance markets and LTC insurance is likely to be no exception. Purchasers of insurance may have private information on their likely future use of LTC, for instance based on their family history. We measure respondents’ subjective expectations of future home care use to incorporate this into

Table 1: Descriptive statistics LTC expectations

<b>a. Qualitative expectations</b>					
<i>Expected care use relative to average for gender/cohort</i>					
	Own		Partner's <sup>a</sup>		
	Mean	SD	Mean	SD	
Much shorter	0.06	0.24	0.05	0.23	
Shorter	0.24	0.43	0.22	0.41	
Average	0.61	0.49	0.62	0.48	
Longer	0.08	0.27	0.11	0.31	
N	1901		1393		
<b>b. Quantitative expectations</b>					
	Mean	SD	p25	p50	p75
Median – own care (yr) <sup>b</sup>	2.6	2.7	0.6	1.0	5.0
IQR – own care (yr) <sup>b</sup>	3.3	3.1	0.6	2.2	5.2
N	1513				
Median – both care (yr) <sup>c</sup>	1.5	1.5	0.5	0.7	2.0
IQR – both care (yr) <sup>c</sup>	1.9	1.8	0.5	0.7	3.3
N	1155				

<sup>a</sup> Based on 1393 observations for individuals who live with a partner.

<sup>b</sup> Based on 1513 observations who report subjective probabilities that are internally consistent.

<sup>c</sup> Based on 1155 observations for individuals who live with a partner and report subjective probabilities that are internally consistent.

our models of preferences for insurance. The literature on subjective expectations has shown that beliefs can be elicited as probabilities, which helps to make answers comparable across individuals (Manski 2004, Hurd 2009). However, survey respondents may find it hard to report on a probability scale, especially when the subject is abstract or lacks salience. Therefore, we elicit expectations of future care use by means of both qualitative and quantitative questions. The qualitative questions ask respondents whether they expect to receive (formal or informal) care at home for a longer or shorter period in comparison to the average for individuals of the same age and gender. As can be seen in Table 1, respondents expect not to spend a long time in care relative to their peers: 61 percent expect to be close to the average, while 30 percent expect to receive care for a relatively short period and only 8 percent expect to receive care longer than average. This tendency to expect a below rather than above-average care duration extends to one's partner, for which qualitative expectations are similar in the aggregate.

The quantitative questions ask respondents to indicate the probability that they will need LTC for more than 1, 3, 5, 7 and 9 years. We construct a distribution that characterizes beliefs for each respondent by linear interpolation between these five probabilities. Summary statistics

such as the median and Inter-Quartile Range (IQR) can be calculated to represent the location and dispersion of each subjective distribution. Table 1 shows that the average respondent reports a median expected duration of 2.6 years and that 75% of respondents report medians below the average actual lifetime use of 5 years in 2006. Moreover, the reported uncertainty is substantial with an average IQR of 3.3 years. Both uncertainty and the median duration vary widely across the sample, with standard deviations of 3.1 and 2.7 years respectively. As expected, respondents with partners expect the period during which both partners require care to be shorter on average than their own duration: the average median is 1.5 years.

The literature has shown that people who do not have experience with LTC have difficulties to form expectations. For instance Coe et al. (2015) show that long-term care use of the parents increases the purchase of LTC insurance. This result suggests that providing information about home care use might result in more realistic expectation. To test this hypothesis we provided a random two-thirds of the sample with information on average home care use among the Dutch population. We included the following information intervention in the questionnaire before measuring respondents' subjective expectations of future home care use:

To give an idea about home care use:

- About 7 percent of persons aged 65 to 80 received formal care at home from and 32 percent of persons above age 80 received formal care at home in 2014.
- The average lifetime use of care at home was 5 years (3.1 years for men en 6.5 years for women) in 2006.

We find that providing information significantly increases expected home care use (see Appendix D). For the qualitative measures the intervention raised both own expected care use and that of the partner relative to the gender/cohort average. The sizes of these effects are 0.14 and 0.09 respectively on a 5-point scale. The quantitative measures confirm that the information increased the average subjective median by 0.3 years, but it did not affect uncertainty or the expected length of the period during which both partners require care. Given that respondents tend to expect to use care for a relatively short period, such upward revisions probably lead to more realistic expectations in the aggregate.

*Relative importance of the bequest motive.*— All else equal, the premium paid for LTC insurance reduces the accumulation of wealth to leave behind in bequests. Hence, the importance one attaches to bequests may be a relevant factor explaining variation in preferences for LTC

Table 2: Descriptive statistics bequest motive

<b>a. Strength of bequest motive</b>					
	Mean	SD			
Fraction windfall in bequest (%)	48	27			
Fraction = 0%	0.10	0.30			
1-20%	0.09	0.29			
21-49%	0.15	0.36			
50%	0.33	0.47			
51-80%	0.24	0.43			
81-99%	0.03	0.16			
100%	0.05	0.23			
N	1901				
<b>b. Intended recipient(s) (if bequest&gt;0)<sup>a</sup></b>			<b>c. Conditionality<sup>b</sup></b>		
	Mean	SD		Mean	SD
Partner	0.76	0.43	Strategic	0.15	0.35
Children	0.73	0.44	Most needy	0.27	0.44
Other family	0.15	0.36	No conditions	0.61	0.49
Friends	0.07	0.25	Other	0.05	0.21
Charity	0.15	0.35			
Other	0.03	0.17	N	1374	
N	1693				

<sup>a</sup> Based on 1693 observations that allocate a positive share of the windfall to bequests.

<sup>b</sup> Based on 1374 observations who intend to leave a positive bequest to someone else than partner or charity.

insurance. Following Ameriks et al. (2011) we measure the relative importance of the bequest and precautionary motives to save through a vignette question. Respondents are placed in a hypothetical situation in which they divide 100 thousand euro over two lock boxes that represent bequests and long-term care. The money in the bequest box will be left to their relatives after their death. The long-term care box can only be used to buy supplementary private care for the respondents or their partners. The money in this box will not be part of a bequest.

Panel a. of Table 2 shows how respondents divide their budget over the two boxes. Respondents mostly split the budget over both: only 15% allocates all money to either bequests or care. One third divide the money evenly over the boxes and another 39% are between a 50/50 and 20/80 split, suggesting that most people care about saving for both bequests and long-term care. Moreover, the data reveal substantial heterogeneity in preferences. This distribution of the relative importance of preferences is comparable to that of Ameriks et al. (2011) who conducted the survey on single elderly in the US. Separating the sample into those with and without children shows that respondents who have children tend to allocate a larger share of the windfall to bequests.

Table 3: Descriptive statistics availability informal care

<i>Availability informal care by someone else than partner</i>				
	Overall		Children	No children
	Mean	(SD)	Mean	Mean
Definitely	0.06	(0.24)	0.06	0.03
Probably	0.17	(0.38)	0.19	0.11
Maybe	0.32	(0.47)	0.34	0.25
Probably not	0.30	(0.46)	0.29	0.36
Definitely not	0.15	(0.35)	0.13	0.26
N	1901		1604	297

After dividing 100 thousand euro between bequests and LTC, respondents were also asked to divide the money in the bequest box among family, friends, charity and other recipients. Panel b. in Table 2 shows how respondents divided their bequest over these groups. For each type of recipient we define a dummy equal to one if an individual intends to leave a positive amount to that type, so the categories are not mutually exclusive. Members of the nuclear family are by far the most likely to receive a positive inheritance: 76% of individuals want to leave money to their partner and 73% to their children. 15% intend to leave a bequest to other family or charity and only 7% intend to give to friends. Furthermore, respondents without children more often include charity and friends among recipients.

Panel c. of Table 2 divides respondents into groups according to the type of bequest motive. These motives were only elicited if the respondent allocated a positive bequest to other recipients than the partner or charity. Moreover, respondents could choose multiple motives, so categories are not mutually exclusive. Panel c. shows that 15% of the respondents who have a bequest motive indicate that they consider to give a larger share of the estate to individuals who provide them informal care (strategic bequest motive). Interestingly, this proportion is somewhat larger for people without children who depend on others in the provision of informal care. Though some people do indicate strategic considerations, most either divide according to the needs of the recipients (27%) or do not formulate conditions and divide the money equally (61%).

*Availability of informal care.*— The availability of substitutes for formal care could affect the demand for home care insurance. We asked respondents whether they expect their family or relatives to provide informal care. Table 3 shows that respondents are not very hopeful that they can rely on other informal care-givers than their partner. Fully 45% indicates that such care

Table 4: Descriptive statistics of expenditures in LTC and current saving

a. In LTC expenditures will...	Mean (SD)		b. Currently saving for LTC?	Mean (SD)	
	Mean	(SD)		Mean	(SD)
...strongly decrease	0.09	(0.29)	Yes, saved already	0.15	(0.36)
...decrease	0.07	(0.26)	Yes, earmarked housing wealth	0.07	(0.25)
...stay constant	0.08	(0.27)	No, but plan to do so	0.10	(0.31)
...increase	0.31	(0.46)	No, expect adequate pension	0.40	(0.49)
...strongly increase	0.45	(0.50)	No, not at all	0.33	(0.47)
N	1901			1901	

will “definitely” or “probably” not be available. Only 23% expects to receive informal care and the remaining third of the sample expresses substantial uncertainty. This outlook is different for individuals with and without children: 25% of those with children and 14% without expect that informal care will be available while 42% and 62% respectively think this will not be the case.

*Expenditures and current saving.* — While the expected use of long-term care may be informative regarding the risk of adverse selection into insurance, demand for such products is also driven by the effect of long-term care on overall, medical plus non-medical, expenditures. This effect may vary across individuals, since some people might cut back expenditures on hobbies that are no longer feasible while others did not have expensive hobbies and suddenly incur out-of-pocket contributions. Panel a. in Table 4 shows that three quarters of respondents expect that total expenditures will *increase* when they need care. Only 16% expect that expenditures will drop. As can be seen in panel b., such projected increase in expenditures does not motivate additional saving for 73% of the sample. This is understandable in the context of the relatively generous pensions in the Netherlands (40% explicitly refers to pensions as the reason they do not need to save). Out of those who have saved already or plan to do so, only a minority of 7% of the total sample earmarked housing wealth for the purpose of funding LTC expenditures. The remaining 25% intends to use other (financial) wealth.

## 4.2 Mixed logit estimates

As described above, we use mixed logit models to map sets of ten choices between two insurance products into preferences for different types of care and support for each individual. Table 5 shows the estimation results of these mixed logit models. We consider three different specifications for the mixing distribution. Models (1) and (2) have a fixed coefficient on price, which means that all respondents dislike paying higher premiums equally. The other coefficients are random and

Table 5: Estimated parameters of the mixed logit models

<b>a. Estimates of normal mixing distribution for preferences</b>						
	(1)		(2)		(3)	
	Uncorr. preferences		Corr. preferences		Random coefficient on price <sup>b</sup>	
<b>Mean</b>						
Price (Euro)	-0.0146***	(0.000629)	-0.0157***	(0.000657)	-0.0175***	(0.000818)
Domestic care (hrs/wk)	0.266***	(0.00949)	0.281***	(0.0105)	0.282***	(0.0101)
Personal care (hrs/wk)	0.144***	(0.00550)	0.162***	(0.00630)	0.153***	(0.00582)
Social care (hrs/wk)	0.0302***	(0.00397)	0.0398***	(0.00443)	0.0264***	(0.00431)
Devices (Euro/month)	0.00390***	(0.000291)	0.00400***	(0.000318)	0.00435***	(0.000318)
Housing (Euro)	8.27e-05***	(4.63e-06)	8.89e-05***	(4.82e-06)	8.88e-05***	(5.05e-06)
<b>Standard deviation</b>						
Price	–	–	–	–	0.0230***	(0.00109)
Domestic care	0.243***	(0.00902)	0.315***	(0.0115)	0.224***	(0.0104)
Personal care	0.149***	(0.00566)	0.191***	(0.00695)	0.127***	(0.00678)
Social care	0.0845***	(0.00508)	0.138***	(0.00580)	0.0897***	(0.00546)
Devices	0.00458***	(0.000647)	0.00680***	(0.000561)	0.00544***	(0.000621)
Housing	0.000153***	(6.11e-06)	– <sup>a</sup>	– <sup>a</sup>	0.000173***	(6.85e-06)
Individuals	2412		2412		2412	
Log-likelihood	-14,567.78		-14,364.72		-14,259.74	
<b>b. Correlation matrix model (2)</b>						
	Domestic care	Personal care	Social care	Devices		
Domestic care	1					
Personal care	0.527***	1				
Social care	0.620***	0.646***	1			
Devices	0.530***	0.408***	0.697***	1		

Robust standard errors in parentheses; \*\*\*  $p < 0.01$

<sup>a</sup> In model (2) with correlated random coefficients the Cholesky factors for housing are so small that numerical issues prevent us from calculating the standard deviation and its standard error. For this reason we cannot calculate the correlations that involve housing in panel b.

<sup>b</sup> In model (3) random parameters are assumed to be uncorrelated. The fraction with negative preference for higher prices (premiums) is estimated to be  $\Phi\left(\frac{-0.0175}{0.0230}\right) = 0.78$  (SE = 0.011).

multivariate normal, but model (1) restricts them to be uncorrelated while model (2) does allow for correlations between tastes. The third model includes a random coefficient for the premium and imposes that all coefficients are uncorrelated. The parameters of the multivariate normal mixing distributions are estimated extremely precisely: all parameters are significant at 1%. The means of all coefficients have the expected sign. Individuals dislike paying high premiums and on average they put positive value on domestic, personal and social care as well as on a monthly budget for devices and a lump-sum for adaptation of one's house. The standard deviations show that there is considerable variation among respondents in preferences for the attributes.

While estimates are very similar for all three models, we prefer model (2) and will focus on those estimates in the remainder of the paper. We prefer model (2) over (1), because panel b. of Table 5 shows that tastes for different dimensions of care are moderately strongly positively correlated (correlation coefficients are between 0.4 and 0.7). Hence, independent mixing distributions are not appropriate. Model (2) also has an edge over model (3), because the



Table 6: Average willingness-to-pay for attributes

a. Willingness-to-pay (WTP) derived from models with normal mixing distributions											
	Model (1)					Model (2)					
	Actuarial premium <sup>a</sup>	Mean <sup>b</sup>	(SE)	WTP ≥ premium (%)	(SE)	Mean <sup>b</sup>	(SE)	WTP ≥ premium (%)	(SE)		
Domestic care (1 hr/wk)	16.78	18.25	(0.80)	54	(1.80)	17.93	(0.79)	52	(1.5)		
Personal care (1 hr/wk)	29.41	9.85	(0.44)	3	(0.82)	10.30	(0.44)	6	(1.2)		
Social services (1 hr/wk)	37.83	2.07	(0.26)	0	(-)	2.54	(0.27)	2.9e-05	(2.8e-05)		
Devices (100 Euro/month)	25.42	26.74	(1.98)	52	(2.5)	25.48	(2.02)	50	(1.9)		
Housing (1000 Euro once)	6.59	5.67	(0.36)	47	(1.5)	5.66	(0.34)	46	(1.4)		
At least one WTP ≥ premium				88	(1.1)			69	(6.6)		
b. Willingness-to-pay (WTP) derived from latent class models											
	7 latent classes						9 latent classes				
	Actuarial premium <sup>a</sup>	Mean <sup>b</sup>	(SE)	WTP > premium (%)	Premium in 95% CI (%)	WTP < premium (%)	Mean <sup>b</sup>	(SE)	WTP > premium (%)	Premium in 95% CI (%)	WTP < premium (%)
Domestic care (1 hr/wk)	16.78	30.29	(10.97)	28	34	38	34.63	(15.39)	37	33	30
Personal care (1 hr/wk)	29.41	16.47	(5.55)	0	27	73	16.99	(6.73)	0	37	63
Social services (1 hr/wk)	37.83	11.97	(11.04)	0	11	89	13.43	(15.17)	0	16	84
Devices (100 Euro/month)	25.42	57.96	(33.08)	28	53	19	61.95	(42.49)	31	45	24
Housing (1000 Euro once)	6.59	8.08	(6.11)	25	30	46	6.15	(10.96)	29	27	44
At least one				53					49		

<sup>a</sup> Actuarially fair monthly premium based on premium payment from age 40 up to first claiming (or death) with waiting period of 1 year during which the contract is cancelled if the need for care would arise. Price of domestic care is 14 Euro/hr; price of personal care is 27.02 Euro/hr; price of social services is 35.84 Euro/hr. Prices for personal care and social services are taken from “personal budget” (PGB) for 2014, see <https://www.nationalehulpguids.nl/forms/PGBWeektarieven2011-2015.pdf>. Actuarially fair premiums are calculated using tools provided by a large insurance company.  
<sup>b</sup> Mean willingness to pay as a monthly premium for the various services listed in the table. E.g. on average respondents would be willing to pay a monthly premium of €18.25 from age 40 onward in order to receive 1 hour of domestic care per week.

random coefficient on price in model (3) yields unrealistically high Willingness To Pay (WTP) for some part of the distribution. These considerations matter only for quantities that are derived directly from the mixing (prior) distribution, without any additional information. The posterior means used to analyze preference heterogeneity condition on the ten observed choices for an individual, which contain a lot of information about that person’s preferences. Table B1 in Appendix B shows that correlations between posterior means computed from these three sets of estimates are strongly correlated (correlation coefficients are between 0.5 and 0.99). Hence, once choices are taken into account the exact specification for the prior distribution of preferences becomes less important and results are robust across the three specifications in Table 5.

Panel a. of Table 6 shows Willingness-To-Pay (WTP) estimates computed from the estimated mixing distributions for models (1) and (2). WTP is negative one times the ratio between the coefficient on an attribute and that on price:  $WTP^k = -\beta^k / \beta^{Price}$ . Given that the price coefficient is not random in models (1) and (2), normal marginal distributions for the attributes yield straightforward normal marginal distributions for WTP. Table 6 summarizes the distribution of WTP by means of its expected value. The table also lists the actuarially fair insurance premiums that would be charged for annuities that cover the price of each attribute in order to aid interpretation of the magnitudes of the estimates. An hour of domestic care, for instance, costed about 14 euros in 2015 according to the government website “National Care Guide”. Using a calculation tool provided by a large insurance company, we calculate that the corresponding premium for a 40 year old is 16.78 euros per month (which would cover one hour per week at a price of  $14 \times 52/12 = 60.67$  Euros per month). Models (1) and (2) both yield an average WTP

of around 18 euros per month, so according to our estimates the average individual should be willing to take out realistically priced insurance that covers domestic care. Indeed, just over 50% of the population is simulated to have a WTP at or above the market price. Similarly large fractions should be interested in a monthly budget of 100 Euros to buy support equipment or a lump-sum of 1000 Euros to improve the comfort and suitability of one's house: 50% has a WTP above market premium for a monthly annuity and 46% is willing to pay premiums for housing. Higher hourly rates imply that insurance that covers personal care or social support is much more expensive than that for domestic care (premiums are 29 and 38 euros per month respectively for an hour of care per week). The average WTP is only 10 Euros per month for personal care and 2-2.5 Euros for social support, so preferences fall far short of costs for the average individual. Unsurprisingly, corresponding fractions of interested buyers are close to zero. Taken together, the estimates for model (2) imply that 70% of individuals have a WTP that exceeds the market premium for at least one dimension of coverage.

As a check on the plausibility of these results, we estimate models (1) and (2) separately on the subsamples of respondents who indicate that they would or would not be interested in buying any type of care insurance. About half of the sample reports being interested in buying an insurance policy to cover homecare. The advantage of that question is that respondents probably find it easy to express their gut feeling, especially in comparison to the relatively abstract choices between insurance packages. If the observed choices measure meaningful preferences for the different dimensions of care, we would expect that WTP is substantially higher in the sample that does express interest in insurance overall. Table C2 in Appendix C shows that this is indeed the case. 62% of individuals who are interested in insurance have a sufficiently high WTP for domestic care, compared with 41% of those who are not interested. While the overall market for insurance earmarked for personal care was small, among those interested in insurance 13% have a WTP at or above the premium, compared to less than 2% for the other group. Interestingly the gap between those interested and not interested is smaller for the monthly annuity, which 53% and 47% respectively value high enough to purchase. For housing the gap is larger at 55% against 39%. Taking all dimensions together, 100% of those who are interested in care insurance have at least one dimension for which WTP justifies paying the market premium. For those who are not interested this fraction is 51%. Such large gap suggests that the choices between insurance products yield meaningful measures of preferences for different types of care and support. Moreover, the fact that those who are not interested in care insurance do value income

support is consistent with the finding that a large majority of respondents expect expenditures to increase once they need care.

The mixed logit models in Table 5 and corresponding WTP estimates in Table 6 a. capture preference heterogeneity by means of continuous (multivariate normal) distributions. Alternatively, one can model the population as consisting of a finite set of discrete types or latent classes. Each such type has different preferences, which are estimated jointly with the fraction of the population that belongs to that class. These latent class models allow one to relax the parametric restrictions of a pre-specified mixing distribution at the cost of many additional parameters to be estimated. In order to assess the robustness of the results in panel 6 a., panel b. presents corresponding WTP estimates with 7 and 9 latent classes (Appendix F presents estimates of these models). Comparing the average WTPs with those reported in panel a., we note that while all averages are substantially higher for the latent class models the same is true for the accompanying standard errors. While information criteria suggest 11 classes, a simpler model with 7 classes already yields imprecise estimates of preferences for some groups, resulting in broad interval estimates of the overall average WTP. In light of this difficulty of estimating preferences for some latent classes, we distinguish between types for which the entire confidence interval of WTP lies either above or below the actuarial premium and types for which the premium falls within the interval for WTP. Summing the population shares across types for which WTP exceeds the premium, both latent class models confirm that large fractions of the Dutch population would be willing to pay realistic insurance premiums for domestic care, a monthly annuity that is contingent on long term care and a one-off payment at the onset of care needs. While the mixed logit models indicate that roughly half of the population would want to take out corresponding insurance, the fraction for which we can confidently conclude the same is around one quarter to one third in the latent class models. Furthermore, there is not a single latent class for which the entire interval for WTP exceeds the actuarial premium for personal care or social support. Hence, we conclude that while estimates from latent class models are considerably less precise, they reveal similar qualitative patterns as do mixed logit models.

### 4.3 Heterogeneity in preferences

In this subsection we relate preferences for the five dimensions of care to demographics and to variables that measure other preferences, such as risk aversion and the bequest motive, and expectations. Before zooming in on the different dimensions, however, we first describe

variation in overall interest in care insurance based on the binary variable introduced above. As mentioned, half of the individuals report being interested in an insurance product as presented in the questionnaire. Table 7 shows that two covariates stand out among demographics: the dummy indicating low gross household income and that for university education. Across all specifications individuals in low income households, with incomes below the threshold for the safety net specified in the vignettes, are 10-12 percentage point (pp) *more* likely to be interested in care insurance. This suggests that such households find the basic level of 1 hour of domestic care per week and 45 minutes of personal care per day too low. University educated respondents are 9-10pp more likely to be interested in care insurance compared to the poorly educated. This gap persists when we control for expectations regarding care use and for the availability of informal care. Contrary to what might have been expected, no large differences are found between those living with a partner and those living alone (differences are smaller than 6pp and not statistically significant). As for preferences, as expected the more risk averse are more likely to express an interest in care insurance. Furthermore, we find that those with the strongest bequest motive tend to be interested in insurance less often: allocating more than 80% of the windfall to bequests is associated with a 22-25pp lower likelihood of interest in insurance than among those who allocate zero to bequests. No large discrepancies exist among those who intend to leave smaller bequests. Expectations regarding the availability of informal care and one's own care use also have explanatory power. Compared to individuals who think informal care will "definitely not" be available, those who expect to "definitely" or "probably" be able to rely on it are 13pp and 9pp less likely to express an interest in insurance respectively. Expecting to use homecare more than "much shorter" than average for cohort/sex peers raises the probability of interest by 15-18pp. If individuals can forecast their own use to some extent, this positive association between expected use and interest in insurance leads to adverse selection.

Next we regress individual-specific preference estimates on the same covariates. As explained above, these are the conditional means for parameters that take into account the ten choices made by a respondent. The estimates are collected in Appendix E to save space. We standardize posterior means in order to render estimates comparable across the different dimensions of care.

Respondents who live with a partner express weaker preferences on average for all three types of care: domestic, personal and social. This discrepancy is substantial at one fifth to one third of a standard deviation and suggests that one's partner is by and large the preferred carer for all three categories. Women tend to report stronger interest in domestic and personal care than men,

Table 7: Covariates of interest in purchasing LTC insurance

	Dependent variable: indicator for interest to buy LTC insurance (mean=0.53)					
	(1)		(2)		(3)	
<b>Demographics</b>						
Female	0.0186	(0.0232)	0.000360	(0.0234)	-0.00335	(0.0233)
Partner	-0.0516	(0.0318)	-0.0574*	(0.0316)	-0.00389	(0.0735)
Age/100	0.254	(1.003)	0.338	(0.993)	0.323	(0.999)
Age squared/100	-0.00524	(0.00829)	-0.00621	(0.00819)	-0.00612	(0.00825)
Has children	-0.0643**	(0.0324)	-0.0562*	(0.0334)	-0.0439	(0.0335)
Homeowner	-0.0493*	(0.0296)	-0.0468	(0.0293)	-0.0458	(0.0292)
Log net HH income	0.0380	(0.0355)	0.0622*	(0.0351)	0.0654*	(0.0350)
Low gross HH income	0.0987**	(0.0497)	0.122**	(0.0496)	0.124**	(0.0497)
Education – vocational	0.0364	(0.0293)	0.0386	(0.0292)	0.0367	(0.0291)
Education – university	0.0902***	(0.0314)	0.0977***	(0.0311)	0.0931***	(0.0310)
Health – no problems	-0.0490	(0.0341)	-0.0453	(0.0339)	-0.0327	(0.0348)
<b>Preferences</b>						
Risk aversion (scale 1-7)			0.0201**	(0.00823)	0.0165**	(0.00824)
Patience (scale 1-7)			0.00178	(0.00880)	0.00479	(0.00882)
Impulsiveness (scale 1-7)			-0.0142	(0.00992)	-0.0156	(0.00991)
Strength bequest motive (percent of windfall allocated to bequest; baseline: 0%)						
Bequest motive – 1-20%			-0.00590	(0.0516)	-0.00505	(0.0515)
Bequest motive – 21-49%			0.0587	(0.0462)	0.0592	(0.0463)
Bequest motive – 50%			0.0157	(0.0418)	0.0185	(0.0420)
Bequest motive – 51-80%			-0.0177	(0.0438)	-0.00718	(0.0439)
Bequest motive – 81-99%			-0.237***	(0.0759)	-0.217***	(0.0747)
Bequest motive – 100%			-0.253***	(0.0578)	-0.254***	(0.0576)
<b>Expectations</b>						
Availability informal care by someone else than partner (baseline: definitely not)						
Definitely					-0.125**	(0.0542)
Probably					-0.0895**	(0.0408)
Maybe					-0.0395	(0.0358)
Probably not					0.0105	(0.0358)
Expected care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					0.180***	(0.0590)
Average					0.147**	(0.0580)
Longer than average					0.169**	(0.0714)
Expected <i>partner's</i> care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					-0.0814	(0.0747)
Average					-0.0533	(0.0729)
Longer than average					-0.0169	(0.0807)
Constant	0.381	(0.395)	0.148	(0.396)	0.000349	(0.400)
Observations	1,901		1,901		1,901	
R-squared	0.025		0.050		0.064	

Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1  
Sample excludes individuals who currently receive or need long-term care.

but the gender gap is small and insignificant for social support. Having children is associated with a lower preference for formal personal and social care. The fact that no such significant difference exists for domestic care may be seen as evidence that respondents on average view domestic care as something that can be provided just as well by professionals, while personal and social care would ideally be sourced from within the nuclear family. Log net household income enters the equations for all three types of care significantly positively, so individuals in income-rich households tend to have a stronger preference for insurance covering all three types of care. Homeownership is significantly related to preferences for *personal* care, but not the other two types. Regarding preferences, more risk averse individuals are more interested on average in insurance for domestic and social care, but for personal care the association is not significant. The relation between the bequest motive and preferences is clearest for personal and social care, with those who intend to leave the largest bequests expressing weaker preferences relative to those with zero bequest motive. As for expectations, while we found that both the expected availability of informal care and the expected use of care correlate positively with overall interest in insurance, there is little evidence to suggest systematic associations with preferences for the different types of care.

While we mostly find similar associations between background variables and tastes for the three categories of care, rather different patterns emerge for the two types of financial transfers. These are a monthly budget earmarked for non-medical expenditures incurred when in care, such as transport, meals and delivery of groceries, and a one-off lump sum payment to finance home improvement that allows one to stay at home for longer. For the monthly annuity we find no significant difference between the sexes, but a fairly large gap between singles and individuals in couples. Those living in a couple score 0.2-0.35 standard deviation lower on average when it comes to interest in the annuity. Having children does not enter significantly, but the coefficient on log household income is positive and significant. While income-rich individuals may be better able to cover expenses from their own means, they still express a stronger taste for extra income when in care. More risk averse individuals are more interested in income support, but no differences are found by bequest motive or either type of expectations (availability of informal care or own care use).

When it comes to the lump sum for home improvement, it should be noted that the vast majority of the sample has not started to make or plan any such changes. 54% of the sample will only start planning adaptations to the house when one of the partners actually requires

care and a further 19% would rather move than invest to stay put. 17% thinks their current home is adequate and only 10% has made changes or is currently planning to do so. The only demographic variable that significantly predicts interest in the one-off payment for home improvement is age: older respondents are less interested in financial support to make their home care-proof. Maybe these older people have already made the required adjustments or chosen to move to an appropriate dwelling. While no clear patterns emerge for preferences, two notable differences stand out across expectations. Firstly, those who definitely expect informal care to be available are *more* interested in financial support for home improvement than are those who definitely do not expect that. Maybe living independently in an improved house is only perceived to be feasible if informal care is also available. Finally, those who expect to require homecare for a longer period than the average for their gender/cohort peers have a weaker preference for the lump sum. These patterns remain unchanged when we control for the extent to which respondents have already carried out improvements to their house. We do find that individuals who already planned changes or implemented them on average have 0.2 standard deviation lower preference for the lump sum than do those who will worry about the care-friendliness of their house once they need care.

As a final note consider again the provision of information on actual care use and its effect on expected future care consumption. We noted above that Appendix D indicates that providing this information significantly shifted both qualitative and quantitative measures of how long people expect to require care. As such, the information provision can potentially serve as a first stage to investigate whether changing expectations affects the taste for insurance causally. However, only for the qualitative variable that measures own care consumption relative to the average for gender/cohort peers is this first stage strong enough for information to be used as an instrument in an equation that regresses preferences on expectations. Even in this case standard errors in the second stage are too large to allow any useful conclusions. Though the first stage formally meets the requirement of relevance of the instrument, in practice expectations were not shifted sufficiently to yield an informative second stage.

## 5 Conclusions and discussion

There is a high overall demand for in-home care insurance. Willingness to pay is high relative to an actuarially fair insurance premium for housekeeping support, a monthly supporting budget

for devices, and a lump sum for home improvement. Individuals with the highest willingness to pay, *ceteris paribus*, have a higher income, are more often single and woman, and less often expect to receive help from family members. Individuals who expect to use in-home care for longer, conditional on needing care at all, are willing to pay more. This is consistent with adverse selection into insurance. Individuals with a bequest motive have a lower willingness to pay. The results thus suggest that in-home care services represent a different value for different people depending on individual characteristics. This contributes to the design of long-term care insurance policies to improve the wellbeing of the elderly.

The results suggest that in-home care services represent a different value for different people depending on the personal situation as well as personal preferences, such as the type of bequest motive. These results contribute to the design of improved long-term care insurance policies, which allows individuals to better manage retirement income and risks to improve their wellbeing.

## References

- Ameriks, J., Briggs, J., Caplin, A., Shapiro, M. D. & Tonetti, C. (2016), Late-in-Life Risks and the Under-Insurance Puzzle, Working Paper 22726, National Bureau of Economic Research.
- Ameriks, J., Caplin, A., Laufer, S. & Nieuwerburgh, S. V. (2011), ‘The Joy of Giving or Assisted Living? Using Strategic Surveys to Separate Public Care Aversion from Bequest Motives’, *The Journal of Finance* **66**(2), 519–561.
- Bliemer, M. C., Rose, J. M. & others (2006), Designing Stated Choice Experiments: State of the Art, PhD thesis, Emerald.
- Brown, J. R., Goda, G. S. & McGarry, K. (2012), ‘Long-Term Care Insurance Demand Limited By Beliefs About Needs, Concerns About Insurers, And Care Available From Family’, *Health Affairs* **31**(6), 1294–1302.
- Coe, N. B., Skira, M. M. & Van Houtven, C. H. (2015), ‘Long-term care insurance: Does experience matter?’, *Journal of Health Economics* **40**, 122–131.
- Costa-Font, J., Courbage, C. & Swartz, K. (2015), ‘Financing Long-Term Care: Ex Ante, Ex Post or Both?’, *Health Economics* **24**(S1), 45–57.



- Costa-Font, J., Courbage, C. & Zweifel, P. (2017), ‘Policy Dilemmas in Financing Long-term Care in Europe’, *Global Policy* **8**(S2), 38–45.
- De Bekker-Grob, E. W., Ryan, M. & Gerard, K. (2012), ‘Discrete choice experiments in health economics: A review of the literature’, *Health Economics* **21**(2), 145–172.
- Hurd, M. D. (2009), ‘Subjective probabilities in household surveys’, *Annu. Rev. Econ.* **1**(1), 543–562.
- Manski, C. F. (2004), ‘Measuring expectations’, *Econometrica* **75**(5), 1329–1376.
- Nieboer, A. P., Koolman, X. & Stolck, E. A. (2010), ‘Preferences for long-term care services: Willingness to pay estimates derived from a discrete choice experiment’, *Social Science & Medicine* **70**(9), 1317–1325.
- Pauly, M. V. (1990), ‘The Rational Nonpurchase of Long-Term-Care Insurance’, *Journal of Political Economy* **98**(1), 153–168.
- Revelt, D. & Train, K. (1998), ‘Mixed logit with repeated choices: Households’ choices of appliance efficiency level’, *Review of economics and statistics* **80**(4), 647–657.
- Swartz, K. (2013), ‘Searching for a Balance of Responsibilities: OECD Countries’ Changing Elderly Assistance Policies’, *Annual Review of Public Health* **34**(1), 397–412.
- Tinelli, M. (2016), Applying discrete social experiments in social care research, Monograph.
- Train, K. (2003), *Discrete Choice Methods with Simulation*, Cambridge University Press, Cambridge.
- Veldwijk, J., Lambooi, M. S., de Bekker-Grob, E. W., Smit, H. A. & de Wit, G. A. (2014), ‘The Effect of Including an Opt-Out Option in Discrete Choice Experiments’, *PLoS ONE* **9**(11), e111805.
- Watson, V., Becker, F. & de Bekker-Grob, E. (2017), ‘Discrete Choice Experiment Response Rates: A Meta-analysis’, *Health Economics* **26**(6), 810–817.

## A Descriptive statistics of background variables

**Table A1:** Descriptive statistics of demographic variables

	Choices		Choices + preferences + expectations	
	Mean	(SD)	Mean	(SD)
Female	0.51	(0.50)	0.51	(0.50)
Partner	0.72	(0.45)	0.73	(0.44)
Age	60.1	(11.3)	59.6	(11.2)
Has children	0.84	(0.37)	0.84	(0.36)
Number of children living in HH	0.58	(0.95)	0.60	(0.97)
Homeowner	0.76	(0.43)	0.76	(0.43)
Net HH income (monthly)	2961	(1491)	3004	(1504)
Low gross HH income <sup>a</sup>	0.09	(0.28)	0.08	(0.28)
Education – lower secondary	0.32	(0.47)	0.31	(0.46)
Education – vocational	0.34	(0.48)	0.35	(0.48)
Education – university	0.33	(0.47)	0.34	(0.48)
Health – has problems	0.14	(0.34)	0.13	(0.34)
Health – no problems	0.86	(0.34)	0.87	(0.34)
Primary activity – salaried work	0.40	(0.49)	0.41	(0.49)
Primary activity – self employed	0.05	(0.23)	0.06	(0.23)
Primary activity – unemployed	0.04	(0.21)	0.05	(0.21)
Primary activity – homemaker	0.08	(0.28)	0.08	(0.28)
Primary activity – retired	0.34	(0.47)	0.33	(0.47)
Primary activity – disabled	0.04	(0.19)	0.04	(0.19)
Primary activity – other	0.04	(0.21)	0.04	(0.20)
N	2111		1901	

Samples exclude individuals who currently receive or need long-term care.

<sup>a</sup> Gross HH income below 16,000 Euro per year for single and 22,500 Euro per year for couple.

**Table A2:** Descriptive statistics preferences

	Mean	SD	Min	p25	p50	p75	Max
Risk aversion (scale 1-7)	4.8	1.4	1	4	5	6	7
Patience (scale 1-7)	4.7	1.5	1	4	5	6	7
Impulsiveness (scale 1-7)	4.9	1.3	1	4	5	6	7
N	1901						

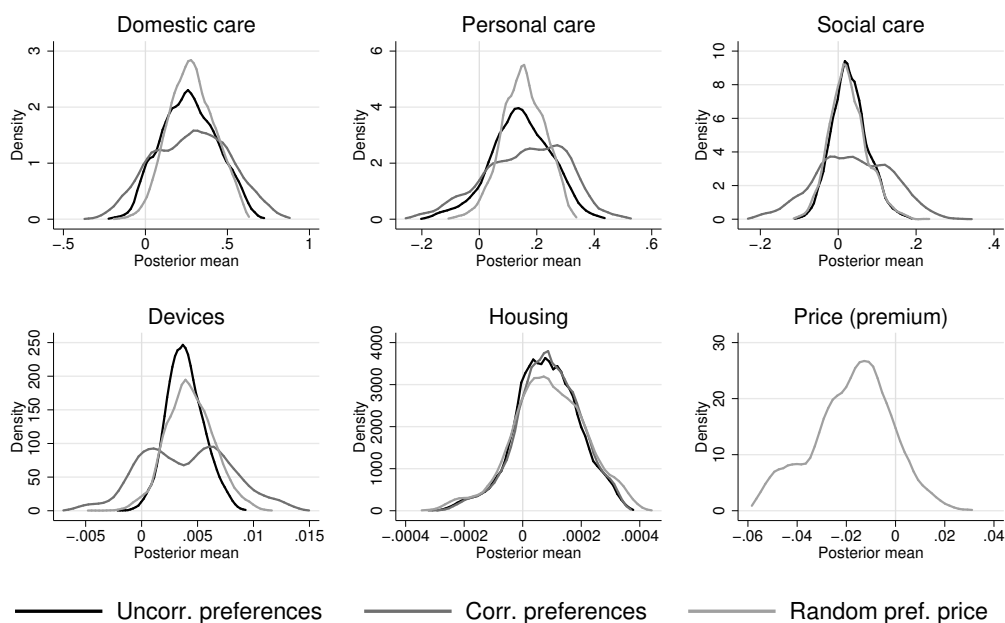
## B Correlations between posterior means obtained from different models

**Table B1:** Correlations between posterior means from different mixed logit models

	Domestic care			Personal care		
	(1)	(2)	(3)	(1)	(2)	(3)
(1) uncorr. preferences	1			1		
(2) corr. preferences	0.89***	1		0.88***	1	
(3) random pref. price	0.96***	0.82***	1	0.96***	0.85***	1
	Social care			Devices		
	(1)	(2)	(3)	(1)	(2)	(3)
(1) uncorr. preferences	1			1		
(2) corr. preferences	0.77***	1		0.62***	1	
(3) random pref. price	0.97***	0.65***	1	0.97***	0.52***	1
	Housing					
	(1)	(2)	(3)			
(1) uncorr. preferences	1					
(2) corr. preferences	0.99***	1				
(3) random pref. price	0.99***	0.98***	1			

\*\*\* p<0.01

**Figure B1:** Marginal distributions of posterior means



## C Mixed logit estimates separately for samples that would (not) consider buying LTC insurance

**Table C1:** Estimated parameters of the mixed logit models

<b>a. Estimates for sample that WOULD consider buying LTC insurance</b>				
	(1)		(2)	
	Uncorr. preferences		Corr. preferences	
<b>Mean</b>				
Price (Euro)	-0.0124***	(0.000812)	-0.0137***	(0.000854)
Domestic care (hrs/wk)	0.302***	(0.0136)	0.325***	(0.0152)
Personal care (hrs/wk)	0.171***	(0.00785)	0.193***	(0.00882)
Social care (hrs/wk)	0.0394***	(0.00566)	0.0492***	(0.00616)
Devices (Euro/month)	0.00389***	(0.000397)	0.00388***	(0.000438)
Housing (Euro)	0.000102***	(6.23e-06)	0.000107***	(6.38e-06)
<b>Standard deviation</b>				
Price	–	–	–	–
Domestic care	0.232***	(0.0126)	0.300***	(0.0163)
Personal care	0.146***	(0.00743)	0.182***	(0.00902)
Social care	0.0888***	(0.00672)	0.131***	(0.00757)
Devices	0.00452***	(0.000835)	0.00635***	(0.000753)
Housing	0.000136***	(8.13e-06)	0.000135***	(8.17e-06)
Individuals	1263		1263	
Log-likelihood	-7,492.89		-7,413.64	
<b>b. Estimates for sample that WOULD NOT consider buying LTC insurance</b>				
	(1)		(2)	
	Uncorr. preferences		Corr. preferences	
<b>Mean</b>				
Price (Euro)	-0.0172***	(0.000984)	-0.0180***	(0.00101)
Domestic care (hrs/wk)	0.231***	(0.0133)	0.233***	(0.0143)
Personal care (hrs/wk)	0.114***	(0.00766)	0.124***	(0.00875)
Social care (hrs/wk)	0.0216***	(0.00562)	0.0279***	(0.00635)
Devices (Euro/month)	0.00397***	(0.000427)	0.00409***	(0.000463)
Housing (Euro)	6.27e-05***	(7.00e-06)	6.85e-05***	(7.37e-06)
<b>Standard deviation</b>				
Price	–	–	–	–
Domestic care	0.252***	(0.0130)	0.319***	(0.0164)
Personal care	0.147***	(0.00844)	0.190***	(0.0106)
Social care	0.0793***	(0.00779)	0.141***	(0.00898)
Devices	0.00478***	(0.000895)	0.00738***	(0.000821)
Housing	0.000169***	(9.23e-06)	–	–
Individuals	1149		1149	
Log-likelihood	-6,989.55		-6,870.52	

Robust standard errors in parentheses; \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

The mixing distributions are multivariate normal.

B1

**Table C2:** Average willingness-to-pay for attributes

<b>a. Estimates for sample that WOULD consider buying LTC insurance</b>									
	Actuarial premium <sup>a</sup>	Model (1)				Model (2)			
		Mean <sup>b</sup>	(SE)	WTP $\geq$ premium (%)	(SE)	Mean <sup>b</sup>	(SE)	WTP $\geq$ premium (%)	(SE)
Domestic care (1 hr/wk)	16.78	24.30	(1.49)	66	(2.3)	23.76	(1.44)	62	(2.0)
Personal care (1 hr/wk)	29.41	13.76	(0.84)	9	(2.6)	14.15	(0.81)	13	(2.7)
Social services (1 hr/wk)	37.83	3.17	(0.42)	0	(-)	3.60	(0.42)	0	(0)
Devices (100 Euro/month)	25.42	31.24	(3.24)	56	(3.4)	28.37	(3.22)	53	(2.7)
Housing (1000 Euro)	6.59	8.18	(0.66)	56	2.1	7.84	(0.58)	55	(2.1)
At least one WTP $\geq$ premium				94	(1.0)			100	(0.9)

<b>b. Estimates for sample that WOULD NOT consider buying LTC insurance</b>									
	Actuarial premium <sup>a</sup>	Model (1)				Model (2)			
		Mean <sup>b</sup>	(SE)	WTP $\geq$ premium (%)	(SE)	Mean <sup>b</sup>	(SE)	WTP $\geq$ premium (%)	(SE)
Domestic care (1 hr/wk)	16.78	13.45	(0.86)	41	(2.7)	12.96	(0.87)	41	(2.2)
Personal care (1 hr/wk)	29.41	6.61	(0.45)	0.4	(0.3)	6.89	(0.48)	1.6	(0.7)
Social services (1 hr/wk)	37.83	1.25	(0.31)	0	(-)	1.55	(0.34)	0	(0)
Devices (100 Euro/month)	25.42	23.12	(2.43)	47	(3.7)	22.74	(2.55)	47	(2.6)
Housing (1000 Euro)	6.59	3.65	(0.42)	38	(2.0)	3.81	(0.41)	39	(2.0)
At least one WTP $\geq$ premium				81	(2.2)			51	(7.8)

<sup>a</sup> Actuarially fair monthly premium based on premium payment from age 40 up to first claiming (or death) with waiting period of 1 year during which the contract is cancelled if the need for care would arise. Price of domestic care is 14 Euro/hr; price of personal care is 27.02 Euro/hr; price of social services is 35.84 Euro/hr. Prices for personal care and social services are taken from “personal budget” (PGB) for 2014, see <https://www.nationalehulpdids.nl/forms/PGBWeektarieven2011-2015.pdf>.

<sup>b</sup> Mean willingness to pay as a monthly premium for the various services listed in the table. E.g. on average respondents who indicate they would consider buying LTC insurance would be willing to pay a monthly premium of €24.30 from age 40 onward in order to receive 1 hour of domestic care per week.

## D Information experiment

**Table D1:** Information provision, expectations and preferences for LTC insurance

<b>a. First stage: <math>\text{exp}_i = \beta_0 + \beta_1 \mathbb{I}\{\text{any info}\}_i + \varepsilon_i</math></b>						
	Qualitative expectations		Quantitative expectations			
	Own care	Partner's care	p50	IQR	p50 both	IQR both
Any info	0.144*** (0.0347)	0.0918** (0.0416)	0.344** (0.145)	0.222 (0.171)	0.0689 (0.0913)	0.0247 (0.111)
Constant	2.623*** (0.0281)	2.736*** (0.0336)	2.362*** (0.114)	3.160*** (0.140)	1.411 (0.0730)	1.907 (0.0905)
F(1, N-3)	17.33***	4.87**	5.64**	1.69	0.57	0.05
N	1901	1393	1513	1513	1155	1155
<b>b. OLS: <math>\text{pref. LTC}_i = \beta_0 + \beta_1 \text{exp}_i + \varepsilon_i</math></b>						
	Posterior means mixed logit model (2) (standardized)					
	Intent	Domestic	Personal	Social	Devices	Housing
Expectation – own	0.0470*** (0.0158)	0.118*** (0.0323)	0.0977*** (0.0335)	0.134*** (0.0327)	0.125*** (0.0325)	0.00865 (0.0318)
Constant	0.401*** (0.0443)	-0.323*** (0.0912)	-0.265*** (0.0949)	-0.375*** (0.0930)	-0.343*** (0.0920)	-0.00390 (0.0887)
N	1901	1901	1901	1901	1901	1901
<b>c. 2SLS: <math>\text{pref. LTC}_i = \beta_0 + \beta_1 \text{exp}_i + \varepsilon_i</math>; <math>\text{exp}_i</math> instrumented by info dummy</b>						
	Posterior means mixed logit model (2) (standardized)					
	Intent	Domestic	Personal	Social	Devices	Housing
Expectation – own	-0.326* (0.189)	0.169 (0.335)	-0.0488 (0.339)	0.0699 (0.333)	0.279 (0.335)	0.350 (0.338)
Constant	1.413*** (0.515)	-0.461 (0.912)	0.133 (0.922)	-0.201 (0.904)	-0.761 (0.910)	-0.932 (0.918)
N	1901	1901	1901	1901	1901	1901

Robust standard errors in parentheses; \* p<0.10, \*\* p<0.05, \*\*\* p<0.01

## E Preference heterogeneity for different dimensions of care

**Table E1:** Covariates of preference for domestic care (standardized)

	Dependent variable: posterior mean preference for domestic care					
	(1)		(2)		(3)	
<b>Demographics</b>						
Female	0.137***	(0.0469)	0.0972**	(0.0471)	0.0924**	(0.0470)
Partner	-0.173***	(0.0653)	-0.207***	(0.0649)	-0.366**	(0.155)
Age/100	0.0388	(2.132)	0.294	(2.127)	0.275	(2.138)
Age squared/100	-0.00175	(0.0177)	-0.00455	(0.0177)	-0.00304	(0.0178)
Has children	-0.0985	(0.0655)	-0.116*	(0.0683)	-0.0987	(0.0689)
Homeowner	0.0349	(0.0615)	0.0385	(0.0612)	0.0336	(0.0613)
Log net HH income	0.204***	(0.0754)	0.251***	(0.0746)	0.245***	(0.0744)
Low gross HH income	0.0649	(0.107)	0.103	(0.104)	0.0963	(0.105)
Education – vocational	-0.111*	(0.0591)	-0.110*	(0.0589)	-0.0930	(0.0588)
Education – university	-0.128**	(0.0635)	-0.104*	(0.0631)	-0.0910	(0.0632)
Health – no problems	-0.0121	(0.0689)	0.00139	(0.0686)	0.0225	(0.0702)
<b>Preferences</b>						
Risk aversion			0.0679***	(0.0169)	0.0623***	(0.0171)
Patience			0.0198	(0.0178)	0.0220	(0.0177)
Impulsiveness			0.00636	(0.0200)	0.00499	(0.0200)
Strength bequest motive (percent of windfall allocated to bequest; baseline: 0%)						
Bequest motive – 1-20%			0.227**	(0.101)	0.217**	(0.102)
Bequest motive – 21-49%			0.256***	(0.0915)	0.248***	(0.0922)
Bequest motive – 50%			0.131	(0.0833)	0.119	(0.0840)
Bequest motive – 51-80%			0.183**	(0.0891)	0.181**	(0.0896)
Bequest motive – 81-99%			-0.109	(0.183)	-0.0871	(0.182)
Bequest motive – 100%			-0.190	(0.125)	-0.199	(0.126)
<b>Expectations</b>						
Availability informal care by someone else than partner (baseline: definitely not)						
Definitely					-0.217**	(0.108)
Probably					-0.0308	(0.0840)
Maybe					-0.0368	(0.0740)
Probably not					-0.0356	(0.0729)
Expected care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					-0.0102	(0.119)
Average					0.154	(0.117)
Longer than average					0.121	(0.143)
Expected <i>partner's</i> care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					0.153	(0.156)
Average					0.167	(0.153)
Longer than average					0.194	(0.167)
Constant	-1.368	(0.839)	-2.341***	(0.849)	-2.406***	(0.858)
Observations	1,901		1,901		1,901	
R-squared	0.015		0.038		0.048	

Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Sample excludes individuals who currently receive or need long-term care.

Posterior means from mixed logit with correlated random preference for all attributes except price (specification (2) in table 5).

**Table E2:** Covariates of preference for personal care (standardized)

	Dependent variable: posterior mean preference for personal care					
	(1)		(2)		(3)	
<b>Demographics</b>						
Female	0.103**	(0.0471)	0.0781*	(0.0474)	0.0716	(0.0473)
Partner	-0.170**	(0.0660)	-0.182***	(0.0657)	-0.220	(0.160)
Age/100	-0.103	(2.016)	-0.0290	(2.020)	0.0607	(2.021)
Age squared/100	-0.000936	(0.0167)	-0.00224	(0.0167)	-0.00180	(0.0167)
Has children	-0.165**	(0.0654)	-0.128*	(0.0673)	-0.109	(0.0673)
Homeowner	0.159***	(0.0612)	0.163***	(0.0612)	0.162***	(0.0613)
Log net HH income	0.209***	(0.0776)	0.244***	(0.0754)	0.239***	(0.0753)
Low gross HH income	0.0950	(0.104)	0.131	(0.103)	0.128	(0.103)
Education – vocational	0.0911	(0.0581)	0.0898	(0.0578)	0.104*	(0.0581)
Education – university	0.0316	(0.0632)	0.0451	(0.0633)	0.0579	(0.0636)
Health – no problems	0.0391	(0.0688)	0.0532	(0.0683)	0.0742	(0.0692)
<b>Preferences</b>						
Risk aversion			0.0327*	(0.0173)	0.0262	(0.0175)
Patience			0.00644	(0.0175)	0.00672	(0.0175)
Impulsiveness			0.000968	(0.0203)	-0.000475	(0.0203)
Strength bequest motive (percent of windfall allocated to bequest; baseline: 0%)						
Bequest motive – 1-20%			-0.0639	(0.106)	-0.0643	(0.107)
Bequest motive – 21-49%			0.107	(0.0925)	0.103	(0.0935)
Bequest motive – 50%			-0.0991	(0.0865)	-0.104	(0.0879)
Bequest motive – 51-80%			-0.102	(0.0904)	-0.0967	(0.0914)
Bequest motive – 81-99%			-0.538***	(0.186)	-0.505***	(0.186)
Bequest motive – 100%			-0.401***	(0.136)	-0.418***	(0.138)
<b>Expectations</b>						
Availability informal care by someone else than partner (baseline: definitely not)						
Definitely					-0.118	(0.116)
Probably					-0.0724	(0.0825)
Maybe					-0.0523	(0.0737)
Probably not					0.0128	(0.0740)
Expected care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					0.108	(0.133)
Average					0.201	(0.132)
Longer than average					0.184	(0.156)
Expected <i>partner's</i> care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					-0.0470	(0.160)
Average					0.0812	(0.157)
Longer than average					-0.0227	(0.176)
Constant	-1.546*	(0.824)	-1.963**	(0.823)	-2.124**	(0.829)
Observations	1,901		1,901		1,901	
R-squared	0.023		0.042		0.052	

Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Sample excludes individuals who currently receive or need long-term care.

Posterior means from mixed logit with correlated random preference for all attributes except price (specification (2) in table 5).



**Table E3:** Covariates of preference for social care (standardized)

	Dependent variable: posterior mean preference for social care					
	(1)		(2)		(3)	
<b>Demographics</b>						
Female	0.0576	(0.0471)	0.0276	(0.0476)	0.0203	(0.0476)
Partner	-0.200***	(0.0641)	-0.218***	(0.0639)	-0.221	(0.155)
Age/100	-3.045	(2.068)	-2.757	(2.078)	-2.798	(2.089)
Age squared/100	0.0223	(0.0171)	0.0196	(0.0172)	0.0218	(0.0173)
Has children	-0.123*	(0.0659)	-0.126*	(0.0683)	-0.116*	(0.0690)
Homeowner	0.0833	(0.0611)	0.0837	(0.0611)	0.083	(0.0612)
Log net HH income	0.210***	(0.0741)	0.246***	(0.0736)	0.245***	(0.0736)
Low gross HH income	0.164	(0.101)	0.194*	(0.0999)	0.196**	(0.0998)
Education – vocational	0.0132	(0.0591)	0.0177	(0.0591)	0.0417	(0.0593)
Education – university	-0.0596	(0.0627)	-0.0434	(0.0628)	-0.0264	(0.0628)
Health – no problems	0.0241	(0.0679)	0.0335	(0.0677)	0.0761	(0.0686)
<b>Preferences</b>						
Risk aversion			0.0455***	(0.0171)	0.0416**	(0.0171)
Patience			0.00348	(0.0177)	0.00184	(0.0176)
Impulsiveness			-0.0137	(0.0202)	-0.0131	(0.0202)
Strength bequest motive (percent of windfall allocated to bequest; baseline: 0%)						
Bequest motive – 1-20%			0.0723	(0.103)	0.0653	(0.105)
Bequest motive – 21-49%			0.160*	(0.0911)	0.145	(0.0923)
Bequest motive – 50%			0.0467	(0.0825)	0.0348	(0.0840)
Bequest motive – 51-80%			0.0664	(0.0866)	0.0624	(0.0874)
Bequest motive – 81-99%			-0.0747	(0.191)	-0.0485	(0.191)
Bequest motive – 100%			-0.287**	(0.128)	-0.303**	(0.128)
<b>Expectations</b>						
Availability informal care by someone else than partner (baseline: definitely not)						
Definitely					-0.075	(0.117)
Probably					0.0705	(0.0829)
Maybe					0.0329	(0.0742)
Probably not					0.0654	(0.0744)
Expected care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					0.0253	(0.129)
Average					0.19	(0.127)
Longer than average					0.291*	(0.150)
Expected <i>partner's</i> care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					-0.0657	(0.158)
Average					0.023	(0.152)
Longer than average					-0.0267	(0.168)
Constant	-0.534	(0.809)	-1.088	(0.815)	-1.336	(0.825)
Observations	1901		1901		1901	
R-squared	0.016		0.028		0.039	

Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Sample excludes individuals who currently receive or need long-term care.

Posterior means from mixed logit with correlated random preference for all attributes except price (specification (2) in table 5).

**Table E4:** Covariates of preference for monthly budget devices (standardized)

	Dependent variable: posterior mean preference monthly budget for devices					
	(1)		(2)		(3)	
<b>Demographics</b>						
Female	0.0712	(0.0473)	0.0414	(0.0479)	0.0383	(0.0478)
Partner	-0.183***	(0.0640)	-0.204***	(0.0641)	-0.352**	(0.149)
Age/100	-2.086	(2.049)	-1.911	(2.045)	-2.008	(2.063)
Age squared/100	0.0144	(0.0168)	0.0127	(0.0168)	0.0152	(0.0169)
Has children	-0.0880	(0.0668)	-0.111	(0.0695)	-0.0998	(0.0705)
Homeowner	0.0144	(0.0617)	0.0134	(0.0617)	0.0122	(0.0618)
Log net HH income	0.157**	(0.0730)	0.188**	(0.0731)	0.186**	(0.0733)
Low gross HH income	0.117	(0.100)	0.142	(0.0999)	0.138	(0.0996)
Education – vocational	0.0233	(0.0602)	0.0262	(0.0602)	0.0489	(0.0605)
Education – university	-0.0622	(0.0627)	-0.0457	(0.0629)	-0.0285	(0.0629)
Health – no problems	0.00717	(0.0680)	0.0139	(0.0678)	0.0528	(0.0691)
<b>Preferences</b>						
Risk aversion			0.0497***	(0.0169)	0.0456***	(0.0171)
Patience			0.00914	(0.0184)	0.00829	(0.0183)
Impulsiveness			-0.00443	(0.0206)	-0.00272	(0.0206)
Strength bequest motive (percent of windfall allocated to bequest; baseline: 0%)						
Bequest motive – 1-20%			0.1000	(0.101)	0.0913	(0.102)
Bequest motive – 21-49%			0.161*	(0.0886)	0.148*	(0.0896)
Bequest motive – 50%			0.103	(0.0803)	0.0924	(0.0814)
Bequest motive – 51-80%			0.145*	(0.0848)	0.140	(0.0856)
Bequest motive – 81-99%			0.0298	(0.189)	0.0409	(0.188)
Bequest motive – 100%			-0.180	(0.125)	-0.194	(0.125)
<b>Expectations</b>						
Availability informal care by someone else than partner (baseline: definitely not)						
Definitely					-0.0804	(0.115)
Probably					0.0229	(0.0821)
Maybe					0.0242	(0.0737)
Probably not					0.0242	(0.0734)
Expected care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					-0.125	(0.126)
Average					0.0676	(0.125)
Longer than average					0.148	(0.148)
Expected <i>partner's</i> care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					0.130	(0.153)
Average					0.157	(0.146)
Longer than average					0.157	(0.165)
Constant	-0.372	(0.813)	-0.976	(0.821)	-1.057	(0.833)
Observations	1,901		1,901		1,901	
R-squared	0.011		0.023		0.033	

Robust standard errors in parentheses; \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$

Sample excludes individuals who currently receive or need long-term care.

Posterior means from mixed logit with correlated random preference for all attributes except price (specification (2) in table 5).

**Table E5:** Covariates of preference for lump sum for home improvement (standardized)

	Dependent variable: posterior mean preference for lump sum for home improvement					
	(1)		(2)		(3)	
<b>Demographics</b>						
Female	0.0240	(0.0459)	0.0190	(0.0466)	0.0221	(0.0470)
Partner	0.0607	(0.0642)	0.0619	(0.0645)	-0.0539	(0.153)
Age/100	2.512	(1.945)	2.771	(1.958)	2.799	(1.954)
Age squared/100	-0.0307*	(0.0161)	-0.0327**	(0.0162)	-0.0330**	(0.0162)
Has children	-0.0267	(0.0642)	-0.0365	(0.0662)	-0.0560	(0.0672)
Homeowner	-0.0294	(0.0602)	-0.0251	(0.0604)	-0.0227	(0.0602)
Log net HH income	-0.0161	(0.0661)	-0.000924	(0.0656)	-0.00234	(0.0656)
Low gross HH income	-0.131	(0.0970)	-0.121	(0.0972)	-0.114	(0.0975)
Education – vocational	-0.00668	(0.0597)	-0.00433	(0.0598)	-0.00752	(0.0603)
Education – university	0.00475	(0.0622)	0.00871	(0.0623)	0.0134	(0.0622)
Health – no problems	-0.0681	(0.0653)	-0.0692	(0.0660)	-0.107	(0.0663)
<b>Preferences</b>						
Risk aversion			-0.00879	(0.0163)	-0.00465	(0.0165)
Patience			-0.00277	(0.0167)	-0.00485	(0.0167)
Impulsiveness			-0.00545	(0.0185)	-0.00448	(0.0186)
Strength bequest motive (percent of windfall allocated to bequest; baseline: 0%)						
Bequest motive – 1-20%			0.209**	(0.0978)	0.199**	(0.0980)
Bequest motive – 21-49%			0.162*	(0.0942)	0.150	(0.0952)
Bequest motive – 50%			0.108	(0.0817)	0.0898	(0.0821)
Bequest motive – 51-80%			0.119	(0.0847)	0.0954	(0.0856)
Bequest motive – 81-99%			-0.126	(0.162)	-0.159	(0.162)
Bequest motive – 100%			-0.0654	(0.117)	-0.0779	(0.118)
<b>Expectations</b>						
Availability informal care by someone else than partner (baseline: definitely not)						
Definitely					0.262**	(0.115)
Probably					0.0956	(0.0829)
Maybe					0.145*	(0.0762)
Probably not					0.0950	(0.0737)
Expected care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					-0.0902	(0.113)
Average					-0.0863	(0.115)
Longer than average					-0.279**	(0.142)
Expected <i>partner's</i> care use relative to average for gender and age (baseline: much shorter)						
Shorter than average					0.114	(0.153)
Average					0.108	(0.153)
Longer than average					0.170	(0.161)
Constant	-0.162	(0.754)	-0.378	(0.768)	-0.334	(0.784)
Observations	1,901		1,901		1,901	
R-squared	0.022		0.029		0.035	

Robust standard errors in parentheses; \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Sample excludes individuals who currently receive or need long-term care.

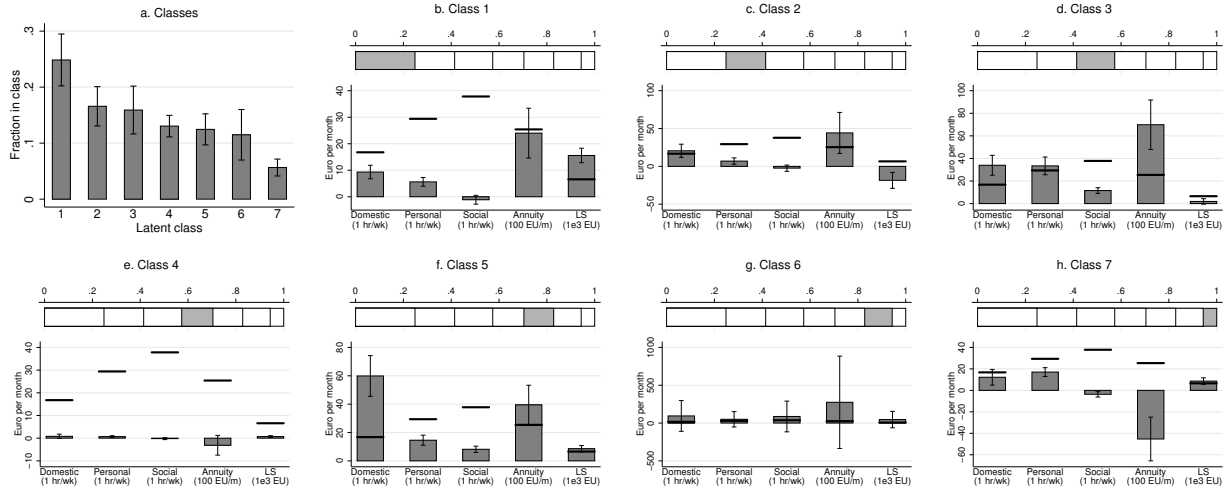
Posterior means from mixed logit with correlated random preference for all attributes except price (specification (2) in table 5).

## F Estimates of latent class model

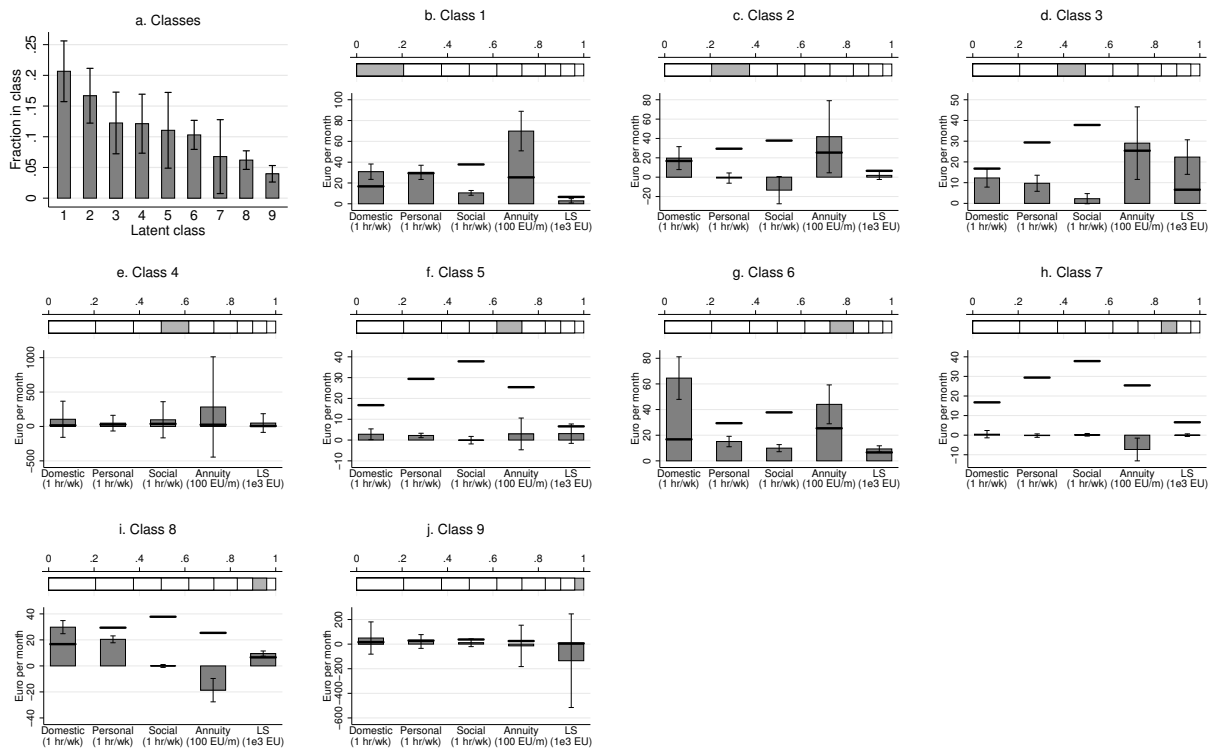
**Table F1:** Selection of number of latent classes

Classes	LLF	Parameters	AIC	CAIC	BIC
2	-14823.33	13	29672.67	29760.91	29747.91
3	-14527.96	20	29095.93	29231.69	29211.69
4	-14288.76	27	28631.51	28814.80	28787.80
5	-14206.67	34	28481.34	28712.14	28678.14
6	-14083.56	41	28249.12	28527.44	28486.44
7	-13973.15	48	28042.3	28368.14	28320.14
8	-13955.42	55	28020.83	28394.18	28339.18
9	-13864.51	62	27853.01	28273.88	28211.88
10	-13838.82	69	27815.64	28284.02	28215.02
11	-13789.08	76	27730.16	28246.07	28170.07
12	-13786.30	83	27738.61	28302.03	28219.03
13	-13754.64	90	27689.28	28300.22	28210.22
14	-13753.40	97	27700.8	28359.25	28262.25
15	-13710.49	104	27628.98	28334.95	28230.95
16	-13697.55	111	27617.11	28370.60	28259.60
17	-13708.28	118	27652.56	28453.57	28335.57
18	-13682.75	125	27615.5	28464.03	28339.03
19	-13678.35	132	27620.69	28516.74	28384.74
20	-13673.78	139	27625.57	28569.13	28430.13

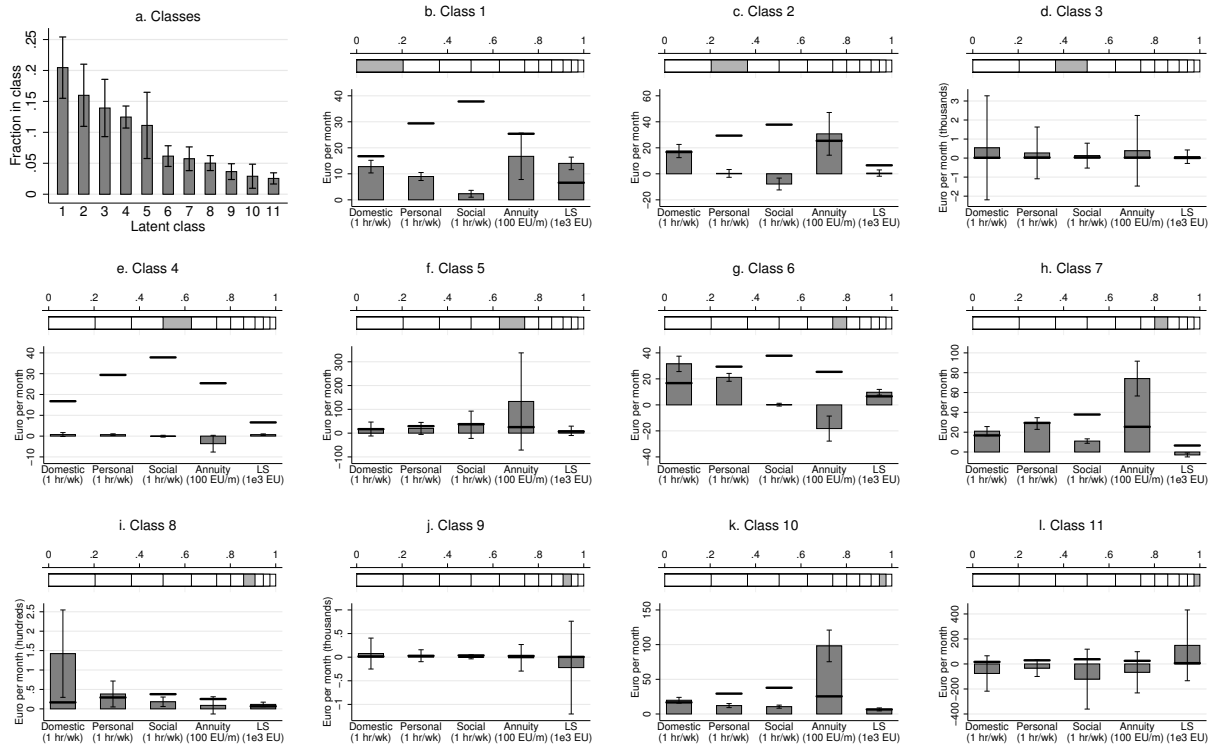
Estimation by Expectation Maximization algorithm. The maximum number of iterations was capped at 150 to limit runtime. Subsequent estimation of the models with 5, 7, 9 or 11 classes proceeds without binding cap on the number of iterations.



**Figure F1:** Distribution of willingness-to-pay for attributes derived from latent class model with 7 classes (LLH = -13,973.11)



**Figure F2:** Distribution of willingness-to-pay for attributes derived from latent class model with 9 classes (LLH = -13,862.99)



**Figure F3:** Distribution of willingness-to-pay for attributes derived from latent class model with 11 classes (LLH = -13,786.89)