

# The psychology and economics of reverse mortgage attitudes: evidence from the Netherlands

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## **VERY PRELIMINARY – PLEASE DO NOT QUOTE**

### Abstract

This paper presents the results from a survey on the attitudes of homeowners aged 45 and over in the Netherlands toward reverse mortgages. It uses two different frames for suggestions on the use of the loan - a selfish and an altruistic one- and analyzes the results using individual objective and subjective background characteristics as explanatories. Rationally, people should be more interested if their housing wealth is large relative to their replacement ratio, and if their pension income is riskier (consumption smoothing motive), and if the age difference with their children is smaller (bequest motive). We find that there is huge potential interest in reverse mortgages, especially for the purpose of having a large sum of money to spend to be able to start a business or splurge on luxury travel when retired but still in good health. This differs from findings for Italy, where a reverse mortgage is primarily seen as a last resort.

## 1. Introduction

From the point of view of optimal consumption smoothing, evidence indicates that older households under-decumulate wealth (Brunetti et al., 2012). One reason is that they hold a large part of their wealth in illiquid assets, namely their home. From the point of view of portfolio risk management this large fraction of wealth in housing is not a problem, as home ownership implies prepayment of future housing consumption (Merton, 2007). For retirees who are stone rich but cash poor, decumulating wealth through a reverse mortgage on their home would facilitate consumption smoothing over the life cycle without requiring them to move to a smaller home, or to a rented home. A reverse mortgage could also be used to cushion shocks in retirement income, and to optimally time bequests (Merton, 2007). Fornero and Rossi (2012) even argue that homeowners should consider using part of their illiquid wealth for investing in their children's future.

The recent past has seen major changes in the characteristics and the future of the Dutch employee pension plan. Not only has it revealed to the general public that the second layer does not guarantee indexation or a nominal wage, let alone a real wage, it has also forced some pension funds to effectively cut indexation for both current retirees and for employees pension claims, and some funds have lowered nominal pension income (both those of retirees and claims to future pensions) as of April 2013. Until before the financial crisis, the risk of underfunding was assumed to be very low, and the plans in the Netherlands were regarded as relatively safe as far as both nominal and real rights were concerned (Van Rooij, Kool and Prast, 2007). With the new situation, households need to take more financial planning decisions, and a reverse mortgage loan may be a useful instrument for optimal financial planning in the face of risky pensions. With pensions becoming less generous and with pension risk increasingly shifted toward households, there is an increased need for households to make individual life cycle saving and investing decisions. In this respect it is also important that the financial industry adapts by creating useful products that help families manage life-cycle risk (Merton and Bodie; Bodie and Prast, 2011). A reverse mortgage may help optimally manage pension risk, smooth consumption and manage bequests. With life expectancy increased, parents are now leaving bequests to their children at a moment in life in which,

from an optimal life cycle planning point of view, their children should start decumulating wealth. Reverse mortgages may help households to optimally save and invest both over their lifecycle and across economic states, and to optimally time bequests, without requiring households to become financial experts.

This paper presents the results from a survey on the attitudes of homeowners aged 45 and over in the Netherlands toward reverse mortgages. It uses two different frames for suggestions on the use of the loan - a selfish and an altruistic one- and analyzes the results using individual objective and subjective background characteristics as explanatories. In doing so, it assesses whether those who rationally should be more interested. For example, interest should rationally be higher among those with low income relative to housing wealth, a low expected replacement ratio, longer live expectancy, and a small age difference with their children.

Our main findings are the following. More than 25% is interested in taking, once retired, a reverse mortgage loan on their home. Forty percent is neutral, which may imply that the potential interest is even higher – people in the Netherlands are not familiar with the concept, also because reverse mortgage are only offered at unattractive conditions, eg with home owners required to sell as soon as the value of the home becomes smaller than the mortgage amount. As far as objective background variables are concerned, the interest in taking a reverse mortgage loan increases with age until reaching a maximum at 62, and falls afterwards. We interpret this as reflecting the fact that people aged 45 – 62 know that there pension will be much less generous and riskier than that for the babyboomers and have to retire later, and with people approaching 62 not being able to change behaviour in order to increase their future pension (save more, retire later, work more hours). There is a slight gender difference, with women less interested. There is no significant effect of age difference with the oldest child, which we do not find surprising as it is well known that most people are unaware that children's utility depends on the timing and certainty of bequests (Merton, ...). Financial literacy does not play a role.

We also confront our results with those found for Italy. On the one hand, challenges to retirement planning are similar in these two countries, with pensions becoming less generous and more risky, and with the retirement age increasing. On the other, housing wealth and pension schemes differ. In the Netherlands, (forward) mortgages are high because of the generous fiscal treatment of mortgage interest rates, while in Italy home owners tend to have little or no housing debt. In the Netherlands, only a small part of homes remains in the family, while in Italy more families live in homes (and on land) that they inherited from their parents. In the Netherlands, children tend to move to their own home (rented or bought) at a much younger age than children do in Italy, where many continue to live with their parents for a long time. Finally, in the Netherlands the second layer pension is important, whereas Italy relies more on third pillar arrangements. We find that in the Netherlands a reverse mortgage is seen more as an instrument to be able to spend money when retired but in good health, on travel, a vacation home or starting a business. This differs from Italy, where it is primarily seen as ultimate resort in case of financial hardship.

## 2. Background

A reverse mortgage (RM) is a financial instrument specifically designed for the elderly homeowners allowing them to borrow against their home equity. In a nutshell, reverse mortgage is a loan, whose value can be, at most, equal to the housing value at death, discounted at the time of subscription.

The formula (in a lump sum) is as follows:

$$A_i = H(1 + p)^{e_i} \times \frac{1}{(1 + r)^{e_i}}$$

Where A is the lump sum at subscription, p is the predicted annual appreciation rate, e is the expected remaining lifetime, r the interest rate and H the current house value. RMs can be paid out as a lump sum, through fixed monthly payments (term, tenure plan or life annuity), as a line of credit, or as a combination of term / tenure plan and line of credit (Rodda et al.)

In the US, the reverse mortgage market has developed over the past decades. In Europe the market is non-existent or very thin. This could be due to suboptimal supply and/or demand. Wicke (2008) estimates that potential demand in Germany is about 1 mln households. Based on an expert survey, Lang (2008) concludes that the great obstacle to the acceptance of reverse mortgage products in Germany is a lack of understanding among the public as to their function and the wish to pass property along to heirs without encumbrances or debts. For Italy, Fornero et al (2012) find that lack of interest for the product is due to the fact that reverse mortgages are not perceived as a financial planning instrument, but rather as a last resort choice in case of emergency.

After retirement, pension income is fixed and there is little people can do about it. Resorting to extra labour supply is not an option at old age, and fewer strategies other than using wealth can be adopted. The level of wealth people have accumulated by retirement is the most important source to draw on. The ability to reach a higher level of wealth to rely upon, depends on the ability to save efficiently and with high returns. However, the stock of available wealth at retirement is the result of past choices which are no longer reversible. The use of wealth at retirement could be realized through the subscription of annuities, which convert (at least part of) the private wealth into a stream of cash flows until the person dies. Leaving aside the amount of wealth households want to leave to their heirs, Yaari (1965) shows that everything else would be converted into annuities, as the implicit interest rate of an annuity beats the market, given the characteristics of incorporating life survival probabilities.

Home equity release products, such as reverse mortgages or the sale of the bare ownership (home reversal programs in the UK, viager in France) can convert housing equity into cash, by releasing households' needs of liquidity. Drawing down housing assets, albeit only partially, might be the key to increase their liquidity in a stage of the life cycle where income has dramatically dropped after retirement. Nowadays pension systems are based on defined contributions rules, rather than defined benefits rules, so that the system is sustainable for the public budget. Given the contributions people make, the accrual of the contributions over

time will determine the pension wealth available once retirement occurs, which is converted into a flow of pension income streams until death. On average in Europe pension income is about 50% of last labour income, given the actuarially fair rule stating the equivalence of contributions given and benefits received. In Europe, the average housing equity of people aged 50 or more is around 200,000 euro: when housing constitutes a substantial value, it could represent an easy channel to use to guarantee a higher income flow other than pension. Reverse mortgage would enable retirees to cushion pension income shocks. However, surprisingly little attention has been devoted to these products and little effort has been put into the institutional settings ruling them.

### **Literature Review**

Potential demand: Venti and Wise (1987) maintain that, most income poor elderly also have a relatively small amount of housing wealth, therefore a reverse mortgages would determine only a small percentage increase in income, even at low income levels. For this reason, they believe that the potential market is limited to very old, single persons. Mayer & Simons (1993) claim instead that the potential market for reverse mortgages is quite large, as many elderly could use it to pay off pre-existing debts.

Supply side: Limitations on the supply side can be explained by risk factors faced by the credit institutions, primarily related to the dynamics of interest rates and house prices, as well as by the potential adverse selection in case of extremely long lived mortgagors, and moral hazard in case of meagre house maintenance by homeowners intending to default on their contract obligations. In order to compensate for all such risks, lenders charge hefty insurance fees, which together with high commissions and compound interests make reverse mortgages rather costly. Davidoff & Welke (2005) investigate adverse selection by comparing the mobility rates between reverse mortgage borrowers and not borrowers. Interestingly, they unearth advantageous selection, as the homeowners who take out the loan are also more likely to sell their home and therefore repay it earlier.

Regulatory concerns: Mitchell & Piggot (2003) highlight the potential for reverse mortgages not only to boost consumption among the elderly, but also to reduce public pension liability,

and mitigate the demand for long term care facilities. In this case, the government would play a substantial role in improving the efficiency of capital markets and providing safeguards for both borrowers and lenders, in order to support the development of a market for reverse mortgages.

Ong (2003) highlights the unfavourable tax regimes as one of the reasons behind the scarce development of reverse mortgage market in the UK, in case a reverse mortgage annuity were to be taxed hence reducing social security entitlements. Another important issue is whether or not countries introducing home equity release products also provide a strict regulation in case of negative equity (the no-negative equity guarantee), and how this regulation is explained to the potential borrowers. For example, Reed (2009) documents concern among Australian borrowers regarding the possibility of being evicted in case of negative equity.

### **3. Data, methodology, summary statistics**

Our data have been collected through an internet survey in December 2012 among the participants of the CentERpanel run by CentERdata at Tilburg University. CentERdata is a survey research institute that is specialized in data collection and internet surveys. The CentERpanel consists of about 2000 households representative of the Dutch-speaking population in the Netherlands. The subset of homeowners aged 45+ consists of [...] respondents. The questionnaires are answered at home using an internet connection. Data collected with internet surveys display higher validity and less social desirability response bias than those collected via telephone interviewing (Chiang and Krosnick, 2003).<sup>1</sup> Panel members fill out short questionnaires via the internet on a weekly basis. Annually, they provide information on individual income, household wealth, health, employment, pensions, savings attitudes, and savings behavior for the DNB Household Survey (DHS), providing

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<sup>1</sup> CentERdata forms part of the CentER Group at Tilburg University. See also <http://www.uvt.nl/centerdata/en>. Households who do not have access to a pc are provided with a set-top-box for their television. In case of attrition of panel members, CentERdata selects new members to keep the panel representative for the Dutch population. High income members are somewhat overrepresented. We have verified that this does not affect the descriptive statistics qualitatively. If the first questionnaire was not completed the first time, we offered the questionnaire for a second and if necessary a third time to the group of non-respondents to improve the response rate (actually the survey weekends fell within the summer vacation period ).

researchers with a rich set of background information on the respondents. The availability of a computer or internet connection is not a prerequisite of the selection procedure, which is done by a combination of recruiting randomly selected households over the phone and by house visits. After having agreed to participate, panel members receive explanation on survey administration, which is conducted via the internet. If necessary, either a computer with internet access or alternative equipment such as a set-top box for communication through the television is provided to respondents. Participants do not receive financial incentives to fill out questionnaires. The panel has been used in many studies of financial behavior and attitudes (see for instance Van Rooij, Kool and Prast, 2007) and financial literacy and retirement planning in the Netherlands (see Alessie, Van Rooij and Lusardi, 2011), and the effects of pension information on behavior (Prast, Teppa and Smits, 2012). For a complete description of the CentERpanel and the DHS, see Teppa and Vis (2012).

The main focus of the questionnaire devised for this paper was to assess whether homeowners, aged 45+ and employees would be interested in a reverse mortgage loan at retirement. For the specific purpose of our paper we designed a new module, run in December 2012 (week 49), specifically designed to investigate the potential for reverse mortgages. The questionnaire was administered to a subset of respondents to the Center dataset. Selected households are homeowners aged 45 and over, totalling 1401 households of which 1145 fully completed the questionnaire (response percentage 81.7%).

Table 1 below gives the distribution of the respondents according to wealth and income (quintiles). From a rational point of view, one would expect that people with high housing wealth relative to income would be most interested in taking a reverse mortgage loan- although in other income/wealth categories, taking a reverse mortgage may also improve welfare through optimal asset decumulation and consumption smoothing over the life cycle. As wealth consists mostly of housing wealth (value of home net of mortgage), interest should be highest (cp) in the shaded area in Table 1.

Table 1: Distribution of income and wealth quintiles

	Wealth Quintiles					Total
	I	II	III	IV	V	
<b>Income Quintiles</b>						
<b>1</b>	26.4	20.9	17.9	17.9	16.9	100.0
	27.6	22.1	17.8	20.0	17.9	21.1
<b>2</b>	12.9	23.1	30.1	18.3	15.6	100.0
	12.5	22.6	27.7	18.9	15.3	19.5
<b>3</b>	19.9	19.9	19.9	21.5	18.8	100.0
	19.3	19.5	18.3	22.2	18.4	19.5
<b>4</b>	19.4	19.9	19.9	22.5	18.3	100.0
	19.3	20.0	18.8	23.9	18.4	20.0
<b>5</b>	21.6	15.8	18.4	14.2	30.0	100.0
	21.4	15.8	17.3	15.0	30.0	19.9
<b>Total</b>	20.1	19.9	21.2	18.9	19.9	100.0
	100.0	100.0	100.0	100.0	100.0	100.0

Source: own calculations from DNB dataset

Table 2: Distribution of Reverse Mortgage appeal, by income and housing wealth quintile

Income quintiles	Wealth quintiles					Total
	I	II	III	IV	V	
<b>1</b>	0.23	0.19	0.19	<b>0.19</b>	<b>0.26</b>	0.21
<b>2</b>	0.29	0.35	0.34	<b>0.09</b>	<b>0.24</b>	0.27
<b>3</b>	0.38	0.32	0.32	0.30	0.29	0.32
<b>4</b>	0.19	0.32	0.29	0.33	0.14	0.26
<b>5</b>	0.29	0.23	0.34	0.30	0.33	0.31
<b>Total</b>	0.27	0.28	0.3	0.24	0.26	0.27

Source: own calculations from DHS dataset

The question regarding the potential interest in reverse mortgage was framed in two different ways to capture the inheritance timing appeal that the reverse mortgage could have. Our provisional findings show that the framing of the questions does matter and makes the product better understood and more appreciated by people with high wealth. In this case, taking out a reverse mortgage would not conflict with the desire to leave a bequest, as the borrower could use the loan to help his/her children.

The interest in the reverse mortgage is particularly relevant where there is a potential mismatch between income and wealth. Put differently, households rich in wealth but poor in income (defined by Case and Schnare as the “House-rich cash-poor”) could greatly benefit from having access to a reverse mortgage. The table below illustrates the cross tabulation of income and wealth quintiles. If income and wealth were perfectly correlated we would expect to have all the density in the diagonal of the matrix. Conversely, we find that across different quintile of income, households are pretty evenly distributed across different quintiles of wealth. For example, approximately 16% of income-poorest families belong to the richest quintiles in wealth. On the other hand, among the richest in income (5th quintile), about 20% belong to the first wealth quintile. This evidence suggests that income and wealth are not strongly correlated, potentially giving a strong role to reverse mortgage as a tool to increase cash availability.

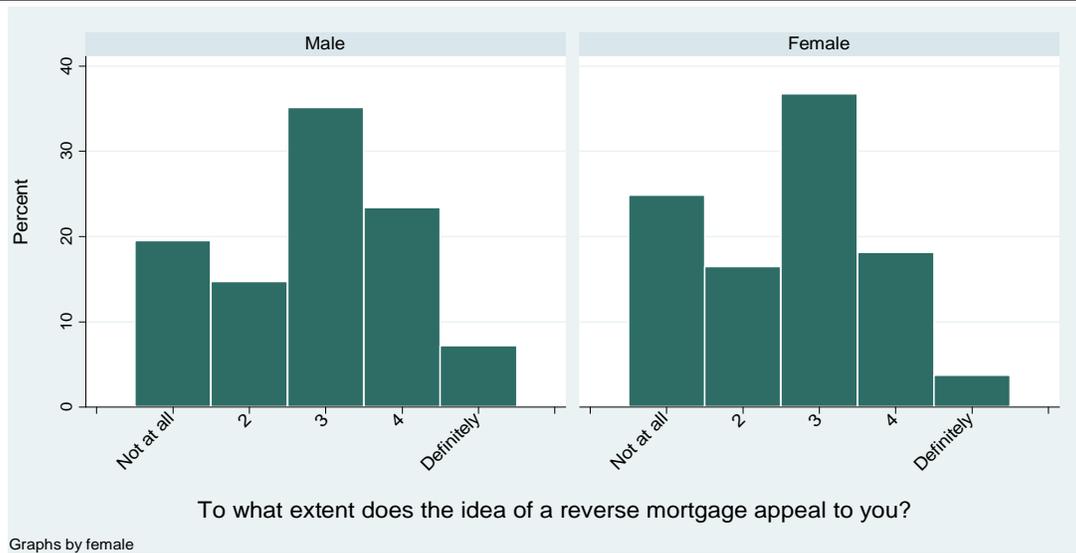
Turning now to the interest in RM products, let us first highlight that about 90% of the sample has not heard about the product before and is thus not familiar with it.

The main features of the financial product are explained to the respondents (see appendix) who are then asked to express how appealing they consider reverse mortgages on a scale from 1 to 5, 1 being not appealing at all and 5 definitely appealing. The majority of the respondents, roughly 36% claims to be indifferent, while a good 21% finds it quite appealing and roughly 6% finds it very appealing. The product is slightly preferred by men, as shown in the figure below.

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**Figure 1: Distribution of interest in reverse mortgage, by gender**


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*Source: DNB dataset*

In order to understand whether potentially mismatched households – with low income and high housing wealth – find the product more appealing, we first create a dichotomous variable equal to one if the respondent find reverse mortgages either very or quite appealing and zero otherwise (roughly 27% find reverse mortgages rather appealing) and then show a simple cross correlation in the table below.

From **Error! Reference source not found.**, we cannot see a clear correlation between interest in reverse mortgage and housing wealth or income quintiles, however, we do need a more accurate empirical strategy, controlling for relevant sets of covariates, in order to assess whether or not there is in fact a relationship.

As we have already mentioned, the question on reverse mortgages was framed in two different ways: in the first formulation, the emphasis was put on the needs of the retirees, reminding them that they could use the extra income for living more comfortably, taking a trip, buying luxury goods and so on; in the second formulation, the emphasis was put on the possibility to help children and grandchildren, either paying for their studies, or helping them start a business etc. (exact questions in appendix). Insights from behavioural economics teach

us that the way a sentence is framed has an impact on how we choose, and even in this case there seems to be an effect but it's not very large. More specifically, the percentage of people who find reverse mortgages “definitely or quite appealing” is slightly higher when the question is framed in a more selfish way, emphasising the needs of the retirees, rather than the needs of the children/grandchildren – 28% vs. 26%. However, the difference is not highly significant, as a simple t-test to compare the means tells us that we cannot reject the null hypothesis that the difference in the means is equal to zero

$$t = 0.6823; H_a = \mu(1) - \mu(2) \neq 0 : \Pr (|T| > |t|) = 0.4952$$

**Table 3: Mean reverse mortgage appeal, by framing**

<b>Framing</b>	<b>Obs</b>	<b>Mean</b>	<b>Sdt. err</b>	<b>Std. Dev</b>
<b>Personal Consumption</b>	585	0.28	0.02	0.45
<b>Bequest</b>	560	0.26	0.02	0.44
<b>Combined</b>	1145	0.27	0.01	0.44

*Source: own calculations from DHS data*

Respondents are also asked what kind of arrangement (lump sum, annuity, line of credit or a combinations of all) they would prefer if they decided to take out a reverse mortgage and the majority, over 31% chose the line of credit. We should however bear in mind that another 29% replied “I don’t know”.

Respondents who claimed not to find the product appealing were also asked to rate the importance of a few reasons for it, and their answers betray a certain desire not to depend too much on banks and not to have debts. Conversely, among the most important reasons behind the willingness to take out a reverse mortgage were the desire to live comfortably, to make a significant expenditure or to take it as a last resort in case they could not make ends meet with their pension income and old age pension benefit (AOW).

The results are consistent with the framing of the questions, as in the “selfish” framing respondents awarded a higher score to the cash on hand purpose of a reverse mortgage, while in the “unselfish” framing respondents gave a higher score to the bequest motive.

### **Empirical Strategy**

The level of appeal of reverse mortgages is measured on an ordinal scale represented by a discrete variable ranging from 1 for the respondents who find them least appealing to 5 for those who find them most appealing.

We assume that the discrete values are based on an underlying continuous and latent variable  $y_i^*$  and that this latent variable is a linear function of all the explanatory variables:

$$y_i^* = \beta'x + \varepsilon \quad \text{for } i = 1, 2, \dots, N$$

where  $\beta$  is a vector of parameters to be estimated,  $x$  is a vector of covariates,  $N$  is the number of respondents, and  $\varepsilon$  is the error term, which we assume to be normally distributed.

Let  $\mu_1 < \mu_2 < \mu_3 < \mu_4$  be the unknown threshold parameters or cut-off points. Then we observe  $y_i = 1$  if  $y_i^* \leq \mu_1$ ,  $y_i = 2$  if  $\mu_1 < y_i^* \leq \mu_2$ , etc.

The threshold parameters are estimated together with the  $\beta$  values to help match the probabilities associated with each discrete outcome. The probabilities of  $y_i$  being classified as equal to 1,...,5 are given by  $\text{Prob}(y_i = 1) = \text{Prob}(\beta'x + \varepsilon \leq \mu_1)$ ,  $\text{Prob}(y_i = 2) = \text{Prob}(\mu_1 < \beta'x + \varepsilon \leq \mu_2)$  etc. to be estimated as an ordered probit model by the maximum likelihood method (Greene 2003). We also calculate the marginal effects (at the mean value) to interpret results more clearly.

The vector of covariates  $x$  includes the following: a second order polynomial in age, the log of net household income, and several dummy variables to control for heterogeneity: household with children, female head of household, with medium or high education, and a dummy for the self-employed. The potential income-wealth mismatch is represented by a dummy taking the value of 1 if the household is in the highest housing wealth quintiles and lowest income quintiles, and zero otherwise. As a proxy for financial wealth, we use the statement “I expect

to have enough savings when I retire” rated on a scale from 1 to 10; for negative retirement expectations we use the statement “I expect to need to deal with disappointing pension income”; the framing effects are taken into account through an interaction between the wish to leave a bequest and the framing of the reverse mortgage question in terms of bequest, while the actual bequest motive is proxied by two indicators for the probability to leave a small inheritance (10k) or a rather large one (500k). Finally we also control for the presence of other mortgages and for the presence of second homes.

### **Ordered probit preliminary results**

Table 4 shows the first results, some of which are very intuitive and some of which betray a potential irrationality.

Reverse mortgages are more appealing among households with higher income, among the self employed, those who wish to increase consumption and those who wish to move to a smaller dwelling. Conversely, most of the remaining regressors have a negative sign. For instance, reverse mortgages have a lower appeal among households headed by female, households with children, those who wish to leave a very large bequest (over 500k), and those who have negative expectations regarding their future pension income.

The effect of ageing is concave as it increases roughly until 67 and then starts decreasing. A possible explanation lies in the recent pension reforms which would affect different cohorts in different ways.

Two elements are particularly worthy of notice: the first one is the framing effect and the second is the lack of significant interest among the potentially mismatched.

If people acted in a purely rational way, we would expect no framing effects. However, framing does matter, and it affects people’s responses in a way we would predict. More specifically, while the wish to leave a bequest and the unselfish framing have a negative effect on the appeal of reverse mortgages by themselves, the effect becomes positive when interacted. In other words, by activating a given kind of scenario, people will find the product more appealing if it fits with their desires.

As for the mismatch, we find it rather puzzling. The “House-rich cash-poor” are people who would confine themselves to a life of forced poverty, by sitting on a considerable amount of wealth that they do not appear to be willing to liquidate, and this remains true even after taking into account possible bequest wishes. It would appear as though housing wealth is seen as some kind of shadow wealth.

Table 4: Ordered probit results

Appeal of Reverse		Marginal Effects on Probabilities				
Mortgage	Coeff.	Y=1 (No)	Y=2 (Not really)	Y=3 (Neutral)	Y=4 (Quite)	Y=5 (Definitely)
	b/se	b/se	b/se	b/se	b/se	b/se
Age	0.094** (0.05)	-0.026** (0.01)	-0.010** (0.00)	0.005* (0.00)	0.021** (0.01)	0.009** (0.00)
Age squared	-0.001** (0.00)	0.000** (0.00)	0.000* (0.00)	-0.000* (0.00)	-0.000** (0.00)	-0.000* (0.00)
Female (d)	-0.182* (0.10)	0.051* (0.03)	0.018* (0.01)	-0.011 (0.01)	-0.041* (0.02)	-0.017* (0.01)
Worse health	-0.158** (0.06)	0.043** (0.02)	0.016** (0.01)	-0.008** (0.00)	-0.036** (0.01)	-0.015** (0.01)
Children (d)	-0.214* (0.11)	0.055** (0.03)	0.023* (0.01)	-0.006** (0.00)	-0.049* (0.03)	-0.023* (0.01)
Log of Net Income	0.211* (0.12)	-0.058* (0.03)	-0.021* (0.01)	0.011 (0.01)	0.048* (0.03)	0.020* (0.01)
Mis-match	0.093 (0.10)	-0.025 (0.03)	-0.010 (0.01)	0.004 (0.00)	0.021 (0.02)	0.009 (0.01)
Inher_10k	0.002* (0.00)	-0.001* (0.00)	-0.000* (0.00)	0.000* (0.00)	0.001* (0.00)	0.000* (0.00)
Inher_500k	-0.007*** (0.00)	0.002*** (0.00)	0.001*** (0.00)	-0.000** (0.00)	-0.001*** (0.00)	-0.001*** (0.00)
Self-employed	0.061*** (0.02)	-0.017*** (0.00)	-0.007*** (0.00)	0.004*** (0.00)	0.013*** (0.00)	0.006*** (0.00)
Bequest frame	-0.428* (0.24)	0.117* (0.07)	0.045* (0.02)	-0.030* (0.02)	-0.093* (0.05)	-0.039* (0.02)
Bequest wish	-0.040 (0.03)	0.011 (0.01)	0.004 (0.00)	-0.003 (0.00)	-0.009 (0.01)	-0.004 (0.00)
Beq. frame*beq. wish	0.080** (0.03)	-0.022** (0.01)	-0.009** (0.00)	0.006** (0.00)	0.018** (0.01)	0.007** (0.00)
Sufficient savings	-0.083*** (0.02)	0.023*** (0.01)	0.009*** (0.00)	-0.006*** (0.00)	-0.018*** (0.00)	-0.008*** (0.00)
Bed pension expectations	0.050*** (0.02)	-0.014*** (0.01)	-0.005** (0.00)	0.003** (0.00)	0.011** (0.00)	0.005** (0.00)
Big spend	0.078*** (0.02)	-0.021*** (0.00)	-0.008*** (0.00)	0.005*** (0.00)	0.017*** (0.00)	0.007*** (0.00)
Numb. of mortgages	0.113** (0.05)	-0.031** (0.01)	-0.012** (0.01)	0.008* (0.00)	0.025** (0.01)	0.010** (0.00)
Second home	-0.329* (0.20)	0.101 (0.07)	0.028** (0.01)	-0.038 (0.03)	-0.068* (0.04)	-0.023** (0.01)
Number of # of obs.	658					
Pseudo R <sup>2</sup>	0.063					

The superscripts \*\*\*, \*\*, and \* indicate the 1%, 5%, and 10% levels of statistical significance, respectively.

Not reported control variables without significance: rent value, high and Medium education,

<sup>(a)</sup> Standard errors in parentheses.

## **5. Discussion**

A similar study for Italy finds that reverse mortgages are not perceived as a financial planning instrument, but as last resort in case of emergency (Fornero, Rossi and Urzì Brancati, 2012); furthermore, the majority of Italian households reply that they are not interested in the product even though they do not really know its features. The Dutch case is more promising, since the most frequent attitude is of neutrality, while over a third finds the product appealing.

## Appendix

### Variable definition

#### Framing 1:

Reverse mortgages are popular in a number of countries. A reverse mortgage is a loan that you may obtain from your bank if your current mortgage debt amounts to less than half of the value of your house. The target group consists of retirees. A reverse mortgage does not result in higher monthly living expenses, because the mortgage interest is added to the debt. Only when the house is sold because the owner moves to another dwelling or passes away, the bank recovers the loan plus interest. The loan can be taken out as a lump sum, or as a supplement to the monthly retirement income, or as a freely disposable credit line that one may use at will.

Retirees can use a reverse mortgage for instance to supplement their pension so that they can live more comfortably and can afford (more) assistance in housekeeping, or for one-off luxury expenditures such as a trip around the world, a new car or trailer.

#### Framing 2:

Same as above, except for the last 3 lines:

Retirees can use a reverse mortgage for instance as a means of gifting money to their children or grandchildren, so that they can go to college or university, can buy their own home, or can start up a business venture. It enables them to financially support their children or grandchildren just when they most need this support.

#### v1

Have you ever heard of reverse mortgages? It is not (yet) a familiar product in the Netherlands.

1 yes

2 no

#### v2

To what extent does the idea of a reverse mortgage appeal to you?

1 does not appeal to me at all

2 doesn't really appeal to me

3 neutral

4 actually does appeal to me

5 definitely appeals to me

*if v2=1 or v2=2 and v10>0 and v11>0*

**v2a**

You have indicated that the idea of a reverse mortgage [*if v2=1: doesn't at all/if v2=2: doesn't really*] appeal to you. What are your considerations in this regard? You can choose a score from 1 through 10.

**1 = certainly not**

**10 = certainly yes**

**v2at1** I would feel too dependent on the bank

**v2at2** It doesn't feel good

**v2at3** I will have ample income by that time

**v2at4** My children or grandchildren will take up residence in my house

**v2at5** I would worry about being evicted from my home

**v2at6** I want to have as little debt as possible

1 certainly not

2 2

...

10 certainly yes 7 Reverse Mortgage

*if v2=1 or v2=2 and v10=0 and v11=0*

**v2b**

You have indicated that the idea of a reverse mortgage [*if v2=1: doesn't at all/if v2=2: doesn't really*] appeal to you. What are your considerations here? You can choose a score from 1 through 10.

**1 = certainly not**

**10 = certainly yes**

**v2bt1** I would feel too dependent on the bank

**v2bt2** It doesn't feel good

**v2bt3** I will have ample income by that time

**v2bt4** My children or grandchildren will take up residence in my house

**v2bt5** I would worry about being evicted from my home

**v2bt6** I want to have as little debt as possible

1 certainly not

2 2

3 3

4 4

5 5

6 6

7 7

8 8

9 9

10 certainly yes

*if age<65*

**v3**

To what extent do the following statements apply to you? You can choose a score from 1 through 10.

**1 = certainly not**

**10 = certainly yes**

**v3t1** I would like to leave an inheritance

**v3t2** I have confidence in banks and insurers

**v3t3** I expect to have sufficient income when I retire

**v3t4** I expect to have enough savings when I retire

**v3t5** I expect to have to cope with disappointing pension income

**v3t6** I would like to retire early

**v3t7** I would like to start my own business venture after retirement

**v3t8** I would like to make a significant expenditure after retirement, such as making a trip

around the world or buying a new car or trailer

1 certainly not

2 2

3 3

4 4

5 5

6 6

7 7

8 8

9 9

10 certainly yes 8 Reverse Mortgage

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