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Evidence from the Netherlands

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DESIGN 38

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THE PSYCHOLOGY AND ECONOMICS OF REVERSE MORTGAGE ATTITUDES

Abstract
We find that among Dutch homeowners there is substantial potential interest in reverse mortgages, especially for the purpose of being able to live more comfortably and not worry about money until death, or to make a significant expenditure– on e.g. home improvements or traveling. Our regression results, based on rich survey data, indicate that interest depends positively on the ratio of housing wealth over income and on the perceived riskiness of future pensions, and negatively on the expected replacement ratio. We find that giving examples of using a reverse mortgage for the benefit of the homeowners' (grand) children significantly raises interest in reverse mortgages of people with a bequest wish. We interpret this as evidence that people are unaware of the potential of reverse mortgages to optimize bequest timing. Confronting our results with a similar study among Italian homeowners, we conclude that while in Italy a reverse mortgage is primarily seen as a "last resort", Dutch homeowners regard it as a potential retirement planning tool. However, a reverse mortgage is a relatively complicated financial product that entails certain risks and can be quite expensive. Rules and regulations concerning reverse mortgages should be in place, to prevent mis-selling. The government can play a role in providing safeguards for both borrowers and lenders, in order to support the development of a reverse mortgage market.

1. Introduction

From the point of view of optimal consumption smoothing, evidence indicates that older households under-decumulate wealth (Romiti and Rossi, 2012). One reason for this 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 that much of a problem, as homeownership implies prepayment of future housing consumption (Merton, 2007). Moreover, from a behavioral economics perspective, housing wealth (after paying off the mortgage loan) is a commitment mechanism, precisely because it is illiquid and hence cannot be consumed (Laibson, 1997). However, the residual value of the house, once future housing consumption has been taken out, could be "too high" especially when remaining life expectancy shrinks. Having illiquid assets may lead to financial fragility (Brunetti *et al.*, 2012). The possibility of (at least partially) decumulating housing wealth through a reverse mortgage – a mortgage that requires neither interest nor repayments for as long as the borrower lives in the house – would facilitate consumption smoothing over the life cycle without requiring retirees to move to a smaller owned dwelling, 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). With pension income becoming less generous and pension risk being increasingly shifted toward households, there is an increased need for households to make individual life cycle saving and investing decisions. Moreover, with life expectancy increased, parents often leave bequests at a moment in life at which, from an optimal life cycle planning point of view, their children should start decumulating wealth themselves. In this respect, it is important that the financial industry adapts by creating useful products, such as reverse mortgages, that help families manage life-cycle risk (Merton and Bodie, 2005).

Beside these potential advantages, reverse mortgages also have potential disadvantages. First, the reversed mortgage is a relatively complicated financial product. There are many relevant but uncertain economic and demographic variables involved, including interest rates, housing prices and longevity risk. The necessary insurance elements can make a reverse mortgage quite expensive, especially when the homeowners are relatively young. This implies that for consumers it will be difficult to judge whether and when a reverse mortgage would be a good deal for them.

This paper presents the results from a survey on the attitudes of homeowners aged 45 and over in the Netherlands toward reverse mortgages. The survey is designed using two different motives for loan use– either for personal consumption smoothing or for financially supporting (potential) heirs. Results are analyzed using individual objective and subjective background characteristics as explanatory variables.

Our main findings are the following. A small minority of homeowners is familiar with the concept of a reverse mortgage. After having had an explanation, over a quarter of respondents indicate that they may potentially be interested in taking out a reverse mortgage loan once retired. About 36 percent are neutral, which may imply that potential interest is even higher. We find that interest in a reverse mortgage loan depends positively on a cohort-based housing wealth over income ratio. Homeowners who have taken out more than one mortgage– possibly as a way to liquidize housing wealth– look more favorably upon reverse mortgages as well. We also find that people who expect future pension cuts are more interested, and those who expect to have sufficient savings are less interested. The self-employed are more interested, women are less interested, and we find a significant positive effect of the age difference between the parent and the oldest child.

The substantial potential interest among Dutch homeowners in a reverse mortgage as a financial planning tool constitutes a major difference with the results from a similar study among Italian homeowners (Fornero *et al.*, 2011). In Italy, a reverse mortgage is seen as a last resort; homeowners thus have a much less favorable attitude toward this financial product.

The paper is structured as follows. The next section provides background information on reverse mortgages, resulting in our central research questions and hypotheses. Section 3 describes our data and methodology. Section 4 presents the results of a regression analysis of the data. Section 5 discusses our findings and draws policy implications. Section 6 summarizes and concludes.

2. Reverse mortgage essentials

2.1 What is a reverse mortgage?

A reverse mortgage is a financial instrument that enables elderly homeowners to borrow against home equity. Like a forward mortgage, it is a loan with the home as collateral, but no payments are required as long as the borrower lives in the home. The mortgage interest is added to the debt. Only when the house is sold, because the owner moves to another dwelling or passes away, does the bank recover the loan plus interest. An important feature of a proper reverse mortgage product is a no-negative-equity guarantee, which insures the homeowner and the heirs against the risk of the house having a value below the sum of principal plus interest. This risk is for the lender.

The heirs, at the moment of inheritance, have two options. The first is to keep the net residual value (house value at the moment of death net of outstanding debt). Thanks to the no-negative-equity guarantee, in the worst-case scenario the heirs are left with zero. The second option is that the heirs keep the house and repay the total outstanding debt with any available source of funds.

A reverse mortgage loan "strips out" the value of the house that is not needed for housing consumption, as the owner is not going to live indefinitely (Merton, 2006).[1] This can be represented schematically[2] as follows (Merton, 2011):

1 One reason why people may be averse to the concept of a reverse mortgage is that they find it difficult to imagine that they are not going to live indefinitely. See Kopczuk and Slemrod (2005).

2 This is a highly stylized model, focusing on only the rents of an owned residence. Interpreting these rents as net of (e.g. maintenance) costs would not impact the analysis.

$$\textit{House} = \textit{Life Annuity Housing Services} + \textit{Residual House Value} \quad (1)$$

The house value is equal to the present value of an (in theory) infinite flow of rents. As life is finite, the life annuity of housing services derived from homeownership (corresponding to imputed rents) is just a part of the housing value. The remaining flow of rents beyond the owner's lifespan forms the residual house value. The shorter the (remaining) life expectancy, the larger the ratio between the residual house value and the total house value. Without a reverse mortgage, the homeowner merely benefits from the life annuity of housing services, and the heirs receive the residual house value at the time of death of the owner. With a reverse mortgage, the homeowner gets autonomy over what to do with the residual house value. Reverse mortgages can be paid out as a lump sum[3], 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.*, 2000).

2.2 Advantages of a Reverse Mortgage

This paper focuses on the potential interest of homeowners in a reverse mortgage as a way to help liquidize the capital in their homes. Especially those with large home equity and relatively low

3 The maximum potential Lump Sum at time t (LSt) is the expected housing value at death, discounted with the interest rate, which is equivalent to:

$$LS_t = \frac{p_{t+1|t}q_{t+1}H_{t+1}}{1+r} + \frac{p_{t+2|t}q_{t+2}H_{t+2}}{(1+r)^2} + \ldots + \frac{p_{t+D|t}q_{t+D}H_{t+D}}{(1+r)^D},$$

where $p_{t+n|t}\, q_{t+n}$ is the survival probability between t and t+n with death in t+n (q_{t+n} is the probability of death at the instant t+n), H_{t+n} is the predicted value of the house at t+n. D is the maximum remaining life expectancy at time t.

pension income and/or other available capital could potentially benefit from this.

There are of course many options available for liquidizing home equity. Homeowners can sell their home and buy something smaller or start renting. Drawbacks here include the downgrade in housing consumption and the (typically large) transaction costs, including psychological costs. There is a clear drop in the propensity to move at higher ages (Rouwendal, 2009). Other options for reallocating resources over the remaining lifetime, given the wish to stay in the current home, are taking out a personal loan or an (extra) forward mortgage. But those options do not enable making use of the remaining capital beyond the lifespan of the homeowner.

Reverse mortgages with a no-negative-equity guarantee have several advantages over alternative solutions, such as selling the home and renting it back, or selling the bare ownership. The fixed costs of the household are not affected. For the lender, the moral hazard risk with respect to maintenance is smaller than that of a forward sale, as the heirs have a stake because they have an option on the residual house value. Moreover, if the loan is taken as an annuity, mortality risk is different from that in case of annuitization of financial wealth: if the homeowner dies sooner than expected, his heirs have the right to the residual housing value – whereas in case of annuitization of financial wealth, they receive nothing. There is a price to this advantage for the heirs: interest rates are typically higher.

A reverse mortgage may be welfare-improving and increase efficiency for several reasons. If reverse mortgages are regularly available at attractive conditions, and hence are part of the set of financial planning instruments, households can take account of this and may choose to save less during working life, as they now have an additional instrument to maintain their living standard at retirement.[4]

Another reason why liquidating housing wealth may improve welfare is related to the bequest motive. As Merton (2007, p. 12) points out, "one does not need to be an expert to know that it is probably far from optimal bequest policy, from the point of view of the heirs' utility, to receive the value of the house as a legacy at some time in the future – perhaps next year, perhaps in 30 years". Of course, the reduction of uncertainty for the heirs also comes at a price. Accelerating an expected bequest by decades through use of a reverse mortgage will probably leave them with a very small endowment. For example, based on the Reverse Mortgage calculator of the National Reverse Mortgage Lenders Association, a single homeowner, aged 70, with a mortgage-free home worth 300,000 dollars could get a maximum cash lump-sum of somewhat below 95,000 dollars with an effective loan rate of 6.31%.[5] This means that when this person sells his home 15 (20) years later, he or his heirs will have to pay off a reverse mortgage debt of about 240,000 (320,000) dollars. Principle limit factors and interest rates differ over time and from country to country. In Italy, for example, the principal limit factor ranges from roughly 20% of the housing equity for 65-years-olds to roughly 50% for those over 90 (Fornero *et al.*, 2011).

The wish to use the loan for own consumption is not by definition in conflict with the interests of the children, however. Elderly people with children may use their housing wealth to

4 The forward mortgage loan on the house should be fully or largely paid off, however. In the Netherlands, this will increasingly be the case among the elderly, since as of 2013 fully paying off your forward mortgage within 30 years is a prerequisite for making use of the high fiscal subsidies on mortgage rents.

5 Calculations made with the NRMLA Reverse Mortgage calculator on February 23, 2015 at *http://www.reversemortgage.org/About/ReverseMortgageCalculator.aspx*

provide for their own care, thereby avoiding becoming a burden for their children. In the Netherlands, relying on the care of relatives is becoming more important, as government-provided care is being reduced and the elderly are increasingly expected to arrange care for themselves. But with more liquid assets at their disposal, the elderly can buy help instead of claiming time from their children.

2.3 Disadvantages of a Reverse Mortgage

A reverse mortgage combines various financial aspects. Depending on the precise form, it contains insurance against various risks and it includes a credit line, an annuity, or both. Its fair price depends on numerous characteristics, both individual (e.g. health and life expectancy of the homeowner) as well as macro (e.g. interest rates and expected housing prices). While the use of the product (what it delivers) is quite easy for the homeowner to understand, the product is relatively complicated "under the hood", compared to alternatives such as taking out a personal loan or selling and renting back. This drawback is more important, the greater the extent to which markets are incomplete and suppliers are price-setters.

Buying a house is a way of annuitizing wealth in the form of an (approximately) indefinite stream of housing consumption. This means that a reverse mortgage actually is a way to partly de-annuitize home equity— and thus to partly recoup the longevity risk.[6] To reinsure against the longevity risk personally, the no-negative-equity guarantee is needed. The resulting payoff structure according to remaining life expectancy is somewhat

6 In comparison, selling the house and renting back is a way to fully de-annuitize home equity. This means sufficient pension income is required to personally bear the longevity risk.

peculiar. The reverse mortgage debt increases exponentially, and typically more quickly than the home value increases. Thus, effective housing costs keep climbing with age, until home equity is down to zero and housing consumption is 'free' again. All in all, it is not that easy for potential consumers to determine if and at what age a reverse mortgage would be an interesting option for them. This shows the need for market regulation (against e.g. mis-selling) in order for a reverse mortgage market to develop.

Although the longevity risk thus remains insured for the homeowner, other risks remain. As long as home equity is positive, the homeowner is still exposed to housing market risks.[7] The upside risk is an extra incentive for the borrower to maintain the house. But the value of the house (and thus of the housing consumption) might also decline because of economic and demographic transitions, which could even lead to the need to move when necessary services are no longer supplied locally. Another relevant risk for those choosing to annuitize their home equity is the counterparty risk– i.e. the risk that the institution supplying the annuity will at some point no longer make the payments.

When liquidizing housing wealth, either by taking out a reverse mortgage or using one of the alternatives, it is also important to consider the tax treatment. Various wealth components are often treated differently, and housing wealth is usually treated relatively favorably. In the Netherlands, for example, wealth above a certain threshold (around 20,000 euro per person) is taxed, but not the housing wealth in the primary residence. Moreover, under certain conditions there are even large subsidies on the mortgage rents paid. Taking out a reverse mortgage for a home improvement might turn out to be relatively expensive compared to taking out a

7 This is not the case with selling and renting back or selling bare ownership.

forward mortgage and paying it off. In the first case, the mortgage payments are not subsidized; in the latter case, the payments are subsidized for a maximum period of 30 years.

Limitations on the supply side can be explained by risk factors (primarily related to the dynamics of interest rates and house prices) faced by the credit institutions, as well as by the potential adverse selection in case of extremely long-lived mortgagors. Moral hazard, in case of inadequate home maintenance by homeowners intending to default on their contract obligations, also presents a challenge. Research into annuity pricing shows that cohort risks are considerable, and may provide an explanation of the low money's worth of annuities. 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.

Moreover, because of the apparent hesitance of potential consumers, marketing costs for reverse mortgages are large. That is an important reason for the recent withdrawal from the market of the big reverse mortgage providers in the US, which is discussed further in the literature review below. In the wake of the financial crisis, complex financial products, especially related to the housing market, have been harder to sell. It is currently neither easy nor popular to explain to people that 'they can have their home and eat it, too'— which is essentially what a reverse mortgage is all about.

2.4 Literature Review

In the US, the reverse mortgage market has grown considerably over the past decades. However, after reaching a peak of over 100,000 contracts sold per year in 2007, 2008 and 2009, it shrunk back to 23,000 sales in 2013[8]. In Europe, the market is non-existent or very thin, with the exception of the UK. Yet, Wicke (2008) estimates that potential demand in Germany is about 1 million households. Based on an expert survey, Lang (2008) concludes that the great obstacle to the acceptance of reverse mortgages 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*. (2011) find that the lack of interest for the product may be due to the fact that reverse mortgages are not perceived as a financial planning instrument, but rather as a "choice of last resort" in case of emergency.

In the Netherlands, there is currently one type of reverse mortgage loan with a no-negative-equity guarantee: the Florius Verzilver Hypotheek, introduced in 2008 by ABN Amro (www.florius.nl/consument/hypotheken/floriusverzilverhypotheek). The loan can be taken up as a lump sum or a fixed monthly or yearly amount. Five years after the contract has been signed, the lender has the right to have the value of the property estimated at the cost of the owner, and to lower the periodical amount based on the current market value. Expectations were high when the product was launched, but it was hardly sold, which may be due to bad timing ex post (financial crisis), the high and stable retirement income of those retired before 2008, as well as their liquid financial wealth. The relative ease with which forward mortgage loans were available up to then, and the fact that paying off forward mortgage loans is heavily discouraged by the current fiscal regime (for mortgages that were taken out before

8 Source: United States Department of Housing and Urban Development (HUD), *http://portal.hud.gov/hudportal/HUD?src=/program_offices/housing/sfh/hecm/hecmabou*

2013), may also have played a role. Other reverse mortgage type contracts do not provide a no-negative-equity guarantee, and owners can be expelled if the value of the loan relative to that of the home exceeds a certain threshold.[9]

Over the past decades, views on the potential demand for reverse mortgage loans have changed. Some examples to illustrate this are the following. Venti and Wise (1987) maintain that most income-poor elderly also have a relatively small amount of housing wealth; a reverse mortgage would therefore mean 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. Most likely, they see a reverse mortgage as last resort for the poor. However, the paper does not reflect the current wealth of the US population.

Case and Schnare (1994) claim that all 'house-rich, cash-poor' elderly households should be more interested in such products, stating that the market for reverse mortgages should be very large, since many households fall in this category. Mayer and Simons (1994) also claim that the potential market for reverse mortgages is quite large, as many elderly could use it to pay off pre-existing debts. Poterba *et al.* (2011), state that the decision to annuitize wealth is more relevant for households in the upper percentiles of the wealth distribution. They confirm that most households treat housing wealth as precautionary savings and hence decumulate only in case of exogenous shocks, such as the death of a spouse. Munnell *et al.* (2012) consider a reverse mortgage as a tool for households in attaining retirement security which is no less powerful than asset allocation. The fact that

9 For example, the RABO product requires the borrower to immediately pay off the loan as soon as the principal plus accumulated interest exceeds 75% of the liquidation value of the house.

households who use reverse mortgages tend to be low-income, low-wealth and in poor health (see Nakajima and Telyukova, 2011, for the US) suggests that it is regarded as a "last resort" and that homeowners are unaware of the instrument's potential in terms of financial planning and welfare improvement.

Many psychological factors other than the perception of risk and uncertainty are likely to affect the potential demand for reverse mortgages, both in terms of volume and in terms of type (i.e. tenure, lump sum, line of credit or mixed). For instance, when eliciting respondents' interest in annuities, Beshears *et al*. (2013) find that adding the sentence 'Choosing a bigger lump sum gives you more control over your investments and more flexibility over the timing of your spending', significantly reduced the willingness to annuitize one's wealth. They also find that people prefer partial annuitization to an all-or-nothing offer, which means that a more flexible product design could be more appreciated.

Davidoff and Welke (2005) investigate adverse selection by comparing the mobility rates between reverse mortgage borrowers and non-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. Mitchell and 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 (2008) highlights the unfavorable tax regimes as one of the reasons behind the sparse development of reverse mortgage market in the UK. 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 the way in which 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.

2.5 Research questions and hypotheses

The problem addressed in this paper is the build-up of large amounts of illiquid private wealth in self-owned residences, which can only be liquidized and decumulated at high cost, and usually ends up as bequest. The question is whether a relatively new and not yet widely available instrument, the reverse mortgage, can help make (better) use of this wealth component. A reverse mortgage is an instrument with advantages and disadvantages, which are related to several objective and subjective characteristics of potential consumers. We investigate the extent to which these characteristics correlate with potential interest in reverse mortgages, using a representative sample of Dutch homeowners. Since at present the reverse mortgage market in the Netherlands hardly exists, we make use of a questionnaire. Based on the elements discussed above, we expect interest in reverse mortgages to be positively correlated with the following household characteristics: a relatively low (expected) pension income in relation to the available home equity, low alternative (liquid) wealth components, no children (or no bequest wish) and a relatively short (remaining) life expectancy. We will make use of a range of relevant covariates, such as self-assessed health status, gender and educational level.

We expect people with children (or with a strong bequest wish) *a priori* to be less interested in reverse mortgages, but we want to test whether they become more interested in the instrument when we explain to them that a reverse mortgage can actually, under certain conditions, also be used to the advantage of their heirs.

3. Data and Methodology

Our data were 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 members of about 2,000 households, representative of the Dutch-speaking population.[10] Panel members complete 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 researchers with a rich set of background information on the respondents. The panel has been used in many studies of financial behavior and attitudes (see for instance Van Rooij *et al.*, 2007) and financial literacy and retirement planning in the Netherlands (see Alessie *et al.*, 2007), and the effects of pension information on behavior (Prast *et al.*, 2012). For a complete description of the CentERpanel and the DHS, see Teppa and Vis (2012).

The questionnaire aimed to assess whether Dutch homeowners aged 45 and over would be interested in a reverse mortgage loan at retirement. With almost nonexistent supply, (potential) demand can only be assessed by asking people whether they

10 Data collected with internet surveys display higher validity and less social desirability response bias than those collected via telephone interviewing (Chiang and Krosnick, 2009). 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.

Table 1. Descriptive statistics

N of respondents	1,145
Women	*479 (41.8%)*
Men	*666 (58.2%)*
Age	Min=45, max=90, mean/median=62
Education	
Low	*32.2%*
Medium	*26.2%*
High	*41.6%*
N of respondents with (grand)children	82.9%
Age difference with oldest child	
Women	*27.1 year, min=17, max=39 (n=391)*
Men	*29.5 year, min=18, max=46 (n=556)*
Household composition	
Single, no children at home	*14.8%*
Couple, no children at home	*57.6%*
Couple, with child(ren) at home	*23.5%*
Single, with child(ren) at home	*1.8%*
Other	*2.5%*
Lower socioeconomic status	16.3%
Self-employed	4.8%
Net household income (euro/month)	mean = 3,020, median = 2,834

Source: authors based on Centerdata

would be interested. Our questionnaire was submitted in December 2012 (week 49) to homeowners aged 45 and over, totaling 1401 households, of which 1145 fully completed the questionnaire (response percentage 81.7%).

Table 1 shows some descriptive statistics. Several things stand out, first among them the difference between male and female respondents, with nearly 60% men— whereas the Centerpanel gender composition is fifty/fifty. Second, over 80 percent live

Table 2. Household size, income and financial wealth by age group

		#HH members	Net HH income (month)		Total Financial Wealth	
Age group	Freq.	mean	mean	median	mean	median
45–54yrs	307	3.3	€ 3,104	€ 3,000	€ 23,314	€ 6,315
55–64yrs	379	2.3	€ 3,126	€ 2,936	€ 43,190	€ 11,700
65–74yrs	321	1.9	€ 2,931	€ 2,700	€ 50,944	€ 15,856
75–90yrs	138	1.7	€ 2,753	€ 2,750	€ 67,330	€ 26,893
Total	**1145**	**2.4**	**€ 3,020**	**€ 2,834**	**€ 43,101**	**€ 12,472**

Source: authors, based on DHS data

together with a partner and about a quarter of the respondents have one or more children living at home.

Tables 2 and 3 provide information on income and net and gross housing wealth of the different age groups in the sample.

Table 2 shows income and wealth characteristics of different age groups. As one expects, income tends to decline after retirement, reflecting i) a less than 100% replacement ratio, and ii) the fact that the eldest retirees have benefited less from the increase in economic growth and wages starting around 1970, and hence have accumulated less pension capital than the younger cohorts. But Table 2 also shows that elderly retirees have a large amount of financial wealth (current and saving accounts, stocks and bonds). At first sight, this seems to run counter to the life cycle theory of savings, which would predict much more decumulation to take place, particularly for those assets easy to liquidate (see Borella and Rossi, 2013 and Romiti and Rossi, 2012). The relatively high financial wealth of older groups can be partly explained by a natural form of selection that could be described as the 'survival of the richest': richer people live longer.[11] That

11 Higher social classes tend to live longer and are thus overrepresented in the oldest cohorts. In the Netherlands, the difference in life expectancy for men amounts to 7 years for the highest versus the lowest educational level (source: CBS Statline, 2012).

Table 3. Housing characteristics of sample, by age group

		Housing Wealth		Book value (WOZ)	
Age group	Freq.	mean	median	mean	median
45-54yrs	212	€ 173,000	€ 171,000	€ 251,000	€ 234,000
55-64yrs	291	€ 206,000	€ 192,000	€ 282,000	€ 250,000
65-74yrs	258	€ 283,000	€ 215,000	€ 303,000	€ 280,000
75-90yrs	114	€ 279,000	€ 250,000	€ 333,000	€ 295,000
Total	**875**	**€ 230,000**	**€ 200,000**	**€ 287,000**	**€ 255,000**

Source: authors, based on DHS data
NB: As these housing variables are originating from other DHS questionnaires and not everyone was able or willing to answer these questions, the total number of observations here is below 1145.

the elderly do not decumulate their liquid wealth may be due to a precautionary motive: they may know that statistically they are holding too much financial wealth, given their life expectancy, but at the same time they may not want to run the risk of being short of cash if they live longer than expected. This risk of living too long could be neutralized by buying an annuity, and the thinness of the annuity markets contradicts again the life cycle prediction (Davidoff *et al.*, 2005). However, it is well known that people under-annuitize from the point of view of standard optimal life cycle planning theory (Beshears *et al.*, 2013).

When interpreting Table 2 it should be kept in mind that the average number of household members drops with age, first because the children move out, and next because at higher ages more people become widowed. Indeed, the percentage of single households rises from 10 percent among those between 45 and 55, to over 46 percent among those over 85 years of age. This too helps explain a dropping average net household income.

Table 3 shows that both mean and median net housing wealth are higher for older cohorts. This is largely the result of the rise in housing prices over the past 30 years (until 2009). Also, among those 65 years and over (hence, retirees) a large fraction of homeowners still has a (forward) mortgage[12]. Likely explanations are a) the generous tax treatments of mortgage interest payments, b) the generous loan conditions (no repayment of principal needed) of (second) mortgage loans offered until recently, and c) retirees avoiding paying off their mortgage loan in order to not accumulate more illiquid financial wealth.

In view of the bequest timing function of reverse mortgage loans, we have calculated the age difference between each parent and the oldest child in the household. Out of the 1145 respondents, 947 report having children. On average, the age difference is 29 years, ranging from 17 to 46. In general, the age difference between the mother and the child is more relevant, because women tend to live longer than men (in the Netherlands, the difference is 3.6 years for those born in 2011[13]). The smaller the parent/child age difference, the older the heir will be when he receives a bequest.

Summary statistics

This section presents the aggregate results of our questionnaire. We started the questionnaire with the following explanation of the concept of a reverse mortgage:

> "*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*

12 According to our calculations on DHS data and CBS data (IPO 2010) almost half of homeowners 65 years and over have no forward mortgage.

13 Source: CBS Statline (2012)

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, does the bank recover 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",

Because reverse mortgages are quite unknown in the Netherlands, it was necessary not only to explain the concept to respondents, but also to give examples of its potential use. We used two different sets of examples of how to use the reverse mortgage loan. Randomly, half of the respondents were given suggestions regarding their own financial wellbeing (Motive A), while the others were given bequest suggestions (Motive B).

Motive A:
Retirees can use a reverse mortgage to supplement their pension: for instance, 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.

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

We first asked whether the respondent had heard of such a type of product (9.1 percent said they had); our second question was the crucial one, asking respondents whether they would be interested in a reverse mortgage: Most respondents, roughly 36%, claim to be indifferent, while a good 21% find it quite appealing, with roughly 6% finding it very appealing. The remaining 37% of respondents find it not (15 %) or not at all (roughly 22 %) appealing.

Consumption smoothing vs bequest timing

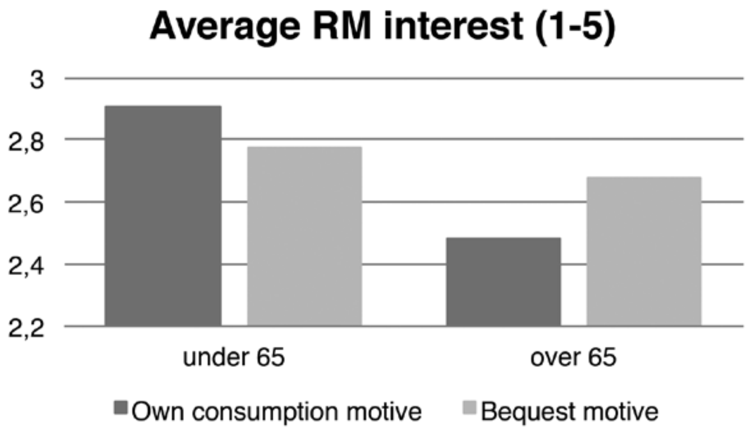
As mentioned before, a reverse mortgage may be welfare-improving for homeowners with a bequest wish, because it would enable them to better time their bequest. A reverse mortgage market would help parents with insufficient liquid savings but considerable housing wealth to help children to buy a home through the facilitation of a down payment (Mayer and Engelhardt, 1996). On the other hand, parents may fear that handing out the bequest may reduce attention from their children.

In the Netherlands, the tax rates for inheritances and donations are identical and depend on the relationship between giver and receiver (children pay lower tariffs than do unrelated heirs, for example) and on the amount of money involved (tariffs are higher for that part of inheritances or donations exceeding about 117,000 euro in 2014). The only difference in tax regime between inheritances and donations concerns the exemptions. If time and funds allow, *in vivo* transfers can be considerably more advantageous in the long run. Each year, parents can give a maximum amount of about 5,000 euro to each child without it being taxed. The exemption for inheritances is for the children slightly higher— about 20,000 euro— but, of course, this is only one-off. Moreover, parents can give each child once in a lifetime an untaxed amount of about 25,000 euro for general purposes, or about 50,000 euro when it is used for a study or an owned home. Recently, in order to stimulate the housing market, a temporary tax stimulus (January 2013–December 2014) was given by allowing people to give a maximum amount of 100,000 euro to anyone without it being taxed, provided that the amount would be used for expenditures relating to an owned home: buying a home, paying off a mortgage, financing improvements to the owned home. The arrangement has turned out to be successful, with many parents who could afford it handing out the money. The real estate agent association in the Netherlands estimates that at least ten percent of the homes bought since the stimulus was introduced have been partly financed by this earmarked gift (wegwijs.nl, 2014). The number of children receiving money from their parents to buy a home rose from around 4,600 to around 50,000. This was 2.5 times as many as the government had expected (www.rijksoverheid.nl). However, cash-poor, house-rich parents (and their children) were unable to benefit from the arrangement. A reverse mortgage could have enabled them to make a large untaxed donation. But the effective tax advantage of such a donation would drop quickly with the duration of the reverse mortgage. Using a reverse mortgage specifically for this tax advantage would have been appealing only for very selective cases.

With an average life expectancy for women of around 86 for women now in their sixties[14], it is clear that the first child of the women in our sample would receive an inheritance when approaching the age of 59. The optimal timing of a bequest is not *a priori* clear, however. When someone can count on a bequest,

14 Source: CBS Statline (2012)

Figure 1. Interest in reverse mortgage by motive, retirees and non-retirees



Source: authors based on survey data

albeit late in life, then she can choose to accumulate less during her working years, thus already optimally timing the bequest. But large uncertainty about amount and moment of the bequest would still prevent a successful implementation of such a strategy. Yet, if a bequest would be particularly valuable for the recipient at age 30, when the parents are in their sixties, then a reverse mortgage will probably not be the most efficient instrument for the capital transfer between generations.

We find no direct effect of the different suggestions for using a reverse mortgage on the attitude towards taking a mortgage in the whole population. On average, interest under both motives A and B is almost identical. But a breakdown of the data in over-65- and under-65 years of age shows a significant difference. Respondents under 65 are relatively more interested in the "selfish" motive A. On the other hand, respondents over

Table 4. For what purposes would you use the money made available to you through a reverse mortgage? – By motive

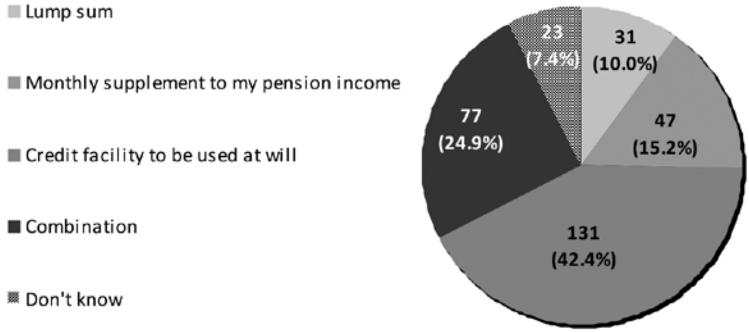
You can distribute 100 points across the following options* You can also choose to assign 100 points to just one option, and zero points to all the others		
Motive	Own consumption	Bequest
To live more comfortably and not worry about money	31.2	27.7
To already gift part of my inheritance to my surviving relatives	11.3	19.4
To already donate part of my inheritance to charity	2.6	1.9
To make a significant expenditure	27.5	24.6
To buy a holiday home	3.2	2.1
As a last resort	21.6	22.3
Other	2.6	2.0
N	163	146

* respondents with a positive attitude toward a reverse mortgage loan, 27% of sample (n=309)
Source: authors' calculation based on survey data

65 are relatively more interested in the "bequest" motive B (see Figure 1). A simple, single-sided t-test would classify the under-65 effect at a significance of 0.065 and the over-65 effect at a significance of 0.044.

A possible explanation for this finding is that people below 65 years of age anticipate a substantial drop in income after retirement. This impending loss might boost their interest in an instrument such as reverse mortgages. People above the age of 65 would already have adapted to their lower retirement income, which shifted their reference point. The potential gain in income through a reverse mortgage would be less appealing to them. The fact that the elderly are more interested in the bequest motive is probably related to their relatively stronger bequest wish.

*Figure 2. What loan arrangement would you prefer?**



** respondents with a positive attitude toward a reverse mortgage loan, 27% of sample (n=309) Source: authors' calculation based on survey data*

The next section further analyzes the relationship between the bequest wish and the bequest motive.

Why interested?

We asked respondents to indicate for what purposes they would use the loan (see Table 4), from a set of options which they could supplement. Those who have a (moderately) positive attitude toward a mortgage loan state as their most important reasons the desire to live comfortably, to make a significant expenditure, or the possibility to have a last resort in case they could not make ends meet with their pension income (second pillar) and old-age pension benefit (first pillar).

We also asked respondents with a favorable attitude towards reverse mortgages which loan arrangement they would prefer. Over 40 percent chose the line of credit, as shown in figure 2.[15]

15 There was no significant effect of the different motives in this question.

Why not interested?

Respondents who claimed to find a reverse mortgage loan not or not at all appealing (37% of sample) were asked to rate the importance of a few reasons for this reaction. The suggested reasons had to do with feelings toward the supplier of the product ("too dependent on the bank", "it doesn't feel good", "I would worry about being evicted from my home"), debt attitudes ("I want to have as little debt as possible"), income expectations ("I will have ample income by that time"), and the use of the home ("my children or grandchildren will take up residence in my house").

It comes as no surprise that people fear the risk of being evicted, especially given the press coverage of the housing situation in the US, with people having to leave their homes, the situation in the housing market in the Netherlands at the time of the survey, and the financial crisis which has made people aware that banks can fail. Even though one might argue that the "I want to have as little debt as possible" argument should rationally not be an issue (because as long as the housing value exceeds the accumulated debt, the borrower is a net creditor), this reason can also be very well understood. Having a debt, even with the collateral of a home that is worth more, can make people feel they are at risk.

The fear of debt could also be interpreted in a behavioral economics sense, not having to do with debt attitude as such or with lack of trust in banks. Homeowners who know they have a financial self-control problem may regard illiquid wealth in their bricks as a disciplining device. They may rationally fear that once they allow themselves to liquidize (and spend) part of their housing wealth, they will be unable to control spending, with the risk of running out of assets and leaving no bequest at all. Holding some of their wealth in an illiquid form may serve as a disciplining (self-control) device. This would be similar to the behavioral explanation of the dividend puzzle in finance, (Statman, 1999; Prast, 2000). In order to verify this, we would need individual background information on both people's lack of financial self-control and their degree of sophistication, defined in behavioral economics as awareness of one's self control problem (hence, realizing that their illiquid wealth serves as a commitment mechanism).

The next section of this paper takes a closer look at the background variables explaining attitudes towards a reverse mortgage loan as well as the way such loans would be used.

4. Multivariate analysis

This section presents the results of the regression analysis of respondents' attitudes toward taking up a reverse mortgage loan. We start by describing how we constructed the variables based on the questionnaire results.

We use the interest in a reverse mortgage loan as the main dependent variable. The respondents' attitude was measured qualitatively on a Likert scale, ranging from 1 for the respondents who find such loans least appealing to 5 for those who find them most appealing. We analyze the effect of both objective and subjective background variables. To capture the importance of the relative size of housing equity to income, we developed the variable Q-ratio. The variable has a 5-point scale, with 1 representing the 20% with the lowest home equity-to-income ratio and 5 representing the 20% with the highest home equity-to-income ratio. To prevent biases due to cohort effects (as Tables 2 and 3 showed, housing wealth rises and income drops with age), we calculated these ratio-quintiles separately for each 5-year age cohort.

Objective background variables

Table 5 shows that the interest in reverse mortgage loans depends significantly on the following *objective* background variables: age and age squared (such that interest peaks at age 69), gender (female (–)), having offspring (–), the age difference with the oldest child (+), net household income (+), Q-ratio (+), self-employed (+), the number of mortgages (+), the possession of a second home (–), and social class (lower classes are less interested).

Table 5. Interest in reverse mortgage (RM); Ordered probit regression results[16]

	Marginal Effects on Probabilities					
	coeff_all b/se	No b/se	Not_really b/se	Neutral b/se	Somewhat b/se	Very b/se
Interest in RM						
Age	0.109**	−0.030**	−0.011**	0.007**	0.024**	0.010**
	(0.05)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)
Age squared	−0.001**	0.000**	0.000**	−0.000*	−0.000**	−0.000**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Female	−0.249***	0.070***	0.025***	−0.018**	−0.055***	−0.022***
	(0.08)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)
Age diff with oldest child	0.035***	−0.010***	−0.004***	0.002**	0.008***	0.003***
	(0.01)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Agediff*bequest wish	−0.003**	0.001**	0.000**	−0.000*	−0.001**	−0.000**
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Offspring	−0.976***	0.195***	0.111***	0.045	−0.200***	−0.150**
	(0.31)	(0.04)	(0.03)	(0.04)	(0.05)	(0.07)
log(net income)	0.225*	−0.061*	−0.023*	0.014*	0.050*	0.021*
	(0.12)	(0.03)	(0.01)	(0.01)	(0.03)	(0.01)
Total wealth (in 100,000)	0.002	0.004	0.002	−0.001	−0.004	−0.001
	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Medium education	0.067	−0.018	−0.007	0.004	0.015	0.006
	(0.12)	(0.03)	(0.01)	(0.01)	(0.02)	(0.01)
Higher education	0.064	−0.017	−0.007	0.004	0.014	0.006
	(0.12)	(0.03)	(0.01)	(0.01)	(0.02)	(0.01)
Q-ratio	0.059*	−0.016*	−0.006*	0.004	0.013*	0.005*
	(0.03)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)
Sufficient savings	−0.053*	0.015*	0.006*	−0.003*	−0.012*	−0.005*
	(0.03)	(0.01)	(0.00)	(0.00)	(0.01)	(0.00)
Expects pension cuts	0.049**	−0.013***	−0.005***	0.003**	0.011***	0.005***
	(0.02)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Bigspend	0.069***	−0.019***	−0.007***	0.004***	0.015***	0.006***
	(0.02)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)

16 See table 6 for summary statistics belonging to this regression equation

	Marginal Effects on Probabilities					
	coeff_all b/se	No b/se	Not_really b/se	Neutral b/se	Somewhat b/se	Very b/se
Grow old in current home	0.024 (0.02)	−0.007 (0.01)	−0.003 (0.00)	0.001 (0.00)	0.005 (0.00)	0.002 (0.00)
Move smaller	0.062*** (0.02)	−0.017*** (0.01)	−0.006*** (0.00)	0.004** (0.00)	0.014*** (0.00)	0.006*** (0.00)
Move rented	0.015 (0.02)	−0.004 (0.00)	−0.002 (0.00)	0.001 (0.00)	0.003 (0.00)	0.001 (0.00)
Trusts in banks	−0.009 (0.02)	0.003 (0.01)	0.001 (0.00)	−0.001 (0.00)	−0.002 (0.00)	−0.001 (0.00)
Sufficient income	−0.021 (0.03)	0.006 (0.01)	0.002 (0.00)	−0.001 (0.00)	−0.005 (0.01)	−0.002 (0.00)
self-employed	0.378* (0.20)	−0.087** (0.04)	−0.044* (0.02)	0.000 (0.01)	0.085** (0.04)	0.046 (0.03)
self-assessed health	−0.012 (0.06)	0.003 (0.02)	0.001 (0.01)	−0.001 (0.00)	−0.003 (0.01)	−0.001 (0.01)
self-assessed health change	−0.136** (0.06)	0.037** (0.02)	0.014** (0.01)	−0.008* (0.00)	−0.030** (0.01)	−0.012** (0.01)
Lower SES	−0.350*** (0.13)	0.104*** (0.04)	0.031*** (0.01)	−0.035** (0.02)	−0.074*** (0.03)	−0.026*** (0.01)
Inheritance>500 K	−0.006*** (0.00)	0.002*** (0.00)	0.001*** (0.00)	−0.000** (0.00)	−0.001*** (0.00)	−0.001*** (0.00)
Bequest motive	−0.358* (0.19)	0.097* (0.05)	0.037* (0.02)	−0.022* (0.01)	−0.079* (0.04)	−0.033* (0.02)
Bequest wish	0.050 (0.04)	−0.014 (0.01)	−0.005 (0.00)	0.003 (0.00)	0.011 (0.01)	0.005 (0.00)
Bequest motive * beq wish	0.069** (0.03)	−0.019** (0.01)	−0.007** (0.00)	0.004** (0.00)	0.015** (0.01)	0.006** (0.00)
# of Mortgages	0.201*** (0.05)	−0.055*** (0.01)	−0.021*** (0.01)	0.012*** (0.00)	0.045*** (0.01)	0.018*** (0.00)
Second home	−0.390** (0.20)	0.121* (0.06)	0.031*** (0.01)	−0.045 (0.03)	−0.080** (0.03)	−0.026*** (0.01)
N	796	796	796	796	796	796
P	0.000	0.000	0.000	0.000	0.000	0.000

Significance *** p<0.01, ** p<0.05, * p<0.1. Standard errors reported in parentheses are robust to heteroskedasticity;

Most explanatory variables have the predicted sign. Some variables were more ambiguous *ex ante*, such as age and gender. As discussed before, a reverse mortgage is not available before retirement and basically becomes more financially interesting at higher ages. At really high ages, people might no longer be able or willing to make use of extra consumption possibilities, however. This might explain the parabolic relationship we find, with a maximum around the age of 70, when many people are retired yet still very active. But it is important to note that we only examined *whether* people were interested in the instrument, not *when* they would want to make use of it. Especially for the youngest respondents a lack of interest might partly be due to the fact that a reverse mortgage could only be available to them in the distant future. We find that women are less interested in the reverse mortgage product, the probability of being somewhat interested or very interested in reverse mortgages being lower than that of men by 5 and 2 percentage points, respectively. On the one hand, women might benefit most from having access to their illiquid wealth when at retirement age. Not only do women live longer on average than men do; there is also a huge gender gap in the Netherlands when it comes to pension build-up (OECD, June 2013). On the other hand, the literature offers various explanations why women would be less interested in reverse mortgage. Women tend to be less confident than men in their abilities when it comes to financial decision-making (Boggio *et al.*, 2014). Their social identity (caring, sharing) may induce them to feel that they should not consume their housing wealth, but instead leave it to their children.

The variable with the highest impact is "having offspring", which reduces the probability of being somewhat interested and very interested by 20 and 15 percentage points, respectively. This is not unexpected, because those without offspring have the strongest incentive to make full use of all their assets and leave nothing behind. Those with children and a bequest motive seem to think using a reverse mortgage will be at the expense of their heirs. Apparently, bequest timing for the children's utility is not the (main) reason for being interested. But showing examples of using a reverse mortgage for the benefit of their offspring, as we did randomly with half of our respondents through the use of a "bequest motive", does seem to heighten their interest in a reverse mortgage slightly. The finding that those with a higher age difference with their oldest child are more interested in a reverse mortgage loan is also intriguing. A high age difference implies, *ceteris paribus*, that the children receive the bequest at a younger age, which might make the natural timing of the bequest potentially less problematic than for those with a smaller age difference with their oldest child. But the uncertainty effect should be similar for both groups. Perhaps those who become parents for the first time at a higher age are more inclined to carefully plan both their family and their finances.

The Q-ratio variable is positively significant, which indicates that those with relatively more potential for taking out a reverse mortgage are also more interested. The self-employed dummy is positively significant. This makes sense. In the Netherlands especially, self-employed individuals save less for old age than do employees, most likely because the latter are mandatory participants in their employer's pension plan (Van Rooij *et al.*, 2007). It comes therefore as no surprise that they expect to benefit from a reverse mortgage more than employees do. There is also a significant effect of social class, with respondents from lower social classes being less interested. This could be related to less interest in or confidence with using complex financial planning tools.

Having a second mortgage is another objective background characteristic that significantly increases the interest in a reverse mortgage. As in the US, in the Netherlands the combination of rising home prices, falling interest rates and ample refinancing opportunities made it possible— up to 2008— for homeowners to take a second (forward) mortgage on their home (Khandani *et al.*, 2009). In the Netherlands, moreover, taking a second mortgage loan was very attractive for tax reasons, especially for higher incomes. Many of the mortgages were interest-only, or in the form of an "investment mortgage", implying that the mortgage would be paid off, at retirement, with the investment proceeds. Due to the financial crisis, many of these households will have a considerable forward mortgage loan left on their home, which will actually prohibit them making use of a reverse mortgage. That these households nevertheless are relatively more interested in a reverse mortgage, may primarily be indicative of a relatively easy debt attitude.

Subjective background variables

The CentER panel holds a lot of information also on *subjective* background variables, including expectations, personality characteristics, and self-declared health. As Table 5 shows, various subjective background variables significantly influence the attitude toward taking up a reverse mortgage loan. Some have to do with expectations about future wealth and income and have the anticipated sign: the expectation to have sufficient savings (-), and the expectation that there will be future pension cuts (+). Self-assessed worsening of health has a negative sign. This makes sense if one assumes that some of the respondents with worsening health expect to leave their home to move to a nursing home, which would make a reverse mortgage meaningless. And when health has started to worsen, many potential uses for a reverse mortgage lose their priority. The potential bequest might also be used as a bargaining chip for care and attention from the children.

The expectation to leave a large bequest is significant with a minus sign, which makes sense both because expecting to leave a large bequest implies expecting to have more than enough wealth to live from, and may also reflect the wish to leave a bequest at death. The expectation to move to a smaller home has a positive sign. On the one hand this is puzzling, because moving to a smaller home would mean liquidating housing wealth without taking a reverse mortgage loan. On the other hand, it could be that the expected move to a smaller home reflects a fear of not having enough liquid wealth. That planning for a big expenditure upon retirement has a positive sign makes sense because a reverse mortgage would facilitate it. The expectation of pension cuts increases the probability of being interested in the product significantly, which needs no explanation. The bequest motive has in itself a significant negative effect. Apparently, respondents are sensitive to suggestions about the possible use of a reverse mortgage, and apparently respondents regard using the reverse mortgage to plan bequests as less attractive than using it to hand money to their offspring. It should be stressed that this may also be due to the fact that not all respondents have children. In combination with a bequest wish there is a significant positive interaction effect, which also implies that respondents are influenced by suggested uses of a reverse mortgage.

Interestingly, trust in banks does not seem to significantly affect the interest in reverse mortgages. A lack of trust in financial institutions could have been expected to be correlated with a lower interest in such a relatively complex financial instrument.

Table 6: Summary statistics

	Mean	Std.	Min	Max
Interest in reverse mortgage (5-pts)	2.740	1.189	1	5
Age	62.712	9.867	45	89
Age squared	4,030	1,260	2,025	7,921
Female (d)	0.372	0.484	0	1
Age diff with oldest child	23.447	11.794	0	46
Offspring (d)	0.820	0.384	0	1
Log(net household income)	7.925	0.399	6	9
Total wealth (in € 1000)	46.783	96.158	-40	1,454
Medium education (d)	0.269	0.444	0	1
Higher education (d)	0.412	0.493	0	1
Q-ratio	3.014	1.385	1	5
Sufficient savings (10-pts)	6.144	2.260	1	10
Expects pension cuts (10-pts)	6.446	2.242	1	10
Big spending wishes (10-pts)	4.427	2.704	1	10
Grow old in current home (10-pts)	7.606	2.556	1	10
Move to a smaller home (10-pts)	3.649	2.674	1	10
Move to a rented home (10-pts)	3.348	2.517	1	10
Trusts banks (10-pts)	4.563	2.110	1	10
Sufficient income (10-pts)	6.471	2.085	1	10
self-employed (d)	0.048	0.213	0	1
self-assessed health (5-pts)	2.176	0.718	1	5
self-assessed health worsened (5-pts)	3.038	0.615	1	5
Lower SES (d)	0.163	0.370	0	1
Chance of inheritance>€500,000	0.074	0.189	0	1
Bequest motive (d)	0.500	0.500	0	1
Bequest wish (10-pts)	5.961	2.701	1	10
Bequest motive * beq wish	2.996	3.576	0	10
Number of Mortgages	0.864	0.857	0	5
Second residence	0.054	0.226	0	1

Source: authors, based on DHS data. Total sample used for regression.
Observations: 796

5. Discussion and policy implications

What do our findings imply for an evaluation of the potential for a reverse mortgage market in the Netherlands? With no attractive supply available, asking what people would like is the only way to get an idea of potential demand. We have found that less than 10 percent of respondents (say they) have heard of reverse mortgage loans. This is not a surprise, given the lack of supply. This, in combination with our finding that more than a quarter of Dutch homeowners aged 45 and over say they would be interested or moderately interested in the possibility of a reverse mortgage loan, suggests that the absence of a market is not due to a lack of demand. However, the fact that many people say they would be interested does not mean that they would actually take up a reverse mortgage loan if it were available.

Our finding that interest in the product is higher among people who fear pension cuts, underscores that reverse mortgage loans are perceived as an instrument to cushion shocks in retirement income. In fact, enabling higher consumption at retirement is regarded as the main benefit of a reverse mortgage loan. This is relevant, especially as pension risk is shifted more to employees in the Netherlands, the retirement age is increased relative to what people thus far expected, and as of 2015 tax-facilitated pension premiums have been significantly reduced. It is expected that employees will not (fully) compensate for this difference by starting to save more in other ways.

Given the fact that a reverse mortgage is relatively more attractive at a more advanced age, an interesting route for improving pension income is to make more use of the available flexibility in the pension benefit structure. For example, pension participants can opt for a higher pension benefit in the first 10 to 15 years and a lower benefit in the years afterwards, with a maximum ratio of 100 to 70. Alternatively, they might be given the option to choose a pension benefit at a higher starting level, renouncing possible future indexations (Soede, 2012) – although these might become more rare, anyway. These pension benefit structures would mirror the fact that most people tend to spend more in the first 10 to 15 years into their pension years, and at a higher age have lower financial requirements, due to diminishing physical and/or mental strength. Those who find they still have spending wishes at that stage could then very well use a reverse mortgage to supplement their diminishing pension benefits.

Potentially relevant is also the new social security/health care system in the Netherlands, which entails that elderly people entering into a nursing home will have to pay the cost of living (rent, food) themselves; only care and cure will be covered by the system. The contribution that people will have to pay depends on their wealth. Hence, it will be less attractive to move to a nursing home– and in a way, people are disincentivized to accumulate wealth. This might, for two reasons, lead to a further increase in interest in reverse mortgages: people may prefer to continue living at home, and/or may prefer to bestow wealth on their children as soon as they can. At the time of our survey, these new arrangements were not yet in place, so the demand for reverse mortgages found in our survey may be underestimated.

Given the importance of housing in the total assets of the elderly, the possibility of a reverse mortgage would also make the precautionary savings motive less important, and perhaps lead to more decumulation of financial assets, while housing value might be used in case of higher-than-expected longevity. Yet, whether the homeowners who expressed an interest in a reverse mortgage product will indeed enter in such a contract if it were available remains to be seen. That will depend on various circumstances, including the price and non-monetary conditions.

The analysis presented in this paper suggests that a latent demand could be activated— for example, by explaining that liquidating housing wealth, under certain conditions, may not interfere with heirs' utility or could even improve heirs' utility, depending on the individual tax situation and intertemporal liquidity preferences. However, rules and regulations concerning reverse mortgages should be in place, to prevent mis-selling and people entering into a contract which may at some point force them to be evicted by the lender. The government should play a role in providing safeguards for both borrowers and lenders, in order to support the development of a reverse mortgage market (Mitchell and Piggot, 2003; Alonso *et al.*, 2013).

6. Summary and conclusions

In many countries, pension risk is shifted to individuals, social security arrangements have become less generous, and demographic developments require more people to plan for retirement. This is also the case in the Netherlands. What makes the Netherlands special is that almost all employees are mandatory participants in an employer pension plan, in which they have no say as to premium and risk profile. Moreover, many collective labor agreements stipulate that many employees become automatically unemployed when they reach retirement age.

The mandatory retirement age combined with mandatory participation in employer pension plans without the possibility of choosing the level of risk leaves employees with few instruments to cushion pension risk. According to life cycle saving and investment theory, reverse mortgages could be welfare-improving. This paper aimed to assess potential demand in the Netherlands for the reverse mortgage loan as a life cycle saving and investment tool. The starting point of the analysis was the view among academics in pensions and finance that reverse mortgages could and should become integral parts of life cycle saving and investing (Munnel *et al.*, 2012; Merton, 2006, 2011).

With supply almost nonexistent, (potential) demand can only be assessed by questionnaires. This is the approach taken in this paper. Our findings suggest that potential demand in the Netherlands is large, especially for the purpose of consumption smoothing and cushioning pension shocks. Other uses could include optimal bequest timing, especially for those with large home equity and little liquid wealth. Changes to the health insurance system in the Netherlands, which were made after the questionnaire underlying this paper, could render reverse mortgages even more attractive.

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The psychology and economics of reverse mortgage attitudes

Rik Dillingh (Tilburg University), Henriëtte Prast (Tilburg University), Mariacristina Rossi (University of Turin) and Cesira Urzì Brancati (International Longevity Centre-UK) present and analyze the results of a survey on the attitudes toward reverse mortgages of homeowners aged 45 and over in the Netherlands. Respondents are randomly allocated to two different conditions regarding the suggested use of a reverse mortgage loan – personal consumption smoothing or financially supporting (potential) heirs. Results are analyzed using individual objective and subjective background characteristics as explanatory variables. Main conclusions are that few homeowners are aware of the concept of a reverse mortgage, a substantial fraction is very or quite interested – implying latent potential demand, and the suggested loan use influences attitudes.

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