

Flavia Coda Moscarola, Anna Cristina d’Addio, Elsa Fornero  
and Mariacristina Rossi

## 21 Reverse mortgage: a tool to reduce old age poverty without sacrificing social inclusion

- 
- ▶ Homeownership is widespread, in Europe, particularly among older people, with even low-income households holding a significant amount of housing wealth
  - ▶ Because of the low liquidity of housing wealth, homeownership can create a mismatch between disposable income and capital. We argue that reverse mortgages – which convert housing wealth into a stream of income flows – could represent a powerful device against income vulnerability in old age
  - ▶ This argument is supported by our (first) estimates that show that reverse mortgages could indeed play an important role in protecting older households against consumption shortfalls without displacing them from their home, thus contributing to their social inclusion. This is especially true for countries like Spain, Belgium, Italy and France
- 

### 21.1 Reducing the mismatch between income and wealth

Major reforms of European pension systems have aimed at redressing their financial and intergenerational imbalances, while avoiding a cutback of provisions mainly through an increase in retirement ages and an improvement of their efficiency. This restructuring is meant to induce changes in households’ working and saving behaviour and in staff management, without which reforms could increase the risk of income vulnerability in old age.

It is standard practice to define and measure poverty in terms of income and to consider individuals as poor when their income falls below a certain threshold. These “standard” measures, however, do not include streams of income derived from owned wealth. Although the search for more comprehensive measures of poverty is rapidly expanding (see for example Cavasso & Weber 2012, d’Addio 2015), official statistics measuring old-age poverty rates (Eurostat 2014) typically consider only income and omit wealth. However, income alone is not necessarily a good indicator of consumption possibilities. Consumption-based poverty indicators are better measures of households’ welfare, but their use is not free from drawbacks

either. Both habits and social environment affect households' expenditures, with the consequence that the link between expenditure-based measures and effective resources available to the household may be weak, even considering long run variables and the possibility of a bequest motive for saving (Rossi et al. 2014).

Households may own durables and assets which could enhance their living standards. Among these assets, a primary role is played by the house, homeownership being widespread, especially among older people (as shown by SHARE and European Central Bank data, see section 2). Apart from pride of ownership and the sense of belonging, homeownership provides more secure housing services and a shelter against rental fluctuations. On the other hand, home ownership exposes the households to the risk of unfavourable price variations and to the risk of illiquidity.

Our point is to show that a more efficient use of this wealth would protect a relevant segment of the older population from the risk of an unwarrantedly low level of consumption. Among the instruments that could be used to convert (part of) the housing equity into cash flow, the reverse mortgage stands prominent. Its main advantage, at least for those households whose housing wealth is considerable relative to their income, is that it allows the elderly to continue to live in their home thus maintaining the familiarity, memories and affective links, which are essential elements of social inclusion.

The use of reverse mortgage could be also important from a social perspective, since it could release public resources to be allocated, for example, to improve the job perspectives of the young.

Economic theory has often implicitly or explicitly assumed the existence and the superiority of annuity type of products, able to convert assets into consumption flows. The empirical evidence, however, shows a lower rate of wealth depletion among older households than predicted by the theory (Lydall 1995). While there is a remarkable reluctance of older people to downsize their wealth (Feinstein & McFadden 1989, Angelini et al. 2010), consumption tends to drop at retirement (Banks et al. 1998, Borella et al. 2014).

Various explanations have been provided for this behaviour. In the case of reverse mortgages, in particular, a reason that is often advocated is the worry of leaving a debt to their offspring (Fornero et al. 2015). This probability is however rather low as these instruments usually contemplate a non-negative equity guarantee, ensuring that the sale of the property will always be able to cover the cost of the loan. Moreover, previous evidence has shown that people having signed a reverse mortgage contract may still leave substantial inheritance to their children (Coda Moscarola et al. 2013).

Looking at the supply side, adverse selection and moral hazard are likely to play a role in making financial institutions extremely prudent: it's possible that

people asking for a loan own houses that are less likely to increase in value and that are less likely to spend money to maintain the house value once they have obtained the loan.

Although we are aware of these weaknesses of both demand and supply, we are convinced that they can be overcome, for example by good market regulation that could reduce the mistrust from both sides and facilitate their matching. However, many countries still do not have an explicit regulation or (as is the case in Italy), only recently introduced it (March 2015).

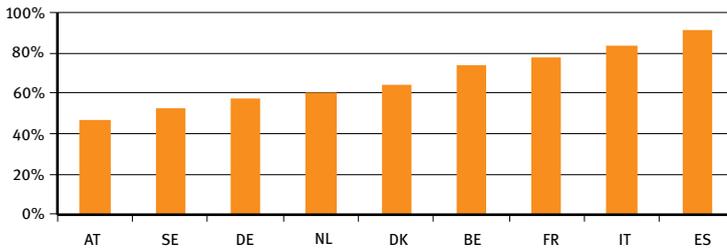
In this chapter, we only aim at highlighting the potential gain that could be obtained from the development of a reverse mortgage market. Using the SHARE Wave 5, which refers to the year 2012, we consider a broader measure of the resources that people aged 65 and over could use to finance their consumption, by including in their income the annuity value derived from a reverse mortgage. The exercise rests on rather strong hypotheses: it does not consider any behavioural responses; it assumes a perfectly elastic supply of reverse mortgages and a demand for reverse mortgages for the whole house value or for 70 per cent of it. Indeed, its main purpose is just to open a discussion on a financial tool – the reverse mortgage – that could have an important role, together with targeted policy measures, in reducing income vulnerability among older people. In the analysis we focus on population aged 65+ as reverse mortgage can normally be subscribed by individuals no younger than 65.

## 21.2 Homeownership across European countries

Data from SHARE Wave 5 suggest that in European countries homeownership among older people is widespread, although with significant variations. In our exercise, we focus on EU15 countries included in SHARE, but we exclude Luxembourg. These countries have indeed comparable income and wealth levels and a similar development of welfare state and financial markets, all features that enhance comparability. Among households with respondents aged 65 and above, homeownership ranges from 47 per cent in Austria to 92 per cent in Spain (see Figure 21.1). In general, homeownership is more widespread in Mediterranean countries than in Northern European countries.

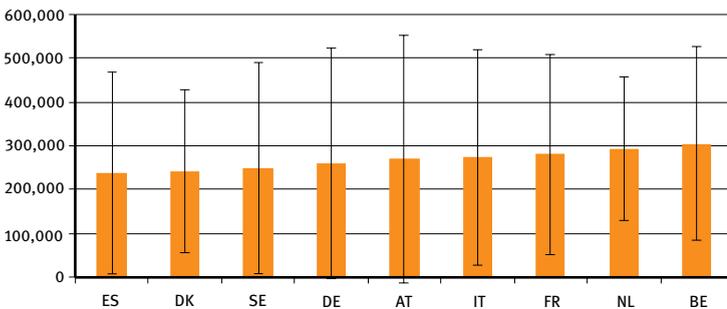
The high property rates signals a potential under-consumption due to the high degree of illiquidity of housing wealth. Figure 21.2 shows the mean value and the standard deviation of self-assessed housing wealth owned by older people in the countries we analysed. All (gross) real estate assets are included, except for houses in cooperatives. The mean value ranges between 200,000 and 300,000

euro (pps). Of course the self-reported values might not reflect the actual market values. However, a comparison between values declared in SHARE Wave 4 and in the Eurosystem Household Finance and Consumption Survey for the same year shows only minor differences, although the latter are systematically higher (a similar evidence is also reported in Mathä et al. 2014).



**Figure 21.1:** Homeownership rates among older people (65+) across European countries

Notes: 14,715 observations, sample of households answering to the question HO002\_Owner-Tenant: “Your household is occupying this dwelling as: 1. Owner; 2. Member of a cooperative; 3. Tenant; 4. Subtenant; 5. Rent free”. We do not consider Members of a cooperative as Owners. Source: SHARE Wave 5 release 0



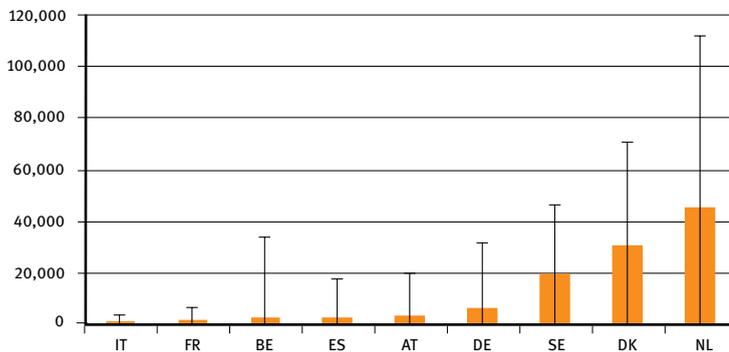
**Figure 21.2:** Gross housing wealth across European countries (pps units): mean and standard deviation

Notes: 6,823 observations, sample of the respondents to question HO024\_ValueH – “In your opinion, how much would you receive if you sold your property today?”. We have excluded all observations with house values missing or outlier (i.e. lower than 1,000 euro or greater than 1,500,000) or with ownership percentage missing or lower than ten per cent. Values are in pps reported by Eurostat for the year 2012. Source: SHARE Wave 5 release 0

People generally buy houses borrowing money from banks through a mortgage. However, at the age of 65, the large majority of households has already fully repaid the debt or is left with small residual loans. From SHARE Wave 5, we

observe the following percentages of homeowners aged 65+ with loans on their main home: Austria 10.4 %; Germany 13.2%; Sweden 50.1 %; Netherlands 49.7 %; Spain 6.1%; Italy 1.3%; France 3.5 %; Denmark 42.1 % and Belgium 2.7 % (based on the sample of respondents to the question ho015:\_"How much do you [or/or/or/or] [your/your/your/your] [husband/wife/partner/partner] still have to pay on your mortgages or loans, excluding interest?"). Only three countries show a percentage higher than 15: Sweden, the Netherlands and Denmark. One of the reasons for the three exceptions may be the existence of mortgage formulae that allow the beneficiary to repay only the interest, thus leaving the debt and the house to the offspring.

Furthermore, the residual loan is usually relatively low: the mean value for all countries is below 10,000 euro, while the highest mean amount (observed in the Netherlands) is about 45,000 euro (see Figure 21.3).



**Figure 21.3:** Residual loans on housing wealth across European countries (pps units): mean and standard deviation on the sample of owners

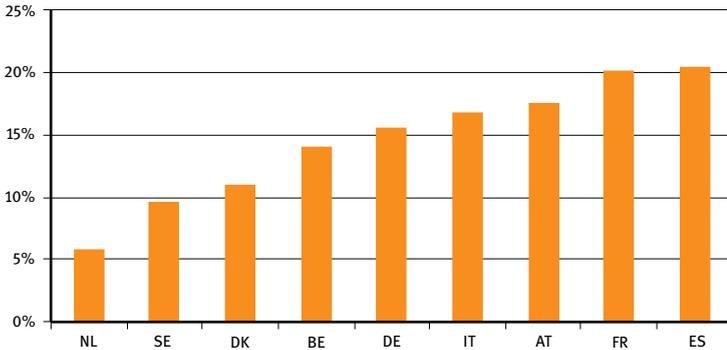
Notes: 6,823 observations, sample of respondents to the question ho015:\_"How much do you still have to pay on your mortgages or loans, excluding interest?". Individuals reporting positive and non-missing values are 1,340 out of 6,823.

Source: SHARE Wave 5 release 0

## 21.3 Economic vulnerability among older people

SHARE data provide detailed information about individual income and allow us to elaborate a simple index of economic vulnerability. To identify the economic vulnerability condition of people 65 and over, we consider an income threshold equal to 60 per cent of the median disposable income. Disposable income has been calculated as after taxes per-capita total income, plus the imputed rent con-

verted in pps. The index is not a measure of poverty and is thus not comparable to the official statistics on poverty. It simply highlights, within each country, the relative position of a group of (older) individuals with respect to the economic condition of the overall (older) population. Put differently, this analysis aims at detecting how wealth conversion into an income stream could take some of the older households out of the lowest tail of income distribution, relative to the subsample of the older people (65+).



**Figure 21.4:** Economic vulnerability index among individuals aged 65+ in 2012

Notes: Economic vulnerability rates are calculated on the 60 per cent of the household disposable income (question HH017\_TotAvHHincMonth - “How much was the overall income, after taxes and contributions, that your entire household had in an average month in [STR (Year - 1)]?”\*12) plus imputed rent divided by the household size on the sample of individuals 65+ respondents to the question about homeownership. 9,390 observations weighted with households weights (chw\_w5)

Source: SHARE Wave 5 release 0

Economic vulnerability ranges from six in the Netherlands to 20 per cent in Spain. It is higher in France and Spain and lower in Northern European countries such as in Sweden and in the Netherlands. It is more widespread among non-homeowners but the data reveal that some low income households, albeit few, hold a substantial amount of housing wealth, suggesting that a possible mismatch between income and wealth could be of relevant magnitude, making people *house-rich* and *cash-poor*. This is where reverse mortgages could help to solve a problem.

## 21.4 Reverse mortgage

By taking out a reverse mortgage, homeowners can convert the value of their house (or part of it) into an annuity (or a lump sum). The annuity and the lump sum are computed taking into account their life expectancy and the market interest rate. It is worth remembering that under the reverse mortgage contract, the property stays with the owners until death and goes to the heirs on condition that the outstanding debt is repaid. Heirs can opt for repaying the debt with their own resources or selling the house. Reverse mortgages usually have a non-negative equity guarantee, which ensure that the amount of the loan will never exceed the house value. Due to the non-negative guarantee, if the value of debt at subscriber's death is higher than the value at which the house is sold, the heirs don't have to bear the difference. This obviously implies that the loan value is lower than the potential maximum.

In our exercise, annuities have been computed using the following simplified equation:

$$\text{Annuity} = \text{House\_value} * \frac{r}{(1+r)^{(\text{max age}-\text{age})} - 1}$$

Where  $r$  is the interest rate applied by the financial providers,  $\text{age}$  is the current age of the individual and  $\text{max age}$  is the maximum age the individual can reach. The house value is the self-perceived value of the house and it is assumed to be constant over time. In reality, housing markets have experienced divergent paths throughout OECD countries. Prices have been increasing in half of OECD countries— such as Germany, Switzerland, the United Kingdom, Denmark, the Netherlands, Ireland and Sweden (see d'Addio 2015). By contrast, in other countries (e.g. in France, Greece, Italy and Spain) real house prices continue to decline. According to the European Mortgage Federation housing prices in Europe overall have returned in 2014 to 2006 levels. Heterogeneity in prices is also reported within the same country with capitals and large cities registering the largest increases, while rural and remote regions often experience the largest declines. Given this high heterogeneity and the absence of a clear time trend, we assume constant prices.

Among the risks faced by credit institutions (besides those related to the dynamics of interest rates and house prices) would be the possible longevity of mortgagors and the moral hazard related to the maintenance of the house. Davidoff and Welke (2007) ignore the issue of moral hazard related to home maintenance and concentrate on adverse selection by comparing the mobility of the borrowers and non-borrowers. Their findings point to a sort of “advantageous” selection, i.e. reverse mortgage borrowers have a higher probability of selling

their houses and repaying the mortgage earlier. Davidoff (2006) showed that homeowners over 75 spend less on routine maintenance relative to younger ones. However, he also suggested that this problem is mitigated in practice by the fact that “borrowers are residual claimants of the house”.

Lenders in any case may take these additional factors into account by charging high insurance fees, which in conjunction with the commissions they apply and the mechanism of compound interest, makes reverse mortgages very expensive in practice. To deal with these problems, in our exercise, given its main purpose, we use some strong simplifications. First, we assume that all individuals in the sample have the same longevity, i.e. they will die at age 100 (which rules out differences in mortality/longevity). Second we consider a relatively high interest rate, which is meant to include the mark-up and various costs faced by the bank also in relation to adverse selection and moral hazard. In addition, we have considered two scenarios: an optimistic one, in which all respondents aged 65 or more are able to convert 100 per cent their housing equity into an annuity by means of a reverse mortgage; a more realistic one, in which they can convert only the 70 per cent of it.

Table 21.1 shows for each country the median house value (net of loans) for owners, along with the median values of the income flows (computed using, respectively, an interest rate of four, seven or ten per cent) resulting from the reverse mortgage and the associated percentage reduction in vulnerability rates of the older population.

The table shows that, at least in some countries, the reduction of economic vulnerability among older people would be remarkable. For example, in Spain the use of reverse mortgages could offset a substantial fraction (about 27 per cent if 100 per cent of the house value is converted, which becomes 24 per cent if we convert only the 70 per cent of the house value) of the economic weakness of older households. Reductions would be substantial also in Belgium, Italy and France. For some other countries (such as Sweden, Austria and the Netherlands) however, this instrument would be of little effect in reducing income vulnerability, as property values are not high enough to guarantee a significant stream of income flows.

Given these results, it is surprising that the debate about how to release housing wealth has been so limited in Europe, up to now. We are aware of the high psychological value homeownership still has for many people, particularly among older generations, in many European countries and we are convinced that being able to continue to live at home is an important element of social inclusion. However, we are also aware of an increasing number of older individuals who are facing difficulties in financing an adequate flow of consumption because of the illiquidity of their housing wealth.

**Table 21.1:** Household income increase per year and vulnerability rates reduction in percentage points in case of reverse mortgage

	Net housing wealth of owners (median, euro pps)	Additional income from reverse mortgage for owners (releasing 100% of housing value; per year)			Percentage reduction in vulnerability among 65+ in case of reverse mortgage (obs. weighted with household weights)					
		r=4%	r=7%	r=10%	r=4%	r=7%	r=10%	r=4%	r=7%	r=10%
Spain	174,950	3,948	2,561	1,602	27.0%	22.9%	20.3%	24.8%	20.7%	16.1%
Belgium	239,804	5,492	3,469	2,048	25.3%	18.1%	15.7%	17.9%	16.9%	15.0%
Italy	209,331	4,274	2,746	1,657	16.4%	13.4%	7.9%	13.7%	7.9%	6.9%
France	208,945	4,752	2,958	1,810	13.8%	11.1%	7.4%	11.1%	7.7%	7.4%
Denmark	156,964	3,171	1,958	1,197	8.1%	6.0%	5.5%	6.0%	5.5%	5.5%
Germany	180,019	3,668	2,216	1,282	5.7%	4.4%	3.0%	4.4%	3.0%	2.5%
Netherlands	193,536	3,822	2,267	1,321	4.6%	3.4%	3.4%	3.4%	3.4%	3.4%
Austria	193,532	3,679	2,216	1,302	4.1%	2.2%	1.5%	3.3%	1.5%	0.8%
Sweden	155,257	3,099	1,915	1,116	2.6%	1.8%	1.8%	1.8%	1.8%	1.8%

Note: 9,390 observations (owners in the age range 65–100) weighted with households weights (chw\_w5). Calculations are done under the hypothesis that individuals reach the maximum age of 100.

Source: Authors' own calculations using SHARE Wave 5 release 0 data

The calculations presented in this paper show that reverse mortgages could help those households who have enough housing wealth and are ready to use it to finance consumption without losing the house and without burdening their children with debt. There seems to be a “missing market” here that could improve welfare and also help avoiding that the consequences of a too illiquid portfolio be left to the community. Recognising the problem, Nobel Prize laureate Robert Merton (2011) has advocated a “complete revamp and efficient placement of reverse mortgages” to enhance the role of the house as a retirement-funding asset.

## References

- Angelini, Viola, Brugiavini, Agar, Weber, Guglielmo (2010): “Does downsizing of housing equity alleviate financial distress in old age?”. In: Börsch-Supan, Axel, Brandt, Martina, Hank, Karsten, Schröder, Mathis (Eds.): *The individual and the welfare state*. Berlin/Heidelberg: Springer, p. 93–101.
- Banks, James, Blundell, Richard, Tanner, Sarah (1998): “Is there a retirement-savings puzzle?”. In: *American Economic Review* 88. No.4, p. 769–788.
- Borella, Margherita, Coda Moscarola, Flavia, Rossi, Mariacristina (2014): “(Un)expected retirement and the consumption puzzle”. In: *Empirical Economics* 47. No.2, p. 733–751. DOI: 10.1007/s00181-013-0760-z.
- Cavasso, Barbara, Weber, Guglielmo (2012): “The effect of the great recession on the wealth and financial distress of 65+ Europeans”. In: Börsch-Supan, Axel, Brandt, Martina, Litwin, Howard, Weber, Guglielmo (Eds.): *Active ageing and solidarity between generations in Europe. First results from SHARE after the economic crisis*. Berlin: De Gruyter, p. 27–36.
- Coda Moscarola, Flavia, d'Addio, Anna Cristina, Rossi, Mariacristina, Sansone, Dario (2013): “Reverse mortgages: making assets a tool against poverty”. *Mimeo*.
- d'Addio, Anna Cristina (2015): “Housing wealth for the living standards of the elderly in OECD and EU”. In: *Social Employment and Migration working paper*.
- Davidoff, Thomas (2006): “Maintenance and the home equity of the elderly”. In: *UC Berkeley Working Paper*.
- Davidoff, Thomas, Welke, Gerd (2007): “Selection and moral hazard in the reverse mortgage market”. In: *UC Berkeley Working Paper*.
- Eurostat (2014): “At-risk-of-poverty rate of older people by sex and selected age groups”. [http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc\\_pnp1&lang=en](http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=ilc_pnp1&lang=en), visited on 05 November 2014.
- Feinstein, Jonathan, McFadden, Daniel (1989): “The dynamics of housing demand by the elderly: wealth, cash flow, and demographic effects”. In: Wise, David A. (Ed.): *The economics of aging*. Chicago: University of Chicago Press, p. 55-86.
- Fornero, Elsa, Rossi, Mariacristina, Urzi Brancati, Maria Cesira (2015): “Explaining why, right or wrong, (Italian) households do not like reverse mortgages”. In: *Journal of Pension Economics and Finance*. DOI: 10.1017/S1474747215000013.
- Lydall, Harold (1995): “The life cycle in income, saving, and asset ownership”. In: *Econometrica* 23. No. 2, p. 131-150.
- Mathä, Thomas, Porpiglia, Alessandro, Ziegelmeier, Michael (2014): “Household wealth in the euro area: the importance of intergenerational transfers, homeownership and house price dynamics”. In: *European Central Bank Working Paper Series* 1690.
- Merton, Robert (2011): “Observations on the future of financial innovation and engineering: addressing financial challenges of the economy”. In: *Princeton Lectures in Finance*.
- Rossi, Mariacristina, Vecchi, Giovanni, Latino, Lucia (2014): “Vulnerability”. In: Vecchi, Giovanni (Ed.): *For the rich and for the poor*. Forthcoming in: Oxford University Press.