

Is Housing an Impediment to Consumption Smoothing?

A Report prepared by:

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Summary (1)

- Financial Readiness after retirement has been studied extensively
- What if wealth is under-utilised and households do not resort to their wealth in times of instability and income drops?
- Do the elderly live below their possible standards?
- Resorting to public resources cannot be the sole response to economic downturns, particularly in the presence of unused consistent assets.

Summary (2)

- Very little decumulation is observed along the after-retirement path.
- Is financial illiteracy responsible for the small amount of decumulation in old age?
- Is the portfolio allocation affected by the degree of financial knowledge?
- Our *ex ante* expectation is that more financially sophisticated households should be more active in their decumulation phase
- What is the welfare gain of a more efficient use of wealth?

Structure

- Decumulation, Illiquid Portfolio. A microeconomic analysis using SHARE
- Reverse Mortgage potential demand using UniCredit Survey
- Simulation exercise of poverty reduction through wealth annuitization

I: Asset Decumulation

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OEE Final Report, 17 December 2012

Patterns of housing wealth decumulation among European elderly.

- Within a society with an increasing share of rapidly aging people, the **welfare of the elderly** is one of the main causes of concern for European policy makers
- The elderly have **fewer strategies available to cope with adversities** (such as additional labour supply) and their accumulated asset is important as a buffer stock
- Elderly **reluctant to decumulate**, particularly their housing wealth
- Standard life-cycle, according to which individuals should use their accumulated wealth in order to finance their consumption after retirement, seems to be contradicted .

Our study

- Aims at detecting how higher levels of financial literacy allow elderly people to make better decisions regarding their wealth accumulation
- A higher endowment of financial literacy allows elderly people to have a more balanced portfolio
- More financial literacy generates more ability in planning smoothing consumption

Previous studies

- Van Rooij, Lusardi and Alessie (2011) show that the majority of Dutch households possess limited FL, particularly women and the elderly
- Hung et al. (2009) on “decumulation planning” find that FL helps decumulate efficiently.
- The consider questions such as: “Have you ever tried to figure out how much your household would be able to withdraw from your savings every year in retirement?”, “Have you made a plan for systematically spending down your savings during retirement?” and “Are you confident that your retirement spending plan will be sufficient to ensure that your needs are met in the future?”.
-However they do not account for the endogeneity of FL

Data: SHARE

- persons aged 50 and over in 12 European countries:
 - Austria, Belgium, Denmark, France, Germany, Greece, Israel, Italy, the Netherlands, Spain, Sweden, and Switzerland.
 - The survey covers 19,286 households and 32,022 individuals
 - main purpose of the survey was to collect comparable information about health status, income, wealth and household characteristics of elderly people for different European countries, following the example initiated by the US Health and Retirement Study (HRS) and the English Longitudinal Survey on Ageing (ELSA)
 - Two waves available (third wave is about to be released): 2004 and 2006/2007

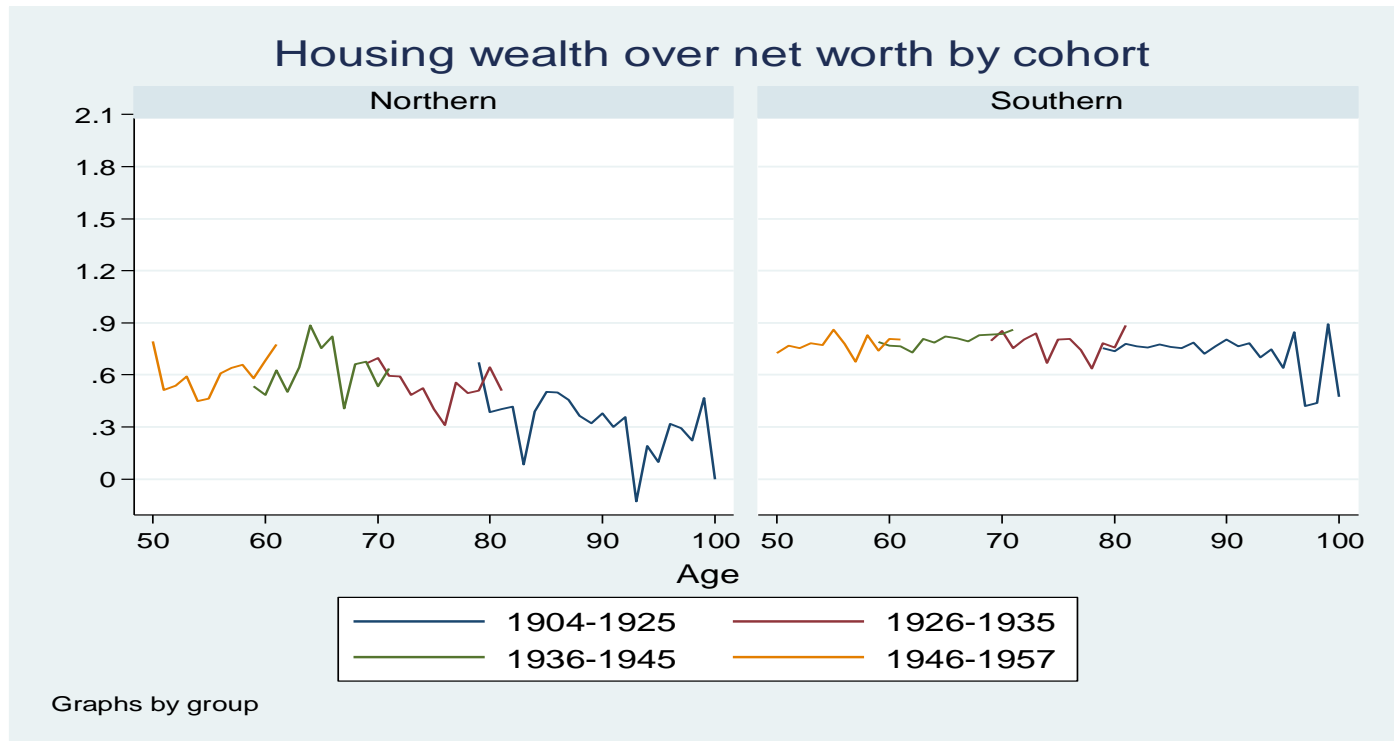
SHARE. Content

- It contains a variable on numeracy (computing percentages, inflation and one question only on compound interest rate), which we proxy for financial literacy.
- We control for this potential weakness by adding a robustness check for Italy
- Dataset rich in information on health status, both perceived and objective (such as diabetes etc)

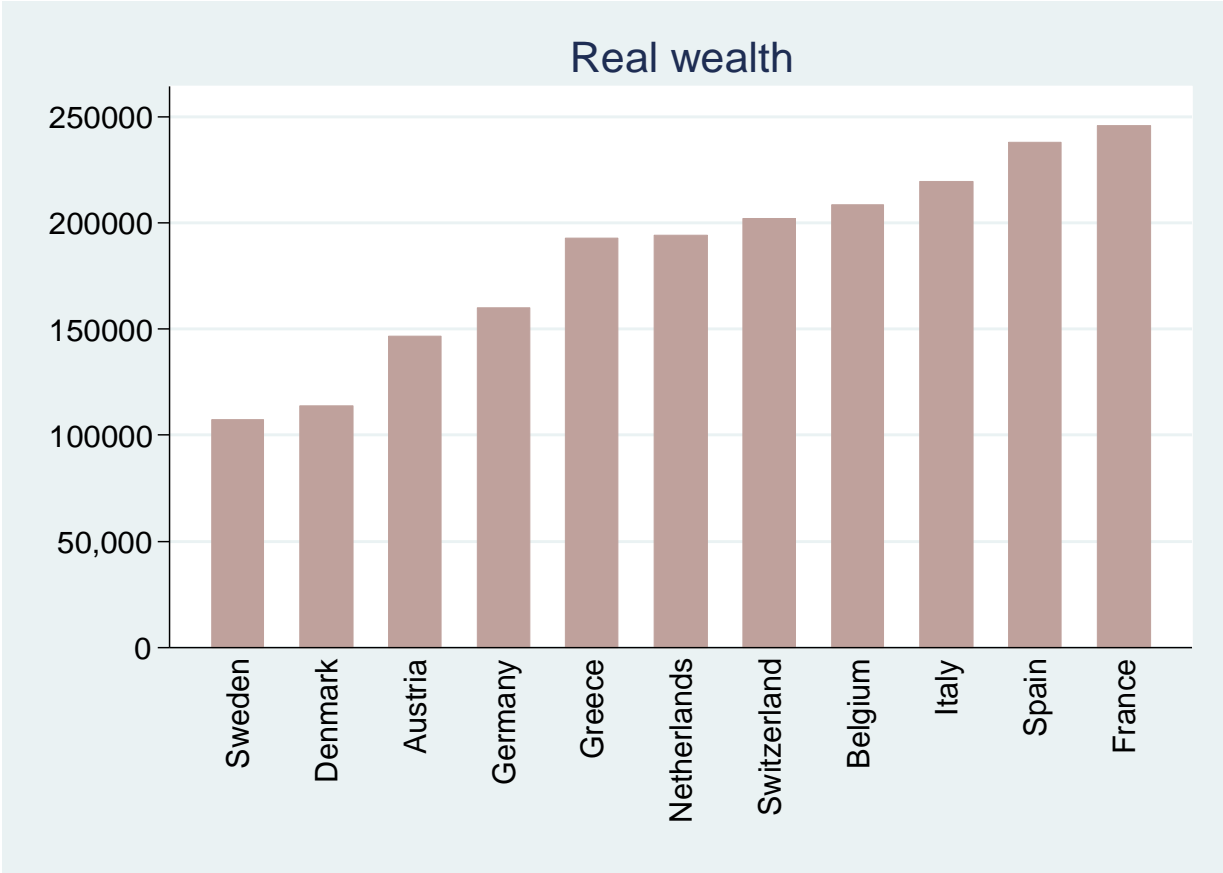
Strategy

- *Set of three estimates*
- Delta (log) of real and financial wealth to explore decumulation
- Portfolio Illiquidity
- Having problems making ends meet

Housing ratio out of total wealth



Northern countries include: Austria, Belgium, Denmark, Germany, Netherlands, Sweden, and Switzerland, whereas the group of Southern countries represent France, Greece, Italy, and Spain.



Best Numeracy Performers. By gender

	Male	Female	Total
Austria	0.230553	0.135567	0.178151
Germany	0.331315	0.188853	0.259482
Sweden	0.334354	0.182944	0.256037
Netherlands	0.383277	0.204488	0.289607
Spain	0.058209	0.012644	0.032468
Italy	0.112692	0.059797	0.085399
France	0.177182	0.074503	0.12257
Denmark	0.36633	0.169705	0.27001
Greece	0.240835	0.104828	0.169365
Switzerland	0.326733	0.173963	0.25211
Belgium	0.184278	0.087803	0.136207
Total	0.248061	0.122927	0.183086

Regression I. (No) Decumulation

	Growth rate of housing wealth		Growth rate of financial wealth	
	OLS	IV	OLS	IV
Fin Lit	0.0253	1.0473	-0.3507	2.3187
	0.0534	0.7693	0.7033	7.0856

Portfolio Imbalance.

Ratio of housing wealth out of total wealth

	OLS	IV	Heck	Selec eqn	Heck-IV	Selec eqn	FE
Fin Literacy	-0.0216***	-0.1962**	-0.0211***	0.1115***	-0.1863**	0.6252***	-0.0189***
S.E.	-0.0055	-0.0918	-0.0055	-0.0166	-0.0831	-0.2369	-0.0068

Reporting not having problems in making ends meet

	Logit (w1)	logit-cf (w1)	Logit (w2)	logit-cf (w2)	FE
Fin Literacy	0.0467***	0.3003***	0.0453***	0.4042***	0.0281*
S.E.	0.0070	0.1073	0.0069	0.1068	0.0159

Discussion

- No evidence on decumulation, neither on housing nor on financial wealth
- Strong effect of financial literacy on portfolio illiquidity. More financially literate respondents exhibit a better balanced portfolio
- More financial literate people are better planners and bear no negative consequences on the ability to make ends meet

II: How to make real assets liquid

The reverse mortgage in Italy

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OEE Final Report, 17 December 2012

What is the Reverse Mortgage?

- It is a loan against the home value, such that the value of the loan cannot exceed the present value of the house at predicted death
- An illiquid asset becomes a source of liquidity, mainly for consumption purposes
 - Accumulating wealth, if not translated into consumption, should not affect utility

Reverse Mortgage: product's main features

- RMs require no obligation of repayment until the individual (or spouse) dies, moves out, or sells the house
- RMs can be taken out as:
 - **lump sum**
 - through fixed monthly payments (**tenure** plan or **life annuity**)
 - or as a **line of credit** the borrower can access any time
 - combination of all
- The amount of the loan depends on
 - the age of the borrower (the older the borrower, the larger the loan)
 - the value of the property (the more valuable the house, the larger the loan)
 - the interest rate (lower interest rates means more money is available to the borrower).

Why we need the Reverse Mortgage

- Because of the demographic trends, the saving behaviour of the elderly and their portfolio holdings are central to the policy debate
 - Dependency ratios will rise dramatically in the next 30 years
- Population ageing puts strain on the public purse
 - Many public retirement systems are very generous: replacement rates often come to exceed 70 per cent
- Reverse Mortgages can:
 - Alleviate the burden of an ageing population on public budgets
 - Increase income security in old age and allow better consumption smoothing

RMs literature: who should be more interested

- Some researchers emphasize a significant potential demand:
 - Case and Schnare (1994): interest in RMs should be strong among the **‘house-rich, cash-poor’** elderly homeowners;
 - Mayer and Simons (1993): elderly could use them to **pay off pre-existing debts**.
 - Ong (2008): RMs have the capacity to lift out of poverty 95% of income-poor elderly Australians – especially women aged 80 or over.
- Others see a limited scope for RMs:
 - Venti and Wise (1987): low-income elderly generally have little housing equity available.

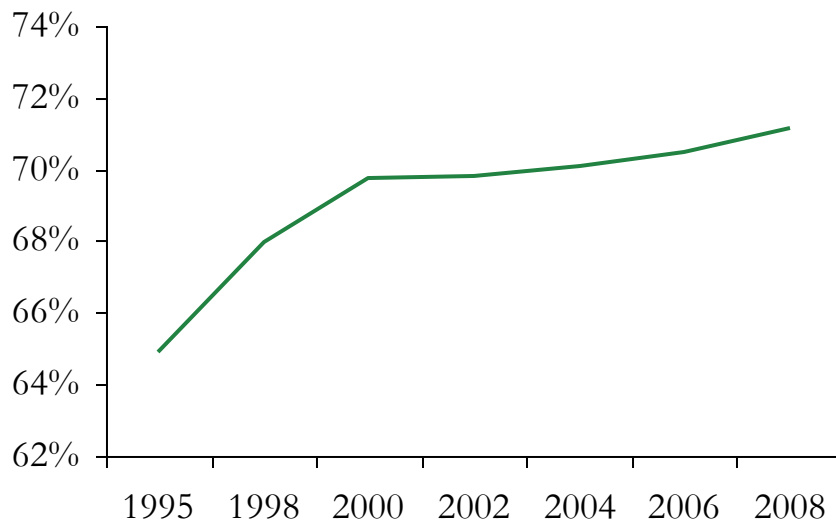
RMs literature: (some) reasons for the market's underdevelopment

- Transactions **costs**, high insurance fees, and uncertainty about future needs and preferences – Caplin (2001), Davidoff and Welke, (2005)
- **Debt aversion** among the elderly – Gibler and Rabianski (1993), Caplin, (2000)
 - households may prefer a lower level of consumption in a debt-free house to a higher level in a debt-ridden one
- **Financial illiteracy**, lack of awareness of the product – Gibler and Rabianski (1993), Leviton, (2002), Fornero and Monticone, (2011), Reed (2009).

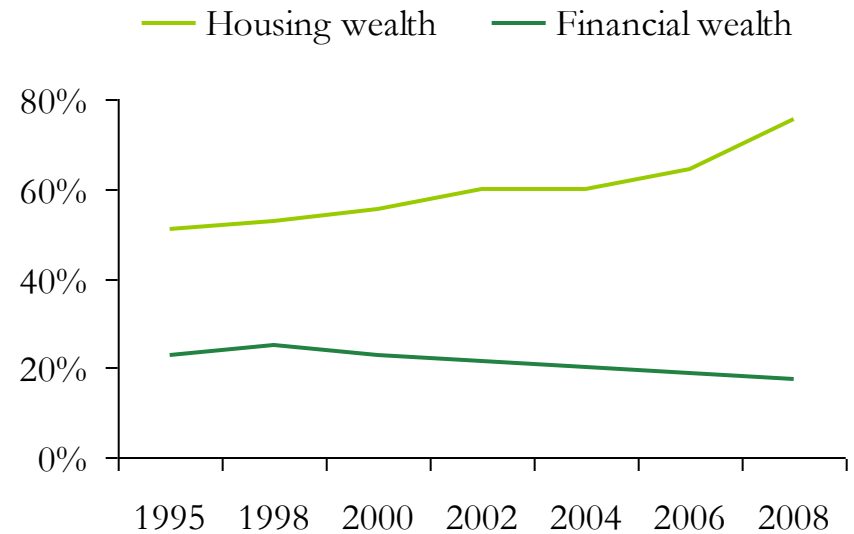
Potential for Reverse Mortgages in Italy

- Italy has very high homeownership rates (around 78% among the elderly)
- Italian households hold most of their wealth locked up in housing

Evolution of homeownership



Housing Wealth / Financial Wealth



Source: Bank of Italy's Survey on Household Income and Wealth (SHIW), 1995 - 2008

Reverse Mortgage in Italy

- In Italy, RMs were formally introduced in 2005 under the name *prestito vitalizio ipotecario*, available to the over 65 whose housing equity exceeds €70,000.
- A few credit institutions offer RMs:
 - Deutsche Bank's PatrimonioCasa and Euvis's Prestito Vitalizio (available only as a lump sum);
 - Banca Monte dei Paschi di Siena: PrestiSenior for the over 70 as either a lump sum or an annuity for a maximum of 20 years.
- The product is new, complex and not well known. Can we expect to find high levels of interest among the population?

Empirical analysis: The UniCredit Survey (UCS)

- UCS 2007 targets the bank's clients aged 21–75 with at least €10,000 in deposits.
- The survey elicits respondents' opinions towards risk, investments and savings, and tests their level of financial education.
 - Additional data have been extracted by Bank of Italy's Survey of Household Income and Wealth (SHIW) 2006 to compare the characteristics of our respondents with a representative sample of all Italian population.
- Why UCS and not SHIW? Only dataset, to our knowledge explicitly asking a specific question on RM

Summary statistics: UCS vs. SHIW

	UCS	SHIW
Average age of household head	56.0	57.6
Female household heads	22.0%	37.0%
Elderly household heads	29.6%	36.3%
Higher education (degree or more)	24.4%	8.9%
Pensioners	32.3%	36.1%
Self-employed	29.4%	10.2%
Homeowners	90.3%	71.2%
Average household income	€71,325	€31,893
Average housing equity	€387,367	€215,418
<i># of observations</i>	<i>1,686</i>	<i>7,768</i>

Source: Unicredit 2007

Estimating the monetary value of a Reverse Mortgage

- Payments to borrowers are calculated according to:
 - the principal limit factor (PLF)
 - Italy ranges from roughly 20% of the housing equity for 65-year-olds to roughly 50% for those over 90
 - the age (or life expectancy) of the (youngest, in a couple) borrower
 - is set at 100 minus current age, multiplied by 12 (Rodda et al. 2000)
 - the mortgage interest rate
 - 6.8% per annum (0.55% per month), an average of DB (7.3%), MPS (7.9%), and the HUD HECM (5.5%) RM rates
 - the adjusted property value.
 - calculated from our sample homeowners.

Estimating the monetary value of a Reverse Mortgage (cont'd)

- The monthly payment to the borrower under the tenure plan can be computed as an annuity, using the following formula¹

$$A_i = HD \frac{r}{(1+r)^{e_i+1} - (1+r)}$$

where

A_i = monthly payment to (household) borrower i

HD_i = housing value at predicted death/principal limit factor i.e. $H(1+\pi)^{e-1}$,
where π is the expected house price appreciation

r = monthly interest rate (approximated).

e_i = life expectancy (in months)

¹ Based on Ong (2008) and Rodda et al. (2000)

Application of the sinking fund formula to the UCS

	Average housing equity	Maximum loan advance	RM annuity	Average household Income	% gain in income from RM
All	376,989	94,247	7,661	71,325	11%
Housing equity quintile					
I quintile	141,792	35,448	2,881	54,211	5%
II quintile	222,309	55,577	4,517	63,128	7%
III quintile	310,992	77,748	6,320	77,568	8%
IV quintile	445,139	111,285	9,046	77,622	12%
V quintile	905,217	226,304	18,395	77,409	24%
Age Category					
65–69 years	416,875	93,797	7,624	80,413	9%
70–74 years	429,384	139,550	11,343	61,434	18%
75–80 years	339,500	127,313	10,348	42,738	24%
80 years or over	433,333	173,333	14,089	44,180	32%
Household Income Unit					
Couple	387,358	96,840	8,306	76,223	11%
Single male	342,116	85,529	7,336	66,633	11%
Single female	358,432	89,608	7,686	52,116	15%
Geographical Area					
North	356,826	89,206	7,652	66,482	12%
Centre	421,820	105,455	9,045	76,674	12%
South	381,476	95,369	8,180	76,181	11%

Source: Unicredit 2007

OEE report 17-Dec-2012

Expression of Interest in RMs

- In order to have financial resources / income in old age, how interested would you be in a RM? (Respondents assign a value between 1 and 5)

Interest in RMs

(% of total)	Under 65		Over 65		All
	Male	Female	Male	Female	
Very interested	0.7	1.7	1.6	1.4	1.1%
Quite Interested	6.6	7.2	5.3	4.2	6.2%
Somewhat interested	14.1	14.4	9.2	12.7	12.9%
Barely interested	20.3	19.4	20.7	22.5	20.4%
Not interested	58.3	57.2	63.2	59.2	59.7%
<i># of observations</i>	<i>686</i>	<i>180</i>	<i>304</i>	<i>71</i>	<i>1,241</i>

Empirical strategy: ordered probit

obs: 1,071

Pseudo R²: 0.062

	Coefficient	Marginal effects on probabilities				
		y = 1 (no)	y = 2 (barely)	y = 3 (somewhat)	y = 4 (quite)	y = 5 (very)
Log of property value	-0.125 (0.07)	0.048* (0.03)	-0.016* (0.01)	-0.019* (0.01)	-0.012* (0.01)	-0.002 (0.00)
City size (30,000 to 100,000)	0.317*** (0.12)	-0.123*** (0.05)	0.037*** (0.01)	0.049** (0.02)	0.031** (0.01)	0.006* (0.00)
Resident in the North (d)	0.230** (0.09)	-0.088** (0.04)	0.029** (0.01)	0.035** (0.01)	0.021** (0.01)	0.004** (0.00)
Financial literacy (0 to 3)	-0.082* (0.04)	0.031* (0.02)	-0.010* (0.01)	-0.012* (0.01)	-0.007* (0.00)	-0.001 (0.00)
Risk aversion (index)	0.298** (0.13)	-0.115** (0.05)	0.038** (0.02)	0.045** (0.02)	0.027** (0.01)	0.005* (0.00)
Real estate perceived risk (d)	0.395*** (0.12)	-0.155*** (0.05)	0.039*** (0.01)	0.062*** (0.02)	0.045*** (0.02)	0.009* (0.00)
Preference for downsizing (d)	0.702*** (0.09)	-0.274*** (0.03)	0.061*** (0.01)	0.109*** (0.02)	0.085*** (0.02)	0.020*** (0.01)
Debt aversion (d)	-0.379*** (0.08)	0.147*** (0.03)	-0.043*** (0.01)	-0.059*** (0.01)	-0.038*** (0.01)	-0.007*** (0.00)
Negative retirement exp. (d)	0.240*** (0.08)	-0.092*** (0.03)	0.029*** (0.01)	0.037*** (0.01)	0.022*** (0.01)	0.004** (0.00)

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

Estimation results (cont'd)

- Predictors of higher interest:
 - medium/small municipality size (between 30,000 and 100,000 inhabitants)
 - being resident in the north
 - a higher level of risk aversion
 - housing perceived as risky
 - negative post retirement expectations
- Predictors of lower interest:
 - higher housing equity (low significance level)
 - debt aversion
 - financial literacy (not very robust)

Discussion

- Italian households hold most of their wealth locked up in illiquid assets
- The aim of accumulating wealth, both real and financial, is (should be?) to deal with periods in life in which income is low, such as retirement
 - The elderly are reluctant to decumulate their wealth, and therefore they are not effectively using it
- Since real estate wealth is illiquid, households tend to consider it as “non-wealth”
- The introduction and dissemination of financial products such as the Reverse Mortgage could solve this problem

III: Making assets a tool against poverty

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Reverse mortgages: Making assets a tool against poverty

- Fact: People do not decumulate as fast as expected.
- Is this a problem? Yes, if governments have to compensate low private decumulation rates with high public expenditure
- Are people prepared to retirement? How many of them are vulnerable?
- Don't look just at pension benefits, but also assets, especially real assets

Poverty rates

- Poverty I: poverty line provided by Eurostat
- Poverty II: poverty line computed within the sample
- Note: we are interested only in relative changes

Wave 1 - 2004

Wave 2 - 2006

Country	Poverty I	Poverty II	Poverty Eurostat
Austria	11.30	19.02	17.00
Germany	21.35	27.81	
Sweden	11.38	20.77	14.00
Netherlands	14.87	24.35	
Spain	16.88	21.46	29.50
Italy	30.83	23.17	21.00
France	12.09	20.31	15.30
Denmark	24.59	32.86	17.00
Greece	22.00	28.17	28.20
Switzerland		34.59	
Belgium	17.31	19.44	20.90

Sources: SHARE and Eurostat - SILC

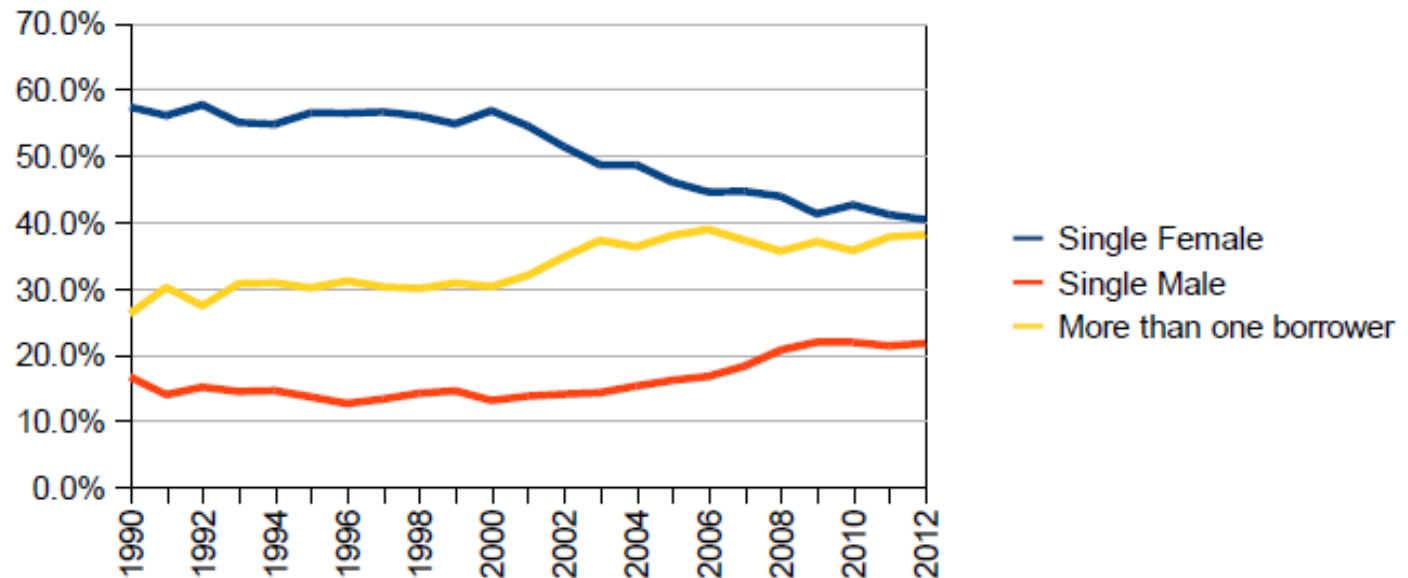
Country	Poverty I	Poverty II	Poverty Eurostat
Austria	14.63	11.22	16.2
Germany	25.42	16.20	12.5
Sweden	17.11	13.18	11.3
Netherlands	17.25	13.33	5.8
Spain	26.50	25.35	30.7
Italy	32.93	16.87	21.7
France	17.54	18.55	16.1
Denmark	46.72	25.26	17.4
Greece	26.28	25.08	25.6
Switzerland		18.82	
Belgium	15.88	14.25	23.2

Sources: SHARE and Eurostat - SILC

Reverse mortgage: an introduction

- Different kind of payment plans: lump sum, line of credit, or annuity
- In the US: decline in the average age. Decumulation or poverty?
- Mainly used for home improvements, to pay back debts, to help family

Type of borrowers in the US

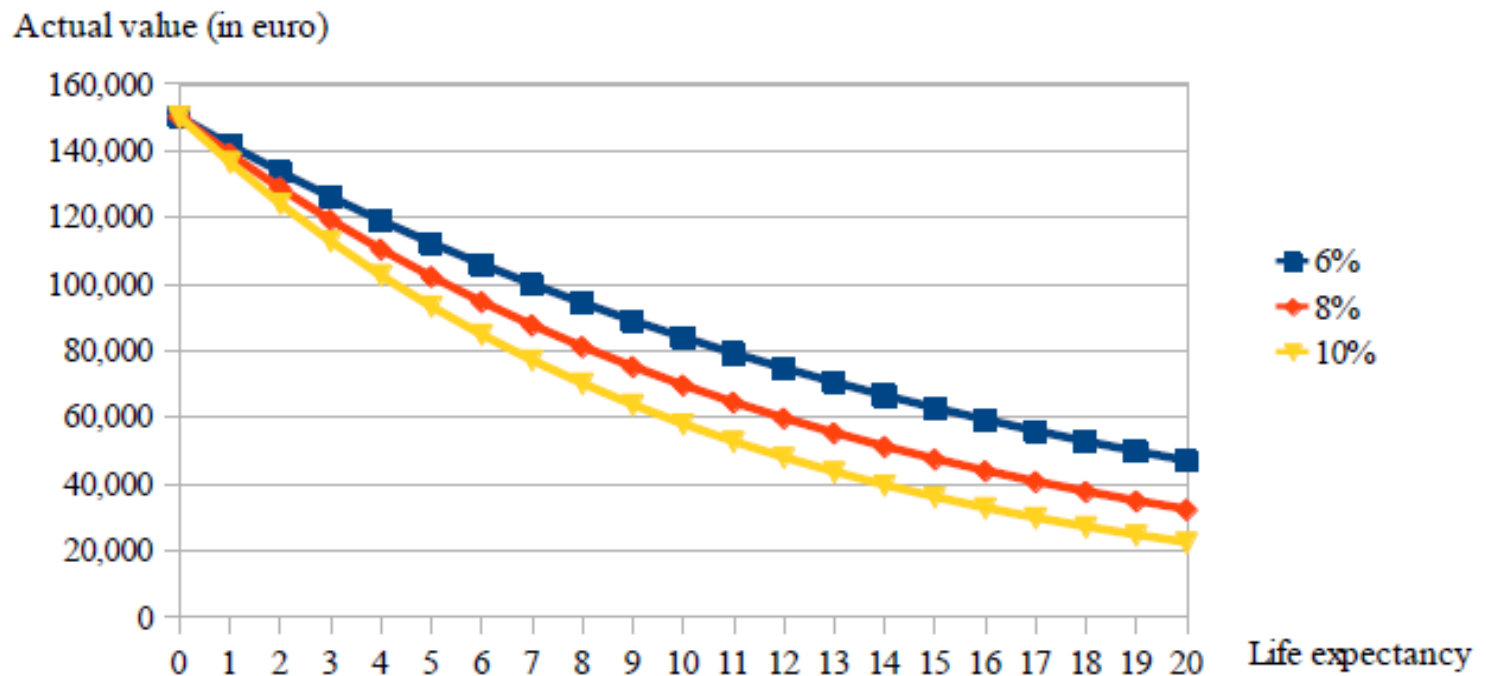


Source: HUD, June 2012

One Euro today is worth more than one Euro tomorrow

- First solution: convert house value into a lump sum
- Be aware of life expectancy and compound interest rate. It's not unfair, it's math

Actual value of 150,000



What if all house equity is converted into annuities?

- Huge effect in Spain, Italy and Greece. Similar for wave 2 and Poverty II
- Majority of the poor just below poverty line

Poverty I - Wave 1

Country	Interest=6%	Interest=8%	Interest=10%
Austria	4.71	4.52	3.77
Germany	5.95	4.66	3.75
Sweden	3.65	3.20	2.76
Netherlands	7.62	7.43	7.06
Spain	11.67	11.46	10.83
Italy	20.27	17.21	13.80
France	5.93	5.80	4.96
Denmark	11.58	10.40	10.40
Greece	12.83	11.33	10.67
Belgium	8.01	7.26	6.84

Source: SHARE

What if 50% house equity is converted into annuities?

- Poverty reduction still significant, particularly among Mediterranean countries

Poverty Reduction - Wave 1

Country	Poverty I		Poverty II	
	Interest=5%	Interest=8%	Interest=5%	Interest=8%
Austria	3.01	2.64	5.27	4.71
Germany	3.23	2.59	6.34	5.56
Sweden	2.43	1.88	4.42	4.09
Netherlands	7.06	6.32	6.69	6.13
Spain	10.42	9.79	14.58	13.75
Italy	12.78	10.39	9.37	8.69
France	4.59	4.35	8.34	7.38
Denmark	8.51	7.09	8.51	6.62
Greece	8.33	6.83	13.00	11.50
Switzerland			9.77	9.02
Belgium	5.66	5.13	10.04	9.62

Source: SHARE

What if 30% house equity is converted into annuities?

- Effect on poverty rates still sizeable

Poverty Reduction - Wave 1

Country	Poverty I		Poverty II	
	Interest=5%	Interest=8%	Interest=5%	Interest=8%
Austria	2.26	1.32	4.14	3.39
Germany	1.68	0.91	4.53	4.01
Sweden	1.88	1.33	3.09	2.43
Netherlands	5.58	4.83	5.39	4.46
Spain	8.75	8.13	12.50	10.63
Italy	8.01	5.62	7.84	6.64
France	3.75	3.39	6.41	5.20
Denmark	5.67	4.49	5.44	4.02
Greece	5.67	4.50	10.00	9.00
Switzerland			7.52	6.39
Belgium	4.91	4.49	7.05	5.56

Source: SHARE

What about my grandchildren?

- Decent inheritance. Increases with higher interest rates
- Remember: non negative equity clause

Inheritance - 100% House value

Country	House value	Interest=6%	Interest=8%	Interest=10%
Austria	193,981	77,393	84,540	91,524
Germany	216,808	85,524	93,544	101,386
Sweden	117,698	47,500	51,791	55,984
Netherlands	254,994	106,059	115,032	123,794
Spain	204,692	85,127	92,315	99,333
Italy	201,394	79,302	86,818	94,165
France	247,759	99,007	108,145	117,076
Denmark	150,134	63,547	68,708	73,745
Greece	111,475	47,875	51,680	55,394
Switzerland	250,532	101,968	110,988	119,798
Belgium	190,759	79,189	85,911	92,475

Source: SHARE

Converting both real and financial assets into annuities

- Spain and Italy biased towards house. Sweden towards financial assets
- Huge differences in fin. wealth among countries (Greece vs. Switzerland)

Poverty Reduction - 100% House value - Interest rates 8% and 5%

Country	Fin. wealth: 30%	Fin. wealth: 50%	Fin. wealth: 70%
Austria	4.52	4.90	5.08
Germany	5.95	6.86	7.12
Sweden	5.30	5.97	6.30
Netherlands	8.92	9.11	9.85
Spain	11.88	12.08	12.08
Italy	18.74	19.08	19.42
France	6.17	6.41	6.89
Denmark	13.71	15.37	15.84
Greece	11.67	11.67	11.83
Belgium	8.87	9.62	10.26

Source: SHARE

Conclusions

- Reverse mortgage MAY be a powerful instrument in order to reduce poverty among the elderly
- But:
- Complex (and still expensive)
- Lack of interest in decumulation

Final Remarks

- Huge potential for products helping the transition towards and after retirement, where the main income drop appears
- Little financial readiness of the elderly to appreciate and understand products such as reverse mortgage
- Increasing financial literacy would certainly lead to a more balanced portfolio and better planning, non necessarily to a more pronounced decumulation
- Tangible welfare gains with (partial) annuitization of wealth particularly in Southern European Countries