

Crisis Effects on Household Finances

- the cases of household liabilities and the individual demand for life insurance

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Research Questions, Data and Sample

What are the crisis effects on life insurance and on household liabilities?

- **Life Insurance** (total; whole life (fin) and term life (non-fin))
 - Profile and individual demand determinants
 - **Data Source:** Survey of Health, Ageing and Retirement in Europe SHARE w2 and w4
 - Same individual (2 moments). (N=2,602; 803; 716)
 - **Matching and variable building.** SHARE (Börsch-Supan, 2013a; Börsch-Supan, 2013b; Börsch-Supan & Krieger, 2013; Börsch-Supan et al., 2013a; Börsch-Supan et al., 2013b)
- **Household Liabilities (Europe and USA)**
 - Composition and household liability determinants
 - **Data Source:** SHARE (wave 2 (2006/2007) and wave 4 (2010/2011)) and Health and Retirement Study HRS-USA (wave 8 (2006) and wave 10 (2010))
 - Same individual SHARE (2 moments) N=2,251 (bank) ; Same individual HRS (2 moments) N=1,076
 - **Matching and variables building.** SHARE (see insurance). HRS: Angrisani e Lee, 2011; Zamarro e Lee, 2011; Zissimopoulos et al., 2012; Servais, 2004; Kapteyn, 2011)



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Liabilities: Dependent variable(s) and Original survey (SHARE and HRS questions)

SHARE

“The next question refers to money that you may owe, excluding mortgages (if any). Looking at card 32, which of these types of debts do you [or/or/or/or] [your/your/your/your] [husband/wife/partner/partner] currently have, if any?”

- a) Debt on cars and other vehicles (vans/motorcycles/boats, etc.);
- b) Debt on credit cards / store cards;
- c) Loans (from bank, building society or other financial institution);
- d) Debts to relatives or friends;
- e) Student loansf)
- f)Overdue bills (phone, electricity, heating, rent);
- g) None of these ;
- h) Other.

HRS (USA)

“And do you (or your [husband/wife/partner]) have any debts that we haven’t asked about, such as credit card balances, medical debts, life insurance policy loans, loans from relatives, and so forth?”...

“Altogether, about how much would that amount to?” [for non mortgage debt]

“About how much do you still owe on the (mortgage/land contract)?”, “About how much do you still owe on that second mortgage?” [mortgage debt].

Methodology (Life Insurance Determinants)

- The different specifications were tested using **Probit** models, adopting as the **dependent variable having or not life insurance**.
 - 2 types of life insurance that are analyzed independently by literature:
 - term life
 - whole life
- Respondents between 50 and 86 years old (and own answer).
- 3 groups were defined:
 - countries common in both waves (12 countries);
 - new wave 4 countries (including Portugal); and
 - panel data with the same individual observed at both waves.

Methodology (Liabilities determinants)

- Various specifications of the **Probit** model were tested where the dependent variable assumed the value of 'one' or 'zero' corresponding to the exist of **debt/liabilities or not**.
- The study was conducted taking under consideration different sub-groups:
 - the **whole set** of debts (liability) and
 - **each type** of debt in the **European countries (SHARE)** (Overdue bills, Debt on cars and other vehicles, Debt on credit cards, Loans, Debts to relatives or friends and Student loans)
 - for the **USA case (HRS)** (mortgage and nonmortgage).

Life Insurance: Brief Literature

<u>variable</u>	<u>author</u>	<u>effect</u>	
wealth	Hau (2000)	(+)	Net wealth
	Frees & Sun (2009)	(-)	Distinguish between fin and real assets
income	Burnett & Palmer (1984)	(+)	
	Gutter & Hatcher (2008)	(+)	
	Frees & Sun (2009)	(+)	
debt	Frees & Sun (2009)	(?)	<i>term life (+), whole life (-)</i>
age	Bernheim (1989)	(-)	
	Gutter & Hatcher (2008)	(+)	
	Frees & Sun (2009)	(+)	Quadratic term negative
children	Burnett & Palmer (1984)	(+)	Existence and number
	Bernheim (1989)	(+)	

Life Insurance: Literature (cont.)

<u>variable</u>	<u>author</u>	<u>effect</u>	
Gender and marital status	Ferber & Lee (1980)	(?)	Related to couple life cycle
	Gandolfi & Miners (1996)	(?)	
education	Burnett & Palmer (1984)	(+)	
	Gandolfi & Miners (1996)	(+)	Also includes partner education
	Gutter & Hatcher (2008)	(-)	Only considering low levels of education
	Frees & Sun (2009)	(+)	Only <i>term life</i>
risk aversion	Gutter & Hatcher (2008)	(+)	Financial risk
altruism	Hau (2000)	(+)	
	Vidal-Meliá & Lejárraga Garcia (2006)	(+)	
expectations	Spaenjers & Spira (2013)	(-)	Life expectancy (self evaluated)
social security benefits	Lewis (1989)	(-)	
	Bernheim (1989)	(+)	

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Life Insurance: Results 12 countries

Marginal effects (12 countries)

	Modelo 7		Modelo 8		Modelo 9		Modelo 10		Modelo 11		Modelo 12	
wave	2		4		2		4		2		4	
categoria	all		all		term life		term life		whole life		whole life	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
age	-0,0151433 ***	-9,19	-0,0101853 ***	-8,09	0,006324 *	1,96	-0,0074527 ***	-2,67	-0,0026339	-0,86	0,0015086	0,54
educ	0,0113958 ***	3,85	0,0036226 **	2,19	0,0043921	0,82	-0,0178948 ***	-5,61	-0,0025874	-0,51	-0,0053701 *	-1,75
childrenY	0,1379975 ***	4,30	0,0246161	0,98	0,1410676 **	2,16	0,0159153	0,30	-0,0933809	-1,45	-0,0494459	-0,98
married	0,0994732 ***	4,24	0,0358774 **	2,06	-0,0583076	-1,22	-0,0343107	-0,98	0,0794654 *	1,74	0,0109228	0,31
risk	0,0327114	1,40	-0,0692378 ***	-3,81	-0,1413952 ***	-3,41	-0,017685	-0,54	0,1400505 ***	3,49	0,0315926	0,97
incomelog	-0,0287503 **	-2,59	0,0127362	1,44	0,0162204	0,81	0,016291	0,90	-0,0110619	-0,58	-0,0081296	-0,46
houseD	0,0996713 ***	3,93	0,0648238 ***	3,32	0,0794971 *	1,81	-0,0048794	-0,14	-0,0416989	-0,98	-0,060431 *	-1,71
jobY	0,0071947	0,25	0,0503538 **	2,23	0,2337913 ***	5,07	0,0156486	0,37	-0,1222388 ***	-2,71	-0,0807787 *	-1,96
wealthFINlog	0,0462709 ***	6,54	0,0412078 ***	9,03	-0,00227	-0,17	-0,0012203	-0,14	0,0513708 ***	4,00	0,0558575 ***	6,37
wealthRlog	-0,0677123 ***	-5,68	-0,025107 ***	-2,87	0,0657422 ***	3,04	0,0221758	1,20	-0,1084938 ***	-5,06	0,0252962	1,40
Nr de observações	2134		3468		731		1033		731		1033	
Percent correctly predicted	70,90%		72,17%		66,07%		61,47%		68,81%		64,96%	
Log likelihood value	-1225,1004		-1904,2848		-428,3551		-674,41868		-424,26245		-648,19901	
Pseudo R2	0,1169		0,1097		0,1237		0,0357		0,0873		0,0512	

Life Insurance: Results same individual

Marginal effects (same individual)

	Modelo 19		Modelo 20		Modelo 21		Modelo 22		Modelo 23		Modelo 24	
wave	2		4		2		4		2		4	
categoria	all		all		term life		term life		whole life		whole life	
	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z	dy/dx	z
age	-0,0172254 ***	-10,35	-0,0126925 ***	-9,31	-0,0071037 *	-1,90	-0,0099445 ***	-2,85	0,0024506	0,70	0,0033714	1,02
male	0,0767784 ***	4	0,0572247 ***	3,29	0,0643178 *	1,71	0,0679814 *	1,69	0,0145918	0,41	-0,0246709	-0,64
childrenY	0,1454837 ***	5,02	0,0546031 *	1,79	0,1900327 ***	2,69	0,0019735	0,02	-0,1699438 ***	-2,84	0,0346826	0,42
childNR	0,0059864	0,67	0,0160911 **	2,06	0,0017013	0,10	-0,0123268	-0,66	0,0292546 *	1,74	0,0207113	1,15
well	0,0007256	0,03	0,0457455 *	1,85	0,1298869 **	2,34	0,0543958	0,83	-0,0468828	-0,88	0,0065473	0,10
incomelog	-0,0114014	-1,05	0,0009933	0,08	-0,0031877	-0,15	0,0761245 ***	2,68	-0,0040436	-0,20	-0,0488201 *	-1,78
houseD	0,1131617 ***	5,47	0,0552231 ***	2,87	0,1020712 **	2,55	0,0980364 **	2,30	-0,1474364 ***	-3,96	-0,1381542 ***	-3,37
jobRet	-0,0269185	-1,05	-0,045623 **	-2,07	0,0071596	0,13	-0,0065016	-0,13	-0,0025749	-0,05	0,0169198	0,35
wealthFINlog	0,0509307 ***	8,5	0,0206229 ***	4,19	0,0238178 *	1,84	-0,0077366	-0,64	0,0306573 **	2,52	0,0362218 ***	3,12
wealthRlog	-0,0714261 ***	-6,55	-0,0549595 ***	-5,4	0,0507666 **	2,17	0,0452298 *	1,76	-0,0594051 ***	-2,69	-0,0465485 *	-1,88
Nr de observações	2602		---		803		716		803		716	
Percent correctly predicted	71,48%		74,09%		60,90%		61,73%		66,75%		65,64%	
Log likelihood value	-1422,8316		-1486,1502		-518,44922		-458,06903		-493,90799		-452,74169	
Pseudo R2	0,1302		0,0818		0,0626		0,0706		0,0465		0,0437	

Life Insurance: What changes after crisis?

- **Increase relevance** after crisis: children (number); well being; being retired
- **Decrease relevance** after crisis: children (existence); debt related with housing; wealth (real and financial)

Life Insurance: Results 2

- The study of **term life and whole life** insurance proved to be useful because there are distinctions in the results obtained from the 2 types of insurance. Term life / whole life factors **affect differently** both types of insurance: having children (tl +; wl -); debt related to housing (tl +; wl -); income (tl +; wl -); real wealth (tl +; wl -) [substitutes Frees & Sun, 2009]
- Real and financial **wealth, education** and **aversion to financial risk** are important in both periods.
- Variables like **age** and **house debt** also proved equally important, **but** this importance have **strong probability of being associated with supply factors**.

Liabilities: Results

- In Europe ,the average household debt amount is higher than the USA in both years, suffering an increase from 2006 to 2010, while in the USA it stayed constant, however, the **percentage of individuals with any kind of debt** stayed similar in both years and both analyzed regions.
- The results suggest that in the EU, after the crises, was verified a change on the weight of each debt source, **with a trade off between the decreasing of formal financial debt from institutions and the rise of informal debt, obtained from family and friends.**
- The models results (EU) show that the age, the wealth, the financial risk aversion, marriage and savings in general **have a negative effect in debt acquirement.** On the other hand, the education (number of years) and having children has a **positive effect on debt.**
- The factors that **explain different kinds of debt differ** in the analyzed regions and years, noticing that
 - the children's variable, the health status, education and marriage are explanatory in the EU,
 - opposing the USA, where they show no statistical relevance (significant: wealth, income and being employed).