

Life Insurance Demand and Financial Inclusion Evidence from Italian households

Elisa Luciano*

Joint work with Mariacristina Rossi

*University of Turin, CeRP-CCA and Netspar

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Introduction

- We look into the demand for life insurance products by focusing on:
 - life insurance and death assurance products, by looking at the propensity to buy and the intensity of the demand (premium)
- We use the Bank of Italy dataset SHIW (survey household, income, wealth)
- Our findings show that financial inclusion acts as a main driver of life insurance demand. Inclusion is either having stocks, a mortgage or being financially literate.

- LI can be of two types:
 - i) pure life insurance, which guarantees a lump sum (pure endowment) or an annuity upon survival of the subscriber and
 - ii) term insurance, which guarantees to beneficiaries a payment if death occurs to the subscriber.
- While the first type represents pure savings, the second reveals the intention to bequeath.
- Pure life insurance often covers the whole life type: it consists of an accumulation plan which pays a lump sum (or annuity) if the subscriber is alive, whenever she decides to stop the contract, and pays a lump sum to the heirs (whose amount is precisely known in advance) in case of subscribers death.

LI as saving tool: annuities

- Life Insurance (LI) can be very effective in planning efficiently saving patterns.
- LI can represent a vehicle for savings and building up annuities. It could be of particular interest to those who are exposed to little annuitisation
- in Italy workers will receive their pension as an annuity (mandatory) - risk of over-annuitisation? (Brown and Nijman 2011)
- However, people who have discontinuous career or are not in the labour market are at risk of under-annuitisation
- This makes it particularly interesting for women, who are far from the labour markets and more vulnerable to little annuitization

Annuity puzzle and bequest intention

- Death assurance captures the saving intention for the next generation- post mortem utility
- life insurance responds to an intertemporal planning, both within the life cycle and within an intergenerational dimension
- “Annuity puzzle”
 - total (Yaari, 1965) or partial annuities with bequest motives (Davidoff *et al.*, 2005) are optimal
 - Yet few buy them.
- Preferences for bequest could explain lack of annuities, particularly for the wealthiest (Lockwood, 2012)

Our paper

- aims at investigating whether the traditional drivers of insurance demand work on the Italian data.
- The main determinants of life insurance have been traditionally detected in: household income, tax treatment, education, life expectancy, young dependents ratio, risk aversion, financial vulnerability, age and bequest intention.
- we take them all into account by adding closeness to financial market
- and focusing on women, who are less financially literate, usually more risk averse, participate less to the labour market.

Research drivers

- On gender, little has been studied w.r.t. insurance. Exception is Gandolfi and Miners (1986). They focus on within couples behavior, finding a strong discrepancy within the couple in the demand for insurance, with wives having much lower life insurance than their husbands.
- Much more has been studied w.r.t. financial literacy. Wsj, June 14: "women, especially, are failing financial literacy". Lack of knowledge is more costly if you live more (women do) and does not depend on social status (wealth, education). 22
- and self-confidence in financial matters, which is lower for women (more prone to learn) J

Data

- We use the SHIW data 2012
- Our sample consists of individuals aged between 24 and 60
- they are either a household head or the spouse, where the head is self-stated. We exclude other relatives and children living in the household so as to focus on the couple (or single) decisions. Our final sample consists of 6,973 individual-observations.

		Life&Death insurance	Life Insurance
Gender			
	Male	12.0%	7.4%
	Female	6.6%	4.7%
	Total	9.03	5.91

		Traditional Life&death Insurance
Gender		
	Male	9.9%
	Female	5.4%
	Total	7.40

Descriptive Statistics

		Life&Death insurance		Total	Life Insurance		Total
Age		Male	Female		Male	Female	
	25-34	5.99	3.86	4.69	3.37	2.89	3.08
	35-44	12.26	7.14	9.43	7.26	5.04	6.03
	45-54	14.05	7.41	10.50	8.56	5.5	6.92
	over 55	9.94	5.39	7.50	6.68	3.5	4.98

		Traditional Life & death Insurance		Total
Age		Male	Female	
	below 34 years	5.64	3.62	4.41
	35-44	9.7	5.85	7.55
	45-54	11.79	6.09	8.73
	over 55	7.94	4.1	5.87

Descriptive statistics of the variables used in the econometric analysis

Variable	Obs	Mean	Std. Dev.	Min	Max
Life & Death	6973	.0903485	.2867009	0	1
Female	6973	.5469669	.4978249	0	1
Degree	6973	.1481428	.355267	0	1
Degree *female	6973	.0860462	.2804523	0	1
Age	6973	46.56	8.26	25	59
Age^2/100	6973	2.23	.7435729	.625	3.481
North	6973	.4171806	.4931286	0	1
Centre	6973	.2032124	.4024181	0	1
Riskaverse	6973	.5990248	.4901311	0	1
Spouse or coh	6973	.8355084	.3707477	0	1
# under 15	6973	.6647067	.8989447	0	5
# 15-25	6973	.4941919	.7354454	0	4
# 25-55	6973	1.65	.7196308	0	5
# > 55	6973	.3963861	.7040972	0	4
Employee	6973	.5613079	.4962627	0	1

Self employed	6973	.1306468	.3370378	0	1
Employee *fen	6973	.2581385	.437642	0	1
Self employed	6973	.0438836	.2048507	0	1
Income over w	6973	347.885	2.443.247	-265.464	41000
Income ratio*f	6973	1.707.144	1.701.905	-265.464	41000
Medium city	6973	.1877241	.3905197	0	1
Large city	6973	.4850136	.4998112	0	1
Mega city	6973	.0869066	.2817184	0	1
Bequest intent	6973	.5478273	.497743	0	1
Holding stock	6973	.0764377	.2657162	0	1
Home owner	6973	.6725943	.4693003	0	1
Quantile1	6973	.2501076	.4331058	0	1
Quantile2	6973	.2499641	.4330231	0	1
Quantile3	6973	.2499641	.4330231	0	1
Quantile4	6973	.2499641	.4330231	0	1

Table: Financial Knowledge and Life Insurance

	Financial literacy (highest scores)		Total (%)
Sex	No	Yes	
Male	10.7	17.6	13.5
Female	5.4	9.2	7
Total	8	13	10

Endogeneity of Stock Holding

- Instrumented via father or mother with managerial skills - parents with managerial job at the age of the respondent
 - The main respondent is asked what was the occupation of your mother and father at your age?. We consider managers, freelancers and entrepreneurs as managerial occupations so as to build up the instrument.
- The rationale relies on the reasoning that having a parent with higher education or managerial job increases the likelihood of having a higher cognitive ability and financial knowledge (see Calcagno and Urzi', 2014)

Note: Financial Literacy is based on three questions assessing the respondents knowledge of the concepts of variable versus fixed interest-rate mortgage, inflation rate and portfolio risk and diversification.

Strategy

- We look at three different models
- The propensity to buy any insurance (probit)
- Life insurance and death assurance as a joint decision (biprobit)
- The amount of premia (tobit)
- Focus on gender, participation to the financial and real estate market, occupational status and measures of risk

Table: Insurance Holding

Any Insurance Holding	(1)	(2)	(3)	(4)
female	-0.00905***	-0.00995***	-0.0148***	-0.0338**
Log hh income	0.0160***	0.0139***	0.0208***	-0.000362
Individual income/family income	4.32e-07***	4.33e-07***	8.34e-07***	1.54e-06**
Under 15	0.00165	0.00164	0.00463	0.0121
15-25	-0.00245	-0.00250	-0.00441	0.00307
25-55	-0.00794***	-0.00799***	-0.0160***	-0.0251
Over 55	-0.0103***	-0.0107***	-0.0178***	-0.0245
Employee	0.000680	0.00193	-0.00406	-0.0107
Self-employed	0.0147***	0.0188***	0.0135	0.0111
Income/Wealth	-0.000212**	-0.000214**	-0.000335*	-0.000710
Medium city	-0.00435	-0.00480	-0.0109*	0.0102
Large city	-0.00757***	-0.00809***	-0.0163***	-0.00569
Mega city	-0.0140***	-0.0152***	-0.0242***	-0.0836***
Bequest	0.000564	0.000135	-0.00130	-0.0338*
Homeownership		0.00509*	0.00109	-0.0156
Stock holding		0.0251***		
Financial literacy			0.00850***	0.256**

Table: Life Insurance

Life Insurance	(1)	(2)	(3)	(4)
female	-0.00343**	-0.00359**	-0.00661*	-0.0241*
Log hh income	0.0116***	0.0104***	0.0160***	0.0380
Individual income/family income	1.43e-07**	1.33e-07**	2.52e-07*	7.68e-07
Under 15	0.000214	0.000100	-0.000243	0.000242
15-25	-0.00289**	-0.00295**	-0.00618**	-0.0164
25-55	-0.00490***	-0.00486**	-0.0114***	-0.0353**
Over 55	-0.00668***	-0.00676***	-0.0135**	-0.0406*
Employee	0.00102	0.00174	0.00123	0.00340
Self-employed	0.00948***	0.0117***	0.0140*	0.0385
Income/Wealth	-0.000138**	-0.000139**	-0.000232	-0.000781
Homeownership		0.00276	0.000978	-0.00280
Stock holding		0.0123***		
Financial literacy			0.00529**	0.102

Table: Term Insurance

Term Insurance	(1)	(2)	(3)	(4)
female	-0.0105***	-0.0116***	-0.0169***	-0.0424***
Log hh income	0.0141***	0.0122***	0.0166***	-0.00330
Individual income/family income	3.37e-07***	3.36e-07***	6.10e-07***	1.21e-06**
Under 15	0.00218*	0.00227	0.00614**	0.0167*
15-25	-0.00126	-0.00120	-0.00236	0.00635
25-55	-0.00839***	-0.00860***	-0.0140***	-0.0246
Over 55	-0.0104***	-0.0110***	-0.0159**	-0.0247
Employee	0.000604	0.00171	-0.00282	-0.00857
Self-employed	0.0126***	0.0163***	0.0126	0.0123
Income/Wealth	-0.000185**	-0.000186**	-0.000292*	-0.000685*
Homeownership		0.00507*	0.00219	-0.0118
Stock holding		0.0219***		
Financial literacy			0.00784***	0.245**

Table: Tobit

Premia.	Life	Life	Life	Term	Term	Term
female	-420.5	-400.3	-401.5*	-925.5***	-799.8***	-816.2***
Log hh income	1,636***	1,692***	1,105*	1,254***	1,332***	364.2
Individual/hh income	0.0181**	0.0249**	0.0177*	0.0201***	0.0259***	0.0155**
Income/wealth	344.9	351.0	352.0	314.6	332.6	165.0
Homeown	355.8	405.8	-48.79	425.6	452.9	-197.1
Stock holding	1,513**			1,438**		
Financial Literacy		264.6**	546.7		182.0**	3,209

Discussion

- Income is significant, though tiny effect. Both as household income as well as individual over hh income
- risk aversion is not. we know however that risk aversion is self declared
- Holding stocks is one of the main determinants, while home ownership is not significant
- Financial market participation (proxied by stock market participation) generates a strong effect on insurance demand, suggesting that when families are close to the financial system they diversify in all possible forms

Policy implication

- To study policy implications, we first produce a prediction of the probabilities to have one form of insurance (life or death) given that the respondent already has the other. We do this separately for men and women, given that their demands are significantly different
- We then study the (unconditional) probabilities of having either life or death insurance, under the true and under shocked values of some relevant variables, such as income, education and stock ownership. This is like asking which manoeuvres are likely to increase insurance demand for intermediaries, be them banks or insurance companies. .

	$\Pr(L=1)$	$\Pr(D=1)$
Female	0.05	0.06
Male	0.07	0.11
Whole sample	0.06	0.08

	Number of individuals with L=1 in the sample	Number of individuals with D=1 in the sample
Female	0.05	0.06
Male	0.07	0.11
Whole sample	0.06	0.08

Males	Females
$P(D=1 L=1) = 0.83$	$P(D=1 L=1) = 0.72$
$P(L=1 D=1) = 0.57$	$P(L=1 D=1) = 0.64$

Pr(L=1)	BaseLine	With stock	Income +10%	Education 40% with degree	Income +10% and 40% with degree
Female	0.05	0.08	0.05	0.05	0.05
Male	0.07	0.12	0.08	0.07	0.08
Total	0.06	0.09	0.06	0.06	0.06

Pr(D=1)	BaseLine	With stock	Income +10%	Education 40% with degree	Income +10% and 40% with degree
Female	0.05	0.10	0.06	0.06	0.06
Male	0.11	0.18	0.12	0.15	0.12
Total	0.08	0.14	0.09	0.08	0.09

Policy implications in a nutshell

- By increasing financial knowledge (one additional correct answer, life insurance would increase by 2 percentage points, to 10 % for men)
- the effect would be stronger for term insurance by increasing to 15 % participation of men (to 11% the overall participation)

Extensions

- We extend the analysis to allow for the panel dimension of the analysis by running a fixed effect estimate

Table: Life Insurance (D) – Selected Regressors

	(1)	(2)	(3)	(4)	(5)
	OLS - FinLit	OLS - Stock	FE - All	FE - Male	FE - Female
Female	-0.0180** (0.0070)	-0.0179** (0.0070)			
Living together	0.0080 (0.0363)	0.0042 (0.0363)	0.2006** (0.0859)	0.2686* (0.1523)	0.1485* (0.0870)
Married	0.0415 (0.0341)	0.0373 (0.0340)	0.1647** (0.0733)	0.1886 (0.1415)	0.1638* (0.0865)
Inactive	0.0194 (0.0203)	0.0194 (0.0204)	0.0820*** (0.0308)	0.0967*** (0.0336)	-0.0274* (0.0145)
Self-Employed	0.0546*** (0.0114)	0.0552*** (0.0114)	0.0327 (0.0274)	0.0487 (0.0377)	-0.0059 (0.0371)
Female*Inactive	-0.0033 (0.0235)	-0.0055 (0.0235)	-0.0962*** (0.0344)		
Home-owner	0.0260*** (0.0074)	0.0263*** (0.0074)	-0.0113 (0.0229)	0.0004 (0.0300)	-0.0325 (0.0302)
Risk Adverse	0.0036 (0.0070)	0.0063 (0.0070)	0.0196** (0.0092)	0.0145 (0.0126)	0.0273** (0.0115)
Financial literacy	0.0271*** (0.0071)				
Hold stocks		0.0384** (0.0161)	0.0523** (0.0230)	0.0868*** (0.0313)	0.0099 (0.0274)
Time dummies	No	No	Yes	Yes	Yes
Observations	6792	6792	13496	7552	5944

Conclusions

- Life and Death Insurance seem to go hand in hand
- Income and asset are shaping demand insurance
- Financial market inclusion measured by stock holding participation and financial knowledge act as principal driver
- Death assurance, which should proxy bequest intention, seem to be less appealing to women (both as participation and premia)
- Financial Literacy is particularly a strong determinant of term insurance