Life Insurance Demand. Evidence from Italian households with a gender twist

Elisa Luciano Federico Petri Mariacristina Rossi

University of Turin and CeRP-CCA

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Introduction

- We look into the demand for life insurance products
- We focus on both life insurance and death assurance products, by looking at the propensity to buy and the intensity of the demand
- We use the Bank of Italy dataset SHIW for 2012
- We focus on gender. After controlling for characteristics such as education and familiarity with the financial market are women still less likely to buy insurance?

Conceptual Framework

- The products can be of two types: life insurance, split in lump sum or annuity and death assurance
- life insurance responds to an intertemporal planning
- "Annuity puzzle": total (Yaari, 1965) or partial annuities with bequest motives (Davidoff *et al.*, 2005) are optimal; however market for annuities very thin
- Uncertainty about life length and illness duration could motivate individuals to buy annuities and life insurance
- Yet few buy them.
- Preferences for bequest could explain lack of annuities,particularly for the wealthiest (Lockwood, 2012)
- People with bequest motives value the large bequests that arise incidentally from self-insuring risks related to late life.

Conceptual Framework

- Women tend to have a longer life expectancy than men, and are thus more exposed to the longevity risk.
- Women are more distant form the labour market, which leaves them more vulnerable to the risk of poverty if pension is not adequate.
- Last, they should be potentially more interested into insurance also due to their higher risk aversion.
- To our knowledge, surprisingly little attention has been devoted to the gender dimension of the demand for insurance, the only exception being the research carried out by 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.

Death Insurance and Bequests

- Bequest motives seem not to differ between those with and without kids (Hurd 1989, Kopczuk and Lupton, 2007); they conclude that precautionary motive may be an important component of saving behavior among the elderly but it does little to influence the bequest motive
- Little use of equity release instruments as a tool for financing retirement period such as reverse mortgage could strengthen this channel

- The role of bequest has not been central in the basic life cycle model as utility of dependents is ruled out a priori.
- Once post-mortem utility is introduced, through the utility of dependents consumption, bequest represents the channel to make children better off.
- The higher generosity, the higher the value of bequest. Even though bequest can be in several forms: financial wealth, housing wealth, but also education (see Fornero, Romiti and Rossi 2013), death assurance should be present in a well-diversified bequest portfolio.
- all in all, in a pool of investors, we should observe quite an important percentage of annuitants and, on top of them, individuals with death assurance.

Data

- We use the SHIW dataset
- 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.

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)
- The products can be of two types: life insurance, split in lump sum or annuity and death assurance

		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

- We estimate the probability of subscribing an insurance policy, of any type, and then separately. We use a probit model
- Then we estimate the premium amount paid (annually) with a Tobit regression model
- Focus on gender, participation to the financial and real estate market, occupational stutus and measures of risk

Life and Death

Female	-0.00253***	-0.00195*	-0.00226	-0.00916**
	(0.0037718)	(0.003102)	(0.0036256)	(0.00990)
Log hh income	0.00364***	0.00461***	0.00476***	
	(0.0055047)	(0.006805)	(0.0069557)	
Risk averse	-0.000642*	-0.000612	-0.000291	-0.000131
	(0.0010426)	(0.0010048)	(0.0007348)	(0.00195)
Employee	0.000784	0.00119	0.00187	0.00488
	(0.001286)	(0.0020292)	(0.003028)	(0.00620)
Self employed	0.00487***	0.00595***	0.00870***	0.0229***
	(0.0070166)	(0.0085556)	(0.0121835)	(0.0217)
Holding stocks (d)			0.00709***	0.0234
			(0.0097746)	(0.0209)
Home owner (d)			0.00144**	0.00381
			(0.002293)	(0.00445)
Quantile2				0.0149***
				(0.0147)
Quantile3				0.0216***
				(0.0201)
Quantile4				0.0335***
				(0.0299)
hhvar				1.32e-07
				(1.54e-07)

- Income is significant, risk aversion is not
- Financial 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
- Self employment is also one of the strongest determinants for holding insurance

Life Insurance					
Female	-0.173***	-0.146	-0.132	-0.105	-0.175
	(-3.68)	(-1.07)	(-0.98)	(-0.79)	(-1.28)
Log hh income	0.497***	0.495***	0.417***		
	(8.85)	(8.83)	(6.88)		
Employee	0.0635	0.0788	0.104	0.149	0.0774
	(0.87)	(0.58)	(0.77)	(1.14)	(0.58)
Self employed	0.330***	0.351**	0.387***	0.454***	0.399***
	(3.67)	(2.44)	(2.71)	(3.26)	(2.80)
Holding Stocks			0.304***	0.364***	0.381***
			(3.46)	(4.21)	(4.19)
Home owner			0.108	0.129*	0.0968
			(1.54)	(1.84)	(1.30)
Quantile2				0.373***	0.355***
				(3.80)	(3.20)
Quantile3				0.451***	0.460***
				(4.29)	(4.01)
Quantile4				0.623***	0.626***
				(5.54)	(5.04)
hhvar					0.00000307
					(1.02)

Death Assurance					
Female	-0.322***	-0.265**	-0.248*	-0.200	-0.315**
	(-6.98)	(-1.99)	(-1.87)	(-1.52)	(-2.31)
Log hh income	0.511***	0.511***	0.407***		
	(9.37)	(9.35)	(6.95)		
Riskaverse	-0.0676	-0.0669	-0.0227	-0.0279	-0.0104
	(-1.30)	(-1.29)	(-0.42)	(-0.52)	(-0.18)
Employee	0.0765	0.127	0.156	0.209*	0.131
	(1.10)	(1.01)	(1.24)	(1.67)	(1.02)
Self employed	0.361***	0.402***	0.445***	0.514***	0.420***
	(4.30)	(2.97)	(3.29)	(3.85)	(3.04)
Holding Stocks			0.398***	0.447***	0.433***
			(5.11)	(5.78)	(5.30)
Home owner			0.144**	0.159**	0.119*
			(2.18)	(2.39)	(1.72)
Quantile 2				0.297***	0.348***
				(3.30)	(3.43)
Quantile 3				0.458***	0.504***
				(4.81)	(4.84)
Quantile 4				0.631***	0.660***
				(6.04)	(5.80)
hhvar					0.00000426
					(1.58)

VARIABLES	Both insurance		Life			Death		
Female	-65.45**	-97.37**	-57.61*	-48.77	-13.73	-73.52***	-64.73**	-87.19***
	(28.88)	(38.10)	(34.72)	(34.97)	(33.14)	(28.22)	(28.59)	(32.68)
Risk averse	4.944	12.81	0.787	-1.333	17.45	4.772	4.501	15.98
	(10.74)	(14.40)	(13.11)	(13.29)	(12.76)	(10.56)	(10.75)	(12.10)
Employee	15.79	13.24	2.843	14.84	-26.01	10.78	20.57	1.155
	(27.26)	(35.47)	(33.01)	(33.23)	(31.46)	(26.39)	(26.70)	(29.49)
Self employed	89.42***	110.5***	76.52**	98.03***	12.70	80.52***	98.00***	40.93
	(29.38)	(38.07)	(35.60)	(35.63)	(33.39)	(28.42)	(28.60)	(31.44)
Stocks	76.78***	112.6***	62.66***	79.83***	14.11	76.64***	89.58***	53.32***
	(16.06)	(21.19)	(19.82)	(19.85)	(18.01)	(15.65)	(15.74)	(17.01)
Home ownership	24.11*	23.15	22.36	27.84*	-1.795	24.82*	26.69**	8.625
	(13.30)	(17.72)	(16.30)	(16.60)	(15.75)	(13.12)	(13.43)	(15.03)
Quantile2		98.78***		84.82***	18.78		68.62***	44.16*
		(27.01)		(23.76)	(23.64)		(19.39)	(23.58)
Quantile3		139.9***		115.8***	16.79		109.1***	69.12***
		(27.97)		(25.32)	(24.68)		(20.43)	(24.05)
Quantile4		210.5***		171.5***	60.10**		155.2***	112.1***
		(30.45)		(27.72)	(26.39)		(22.26)	(25.77)
hhvar		0.000821			-0.000109			9.11e-05
		(0.000679)			(0.000648)			(0.000594)
Log(y)	93.91***		102.7***			84.31***		
	(12.41)		(15.32)			(12.12)		
Death Assurance					693.5***			
					(18.94)			
Life Insurance								765.2***
								(17.03)

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
$P(D=1 \mid L=1) = 0.83$	$P(D=1 \mid L=1) = 0.72$
$P(L=1 \mid D=1) = 0.57$	$P(L=1 \mid D=1) = 0.64$

Pr(L=1)	BaseLine	With stock	Income +10%	Educatio n 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

Conclusions

- Life and Death Insurance seem to go hand in hand
- Self emplyment status is one of the strongest determinants
- Women tend to be distant from the insurance market. however, when controlling for holding stocks and richer specification, the effect disappears, albeit only within the life insurance products
- Death assurance seem to be less appealing to women

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 *femal	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 coha	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