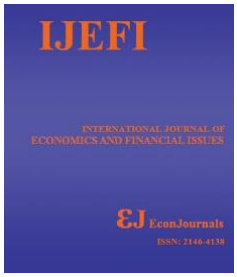

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Individual Insurance Risk Propensity and Non-Mandatory Insurance Products Purchases: Evidence from Italy

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ABSTRACT

Based on a representative sample of Italian adults, this study aims to investigate the socio-demographic and socio-economic characteristics and the level of insurance knowledge influencing individual insurance risk propensity. Furthermore, it tests whether these factors influence the purchase of three non-mandatory insurance products, one comprising non-life insurance and for two life insurance. The obtained results demonstrate that there is no perfect relationship between determinants of individual insurance risk propensity and non-mandatory insurance product purchases. Specifically, the purchaser's level of insurance knowledge does not influence insurance risk propensity but does influence the purchase of non-mandatory insurance products. This paper adds to the literature on the topic considering non-mandatory insurance products, studies being very rare, especially with reference to non-life insurance products. These results may assist policymakers and institutions in identifying areas of intervention and appropriate communication levers to direct attention toward the voluntary purchase of insurance products.

Keywords: Insurance Propensity, Household Insurance Products, Non-Mandatory Insurance Products, Life Insurance, Non-Life Insurance
JEL Classifications: G5, G52, G59

1. INTRODUCTION

The concept of risk tolerance differs between the finance and the insurance sectors. In finance, risk tolerance ranges from risk-averse to risk-seeking: in a risk-averse scenario, individuals tend to invest in bonds, cash, and equivalents, while risk-seeking individuals invest mainly in shares. On the other hand, in the insurance sector, the concept of risk propensity is identifiable as a propensity to risk aversion (Cather, 2010), which determines the behavioural response of purchasing insurance products (Ajzen, 1991). In some instances, the purchase of insurance products is mandatory; however, where non-mandatory insurance is concerned, individuals choose to buy insurance protection rather than bear risk without insurance (Cather, 2010), on the basis of their level of risk aversion. From this perspective, this research aims to test whether the subjective expression of individuals' insurance risk propensity is influenced by the same socio-demographic and socio-economic factors influencing their financial risk tolerance. A further aim is that of identifying which individual socio-demographic and socio-economic groups, and insurance literacy levels, influence the purchase of three specific non-mandatory insurance products, one relating to non-life insurance (a natural disaster policy) and two relating to life insurance (a death policy and a supplementary pension insurance policy).

To the author's knowledge, this is one of the few papers that investigate insurance purchase attitudes towards non-mandatory insurance products, considering both life and non-life insurance. The results obtained may help policymakers and institutions identify areas of intervention (e.g. increasing the availability of courses in insurance education) and appropriate communication levers to stimulate interest in voluntarily subscribing to insurance products.

The remainder of this paper is structured as follows: Section 2 reviews previous literature; Section 3 presents the sample and

the methodology while Section 4 describes the main results and Section 5 concludes.

2. LITERATURE REVIEW

A plethora of studies has addressed the topic of risk tolerance and attitudes in finance (e.g. Halek and Eisenhauer, 2001; Larkin et al., 2013; Dickason and Ferreira, 2018; Shtudiner, 2018), and many studies (e.g. Xiao et al., 2001) confirm that demographic factors (such as age, race, and gender), socioeconomic status (i.e. net worth and income), and family situation (marital status) can influence an individual's risk propensity in finance. In the financial literature, many studies have concluded that men tend to be more risk-tolerant than women (e.g. Byrnes, 1999; Eckel and Grossman, 2008; Croson and Gneezy, 2009; Chavali and Mohan Raj, 2016; Dickason and Ferreira, 2018; Hartnett et al., 2019; Lippi and Rossi, 2020). The results concerning the relationship between financial risk tolerance and age are contradictory. Several studies highlight a negative relationship (e.g. Hallahan et al., 2004; Fan and Xiao, 2006; Yao et al., 2011; Brooks et al., 2018; Hartnett et al., 2019; Lippi and Rossi, 2020); others have found a positive relationship (e.g. Grable, 2000); some have found no relationship (e.g. Hanna et al., 2001; Gollier and Zeckhauser, 2002; Thomas and Millar, 2012); yet others argue that the relationship between age and attitude to financial risk is not necessarily linear (e.g. Grable et al., 2006; Faff et al., 2009). Some scholars have demonstrated a positive relationship between an individual's educational level and investor risk tolerance (e.g. Dwyer et al., 2002; Grable and Joo, 2004; Larkin et al., 2013). Masters (1989) and Haliassos and Bertaut (1995) provided evidence of a positive relationship between people employed in a professional occupation and investor risk tolerance. Kannadhasan (2015) and Shtudiner (2018) argued that self-employed individuals exhibit lower levels of risk aversion. The same conclusion was drawn by Halek and Eisenhauer (2001) with regard to unemployed individuals. As regards marital status, the prevalent literature argues that single individuals tend to be more risk-tolerant than married people (Cohn et al., 1975; Guiso et al. 1996; Hinz et al.; 1997; Gutter et al., 1999; Grable and Joo, 2004; Hallahan et al., 2004; Yao et al., 2004; Fan and Xiao, 2006). The main justification for this result is that single individuals do not bear the same responsibilities as those who are married, and thus single individuals are willing to accept more financial risks. Lusardi (2008) argues that financial literacy facilitates the financial decision-making process. Most extant papers show that more financially literate individuals are male (Chen and Volpe, 1998; Lusardi and Mitchell, 2011), middle-aged (van Rooij et al., 2011; Lusardi and Tufano, 2015), higher educated (Shimizutani and Yamada, 2020) and have high incomes (Shimizutani and Yamada, 2020).

Bearing in mind the prevailing conclusions reached in the financial literature, the first aim of this paper is to test which individual socio-demographic and socio-economic groups, and levels of insurance literacy, influence individuals' insurance propensity in subscribing to three non-mandatory insurance products. The decision to subscribe to a non-mandatory insurance product is often considered one of the most complicated purchasing decisions individuals face (Ajzen, 1991; McCormack et al., 2009; Tennyson, 2011; Driver et al., 2018). This is due to numerous factors (McCormack et al., 2009; Tennyson, 2011; Driver et al., 2018), among which is the individual's actual perception of the need for insurance coverage. The literature on the factors that determine the motives or demand for insurance is vast. Research in this field has constantly progressed (Elango and Jones, 2011, p. 187) starting from the early work of Lewis (1989). Some studies consider several countries (e.g. Beck and Webb, 2003; Chan, 2009; Feyen et al., 2011); others examine only one country (e.g. Fletcher and Hastings, 1984; Nosi et al., 2014; Lin et al., 2017). Much of this research examines the life insurance sector (e.g. Lewis, 1989; Beck and Webb, 2003; Chan, 2009; Nosi et al., 2014; Lin et al., 2017). Very few studies consider both life and non-life insurance: for example, Elango and Jones (2011) and Feyen et al. (2011) examined the demand for non-life and life insurance across countries considering macroeconomic, demographic, and institutional drivers. Studies concerning specific non-life insurance products are very rare and relate to specific items: Petrolia et al. (2013) examined risk preference and risk perception in flood insurance; Zhou-Richter et al. (2010) analysed the relationship between risk perception and the demand for long-term care insurance; Lo (2013) considered how social norms are related to the purchase of flood insurance.

Moreover, although there may be a link between financial and insurance literacy (Dalkilic and Kirkbesoglu, 2015), the former does not necessarily translate to the latter (Lin et al., 2019; Sanjeewa and Hongbing, 2019), as insurance literacy requires more specialized knowledge. Indeed, many people experience difficulties in understanding insurance language and the technical elements of the products, and the rights and responsibilities arising from subscribing to contracts (see the survey "Underinsurance in Mature Economies", Geneva Association, 2019). To the author's knowledge, to date only three papers have investigated the impact of consumers' insurance knowledge on the actual purchase of insurance products: Lin et al. (2017) demonstrate a positive relationship between consumers' insurance knowledge and subscriptions to life insurance, while Uddin (2017) shows that a higher insurance literacy score increases the likelihood of owning all types of micro-insurance policies (health, life, automobile, and property insurance), while Bongini et al. (2023) argue that the higher the level of insurance literacy, the higher the individual's participation in the insurance market.

The second aim of this paper is to test which individual socio-demographic and socio-economic groups, and which levels of insurance literacy, influence the purchase of three specific non-mandatory insurance products: a natural disasters policy (i.e. earthquakes, floods, etc.) in the non-life insurance category, and death policies and a life insurance policy for supplementary pensions, both falling within the category of life insurance.

3. METHODOLOGY

3.1. The Sample

This paper considers the same dataset used by Bongini et al. (2023), which derives from the survey of Italian adults on their insurance knowledge and insurance behaviours ("Conoscenze e

comportamenti assicurativi degli Italiani"), promoted by IVASS in 2020, published in 2021a. The questionnaire covers five areas: (a) Insurance self-profile, (b) insurance knowledge, (c) risk propensity, (d) risk evaluation, probability calculation, and insurance decision-making, and (e) communication and relationship with insurance companies and consultants. In our analysis, we focus on areas (a) insurance self-profile (8 questions covering self-evaluation of insurance knowledge and insurance products owned), (b) insurance knowledge (11 questions covering basic insurance knowledge and 14 questions on insurance product knowledge), and (c) risk propensity (2 questions consisting of a list of perceptions of fears in the present and the future). The survey also contains a sixth area that refers to socio-economic and socio-demographic characteristics.

The representative sample is composed of 2,053 Italian residents aged 18 or above. All potential respondents, who were randomly selected from the lists of municipality residents, received a letter in advance, signed by the President of IVASS, presenting the survey and the information brochure. All the interviews were carried out face-to-face in suitable and private areas. The sample is made up of 49.25% men and 50.75% women. The respondents are from the whole of Italy: 48.66% from the north, 17.15% from the centre, and the remainder from the south or the islands. The average age of the interviewees is 52.38 years old. 37.60% of respondents are employed, 25.04% are retired, 14.81% are self-employed, 18.51% are unemployed and 4.04% are students. The sample mainly comprises married individuals (60.8%); 24% of respondents stated that they live alone, while the remaining 15% is split equally between those who are divorced and widowed. In terms of education, 19.6% hold at least a first-level university degree, 47.4% hold a high school qualification, and the rest have a lower level of education (primary or secondary school). 80.47% of participants identify themselves as homeowners – i.e. they live in an owned home. 41.65% of respondents live with at least one child. Table 1 shows the sample composition.

This table presents the sample description in terms of number of individuals and percentage values.

Table 1: Sample description

Variables	Obs	%
Gender		
Female	1,042	50.755
Male	1,011	49.245
Age		
18-34	327	15.928
35-54	766	37.311
55-64	444	21.627
65-74	296	14.418
+74	220	10.716
Employment status		
Unemployed	380	18.51
Student	83	4.04
Employed	772	37.60
Self-employed	304	14.81
Retired	514	25.04
Marital status		
Single	497	24.21
Married	1,248	60.79
Divorced	153	7.45
Widowed	155	7.55
Children		
Yes	855	41.65
No	1,198	58.35
Education		
Primary and secondary school	677	32.98
High school	974	47.44
University and above	402	19.58
Homeowners		
Yes	1,652	80.47
No	401	19.53
Geographical area		
North	999	48.66
Centre	352	17.15
South	702	34.19

3.2. First Step: Determinants of Individual Insurance Risk Propensity

To test whether the subjective expression of individuals' insurance risk attitude in purchasing non-mandatory insurance products is influenced by the same socio-demographic and socio-economic factors that influence individuals' financial risk tolerance, an ordered probit regression was conducted where the dependent variable is insurance risk propensity and the independent variables are the socio-economic and socio-demographic characteristics of the respondents based on the previous literature (Atkinson and Messy, 2012; Chen and Garand, 2018; Cucinelli et al, 2021). Insurance risk propensity is measured using the questions provided by IVASS in area (c), risk propensity. Bearing in mind that risk propensity in the insurance sector signifies risk-aversion (Cather, 2010), points were assigned ranging from 0 to 3 for each answer: 0 indicates no perceived risk aversion, 1 is low-risk aversion, 2 is medium risk aversion, and 3 is high-risk aversion. All the answers were summed, so this variable takes a value of between 0 and 30.

Insurance knowledge is calculated using IVASS's questions on basic and product knowledge. One point was assigned to each correct answer and zero to both incorrect and "don't know" answers. Insurance knowledge as the sum of all the correct questions assumes values from 0 to 29. Moreover, thanks to the specific questions posed in the questionnaire, insurance knowledge can be divided into insurance knowledge relating to life insurance and insurance knowledge relating to non-life insurance. Table 2 presents the variables used in the analysis while Table 3 shows their descriptive statistics.

This table reports the variables used in the analysis, divided into two categories: Socio-demographic and socio-economic.

This table reports the descriptive statistics of the variables used in the analysis, considering the socio-demographic and socio-economic categories.

Two models were tested: the first one (1) without considering insurance knowledge and the second one (2) including it, as follows:

$$\rho_i = \alpha_i + \sum_{i=1}^{n} \beta_i X_i + \sum_{i=1}^{n} \gamma_i Y_i + \varepsilon_i \quad (1)$$

Table 2: Variables used in the analysis

Variables	Description
Dependent variable	
Insurance risk propensity	The propensity for risk insurance expressed by the respondents
Independent variables	
Socio-demographic variables	
Gender	A dummy variable equal to 0 if the respondent is male and 1 if the respondent is female
Age	The logarithm of age
Age2	The squared value of age
Single	A dummy variable equal to 1 if the respondent is single; 0 otherwise
Married	A dummy variable equal to 1 if the respondent is married; 0 otherwise
Divorced	A dummy variable equal to 1 if the respondent is divorced; 0 otherwise
Widowed	A dummy variable equal to 1 if the respondent is widowed; 0 otherwise
Children	A dummy variable equal to 1 if the respondent lives with at least one child; 0 otherwise
North	A dummy variable equal to 1 if the respondent lives in the north of Italy; 0 otherwise
Centre	A dummy variable equal to 1 if the respondent lives in the centre of Italy; 0 otherwise
South	A dummy variable equal to 1 if the respondent lives in the south or islands of Italy; 0 otherwise
Up to secondary school	A dummy variable equal to 1 if the respondent declares an educational level up to secondary school; 0 otherwise
High school	A dummy variable equal to 1 if the respondent declares an educational level of high school; 0 otherwise
University and above	A dummy variable equal to 1 if the respondent declares an educational level of a first university degree or higher; 0 otherwise
Insurance knowledge	The total level of a respondent's insurance knowledge
Life insurance knowledge	The total level of a respondent's life insurance knowledge
Non-life insurance knowledge	The total level of a respondent's non-life insurance knowledge
Socio-economic variables	
Unemployed	A dummy variable equal to 1 if the respondent is unemployed; 0 otherwise
Student	A dummy variable equal to 1 if the respondent is a student; 0 otherwise
Employed	A dummy variable equal to 1 if the respondent is employed; 0 otherwise
Self-employed	A dummy variable equal to 1 if the respondent is self-employed; 0 otherwise
Retired	A dummy variable equal to 1 if the respondent is retired; 0 otherwise
Homeowner	A dummy variable equal to 1 if the respondent is a homeowner; 0 otherwise

$$\rho_i = \alpha_i + \sum_{i=1}^{n} \beta_i X_i + \sum_{i=1}^{n} \gamma_i Y_i + \sum_{i=1}^{n} Q_i K_i + \varepsilon_i \quad (2)$$

Where ρ_i, the subjective insurance risk propensity measured by the answers obtained by the interviewers, can assume values from 0 to 30. X, Y, and K are the vectors referring to the socio-demographic, socio-economic, and insurance knowledge variables. Table 4 shows the results obtained.

Table 3: Descriptive statistics

Variables	Min.	Max.	Mean	SD
Dependent variable				
Insurance risk propensity	0	30	16.9065	6.2954
Independent variables				
Socio-demographic variables				
Gender	0	1	0.5075	0.5000
Age	2.9444	4.5539	3.9015	0.3532
Age2	8.6697	20.7378	15.3466	2.6680
Single	0	1	0.2421	0.4285
Married	0	1	0.6079	0.4883
Divorced	0	1	0.0745	0.2627
Widowed	0	1	0.07550	0.2643
Children	0	1	0.4164	0.4931
North	0	1	0.4866	0.4999
Centre	0	1	0.1715	0.3770
South	0	1	0.3419	0.4745
Up to secondary school	0	1	0.3298	0.4702
High school	0	1	0.4744	0.4995
University and above	0	1	0.1958	0.3969
Insurance knowledge	1	29	12.8324	6.0909
Life insurance knowledge	0	9	1.7662	1.9992
Non-life insurance knowledge	1	10	4.7900	1.5648
Socio-economic variables				
Unemployed	0	1	0.1851	0.3885
Student	0	1	0.0404	0.1970
Employed	0	1	0.3760	0.4845
Self-employed	0	1	0.1481	0.3553
Retired	0	1	0.2503	0.4333
Homeowner	0	1	0.8047	0.3965
Insurance knowledge	1	29	12.8324	6.0909
Life insurance knowledge	0	9	1.7662	1.9999
Non-life insurance knowledge	1	10	4.7900	1.5650

This table reports the determinants of individual insurance risk propensity. Model (1) does not consider insurance knowledge; Model (2) considers insurance knowledge in general; Model (3) considers specific non-life and life insurance knowledge.

3.3. Second Step: Determinants of the Purchase of Non-mandatory Non-life and Life Products

In the second step of the analysis, the aim was to ascertain which individual socio-demographic and socio-economic factors, and levels of insurance literacy, influence the purchase of three non-mandatory insurance products. Specifically, the purchase of natural disaster policies (i.e. earthquakes, floods) was considered as being within the non-life insurance category, and death policies and life insurance policies for supplementary pensions, as both falling within the life insurance category. To this end, models (1) and (2) were run, inserting as a new dependent variable Δ_i, which represents the purchase of various natural disaster policies, death policies, and supplementary pension plan policies. The final aim was to verify which individual characteristics determined a person's purchase of these products. Table 5 shows the results of this analysis with reference to the purchase of natural disaster policies (column A), death insurance policies (column B), and supplementary pension plan policies

Table 4: Individual insurance risk propensity

Independent variables	Model (1) without insurance knowledge	Model (2) with insurance knowledge	Model (3) with insurance knowledge (life and non-life)
Gender	0.308*** (0.0469)	0.307*** (0.0487)	0.315*** (0.0476)
Age	6.092*** (1.514)	6.107*** (1.523)	5.945*** (1.516)
Age2	−0.872*** (0.205)	−0.874*** (0.206)	−0.854*** (0.206)
Up to secondary school	0.222*** (0.0694)	0.221*** (0.0706)	0.239*** (0.0702)
High school	0.105* (0.0552)	0.105* (0.0552)	0.108* (0.0554)
University and above	-	-	-
Unemployed	0.0676 (0.0790)	0.0671 (0.0789)	0.0744 (0.0787)
Employed	−0.0270 (0.0661)	−0.0271 (0.0661)	−0.0253 (0.0660)
Retired	−0.171* (0.0976)	−0.171* (0.0977)	−0.161* (0.0976)
Self-employed	-	-	-
Single	−0.0981 (0.0724)	−0.0982 (0.0725)	−0.0985 (0.0725)
Divorced	−0.0348 (0.0911)	−0.0346 (0.0911)	−0.0388 (0.0910)
Widowed	−0.267** (0.104)	−0.268** (0.104)	−0.265** (0.104)
Married	-	-	-
Children	0.122** (0.0554)	0.122** (0.0554)	0.119** (0.0554)
Homeowner	0.128** (0.0569)	0.129** (0.0571)	0.124** (0.0569)
North	−0.0353 (0.0508)	−0.0340 (0.0532)	−0.0439 (0.0517)
Centre	0.145** (0.0691)	0.146** (0.0702)	0.137* (0.0702)
South	-	-	-
Insurance knowledge		−0.000385 (0.00419)	
Life insurance knowledge			0.0143 (0.0118)
Non-life insurance knowledge			0.00674 (0.0156)
	Pseudo R^2=0.0185	Pseudo R^2=0.0185	Pseudo R^2=0.0186

(column C). Each column is divided into two columns, with the left side excluding and the right side including insurance knowledge.

This table reports the determinants that influence an individual's purchase of non-mandatory insurance policies. Natural disaster policies belong to non-life insurance; death policies and supplementary pension plan policies belong to life insurance. In each column (A, B, and C) I start without considering the individual level of insurance knowledge (column (1)) and then insert into the analysis the individual's level of non-life insurance knowledge (column (2) in column A) and life insurance knowledge (column (2) in columns B and C).

4. MAIN RESULTS

4.1. The Determinants of Individual Insurance Risk Propensity

Table 4 shows the elements that influence insurance risk propensity across three models: without considering the level of insurance knowledge (Model 1); considering insurance knowledge (Model 2); and considering insurance knowledge, divided into knowledge of the life and non-life sectors (Model 3). The results shown in Table 4 converge, thus leading to the following comments.

Based on the prevailing literature in finance partly cited in this study, Table 6 shows a summary of the comparison between the socio-demographic and socio-economic variables that influence an individual's financial risk propensity, and the level of an individual's insurance risk propensity presented in Table 4.

This table compares some determinants of individuals' financial risk attitude reported in the literature and the results obtained in this study, considering an individual's insurance risk propensity.

Table 6 highlights the fact that women, who are more risk-averse than men in financial choices, have a higher propensity for insurance risk. This is an aspect of complementarity between the financial and the insurance worlds. It should be borne in mind that the concept of risk propensity regarding insurance is identifiable with a propensity to risk aversion in financial investments (Cather, 2010); in general, women prefer security and stability (Jianakoplos and Bernasek, 1998; Graham et al., 2002). For this reason, they are less inclined to take risks in financial choices and are more inclined to be covered from an insurance point of view. While in the financial literature the conclusions regarding the relationship between age and risk tolerance are ambiguous, the results illustrated in this paper demonstrate there is no linear relationship between an individual's age and insurance risk propensity. This is certainly partly due to some insurance risks no longer being perceived when people age. The literature argues for a positive relationship between an individual's educational level and financial risk tolerance; on the contrary, our results highlight the fact that people with low levels of education exhibit a greater insurance risk propensity. Self-employed individuals and the unemployed exhibit lower levels of risk aversion in finance; furthermore, retired persons are less inclined to insurance risk than the self-employed. This may be due to two main factors: they are elderly (in our sample, mean 71.16; SD 7.75) and they are people with stable incomes. Single individuals tend to exhibit more financial risk tolerance than the married; insurance risk propensity is lower in widowed people than in those who are married. Again, this can be justified by the fact that they are elderly (in our sample, mean 73.74; SD 9.55). Some specific issues are highlighted in Table 4. The presence of children increases the propensity for insurance risk, as does being a homeowner. Finally, individuals who live in the center of Italy have a greater insurance risk propensity than those who live in the south of Italy.

The results presented in Table 4 (Model 2) demonstrate that insurance knowledge does not impact individuals' insurance risk

Table 5: Determinants of an individual's purchase of non-mandatory insurance products: natural disaster policies, death policies, and supplementary pension plan insurance

Independent variables	Column A		Column B		Column C	
	Natural disaster policy		Death policies		Supplementary pension plan	
	Without insurance knowledge (1)	With non-life insurance knowledge (2)	Without insurance knowledge (1)	With life insurance knowledge (2)	Without insurance knowledge (1)	With life insurance knowledge (2)
Gender	−0.0635	−0.0551	−0.129*	−0.0633	−0.0290	0.0255
	(0.0805)	(0.0807)	(0.0700)	(0.0717)	(0.0707)	(0.0720)
Age	−2.997	−3.278	1.884	0.186	2.617	1.333
	(2.500)	(2.509)	(2.312)	(2.338)	(2.435)	(2.450)
Age2	0.368	0.407	−0.263	−0.0611	−0.327	−0.173
	(0.336)	(0.337)	(0.312)	(0.316)	(0.328)	(0.330)
Up to secondary school	0.108	0.147	−0.235**	−0.0759	−0.429***	−0.300***
	(0.119)	(0.119)	(0.105)	(0.108)	(0.104)	(0.105)
High school	0.0785	0.0916	−0.0151	0.0146	−0.0787	−0.0555
	(0.102)	(0.102)	(0.0865)	(0.0891)	(0.0848)	(0.0856)
University and above	-	-	-	-	-	-
Unemployed	−0.471***	−0.456***	−0.424***	−0.384***	−0.273**	−0.223*
	(0.143)	(0.143)	(0.116)	(0.118)	(0.115)	(0.116)
Employed	−0.233**	−0.226**	−0.349***	−0.367***	−0.177*	−0.174*
	(0.109)	(0.109)	(0.0928)	(0.0948)	(0.0929)	(0.0942)
Retired	−0.0956	−0.0731	−0.512***	−0.436***	−0.498***	−0.439***
	(0.154)	(0.155)	(0.142)	(0.145)	(0.148)	(0.149)
Self-employed	-	-	-	-	-	-
Single	−0.110	−0.101	−0.210**	−0.224**	−0.0822	−0.0915
	(0.120)	(0.120)	(0.102)	(0.105)	(0.102)	(0.104)
Divorced	−0.363**	−0.372**	−0.204	−0.251*	−0.203	−0.230*
	(0.167)	(0.168)	(0.139)	(0.145)	(0.133)	(0.137)
Widowed	−0.235	−0.238	−0.439**	−0.423**	−0.274	−0.257
	(0.160)	(0.161)	(0.176)	(0.181)	(0.173)	(0.175)
Married	-	-	-	-	-	-
Children	0.0916	0.0890	0.181**	0.158**	0.248***	0.236***
	(0.0902)	(0.0905)	(0.0765)	(0.0783)	(0.0790)	(0.0802)
Homeowner	0.697***	0.690***	0.411***	0.384***	0.321***	0.292***
	(0.120)	(0.120)	(0.0930)	(0.0947)	(0.0920)	(0.0931)
North	1.044***	1.015***	0.357***	0.304***	0.264***	0.213***
	(0.103)	(0.103)	(0.0752)	(0.0770)	(0.0762)	(0.0775)
Centre	0.532***	0.499***	0.0786	0.0188	0.175*	0.132
	(0.128)	(0.129)	(0.104)	(0.108)	(0.102)	(0.105)
South	-	-	-	-	-	-
Non-life insurance knowledge		0.0576**				
		(0.0233)				
Life insurance knowledge				0.163***		0.131***
				(0.0165)		(0.0164)
Constant	−3.790	−4.005	4.259	1.106	6.162	3.812
	(4.660)	(4.669)	(4.282)	(4.328)	(4.519)	(4.545)
Pseudo R^2	0.1205	0.1240	0.0750	0.1249	0.0688	0.1013

propensity; similarly, Table 4 (Model 3) reveals that neither does the level of specific insurance knowledge (both life and non-life).

4.2. Determinants of the Purchase of Non-mandatory Non-life and Life Insurance Products

Although the purchase of three insurance non-mandatory products was considered, one of which belongs to the non-life insurance category and two to the life insurance category, the results reported in Table 5 reveal some common elements influencing the decision to purchase them: employment status, place of residence, and being a homeowner drive the purchase of these products. Specifically, unemployed and employed individuals are less attracted by natural disaster policies than the self-employed; the same conclusion is confirmed regarding the two life insurance products. Similarly, individuals who live in the north of Italy are more likely to purchase natural disaster policies, death policies and supplementary pension plan policies than those who live in the south. Homeowners tend to purchase more natural disaster policies, death policies, and supplementary pension plan policies. Moreover, a very significant result is that individuals with higher levels of non-life insurance knowledge are more likely to subscribe to natural disaster policies, and people with higher levels of life insurance knowledge tend to purchase more death policies and supplementary pension plan policies. This aspect is very interesting because while the level of insurance knowledge does not influence an individual's insurance risk propensity, on the contrary, the higher the level of insurance knowledge, the higher the rate of subscription to non-mandatory insurance policies.

Table 6: Financial risk propensity and insurance risk propensity: A comparison

Variable	Financial risk propensity – results from the literature	Insurance risk propensity – results from this study
Gender	Men tend to be more risk-tolerant than women (e.g., Byrnes, 1999; Dickason and Ferreira, 2018; Lippi and Rossi, 2020).	Women exhibit more insurance risk propensity than men.
Age	Ambiguous influence: • Positive relationship (e.g. Grable, 2000) • Negative relationship (e.g. Hallahan et al., 2004; Hartnett et al., 2019) • No relationship (e.g. Hanna et al., 2001; Thomas and Millar, 2012) • No linear relationship (e.g. Grable et al., 2006; Faff et al., 2009)	No linear relationship
Educational level	A positive relationship between an individual's educational level and risk tolerance (e.g. Grable and Joo, 2004; Larkin et al., 2013)	A positive relationship between an individual's low educational level and insurance risk propensity
Marital status	Single individuals tend to be more risk-tolerant than married people (e.g. Grable and Joo, 2004; Fan and Xiao, 2006).	Widowed people exhibit a lower insurance risk propensity than married people.
Job	Self-employed individuals and unemployed individuals exhibit lower levels of risk aversion (e.g. Haliassos and Bertaut, 1995; Shtudiner, 2018; Halek and Eisenhauer, 2001).	Retired people exhibit a lower level of insurance risk propensity than self-employed individuals.
Living area	People who live in the north of Italy exhibit more risk tolerance than others (e.g. Lippi and Rossi, 2020).	People who live in the center of Italy exhibit a greater insurance risk propensity than those who live in the south.

Regarding some specific results, demographic factors do not influence the purchase of natural disaster policies: divorced individuals exhibit less interest in natural disaster policies than married people, and individuals who live in the center of Italy are more likely to purchase natural disaster policies. On the other hand, considering the two policies that fall within the life insurance category, Table 5 highlights the fact that supplementary pension plan policies are less attractive to the unemployed, the retired and employees than to the self-employed. The same conclusions also apply to death insurance policies. Likewise, the presence of children pushes individuals towards subscribing to supplementary pension plan policies as well as to death policies. Another element the two types of policies have in common is that they are more likely to be purchased by individuals who live in the north of Italy than by those who live in the south. Finally, individuals with a low level of education (up to secondary school) are less interested in purchasing supplementary pension plan policies than people who hold at least a first degree.

A very interesting result is that marital status does not influence the decision to subscribe to a supplementary pension plan policy. In contrast, Table 5 shows that single people and widowers are less inclined to subscribe to death insurance than married people.

5. DISCUSSION, LIMITATIONS AND CONCLUSIONS

The analysis conducted in this study highlights the fact that some socio-demographic variables (such as gender and age) influence individual insurance risk propensity but do not influence decisions to purchase non-mandatory insurance products. However, the most important difference that emerges from the comparison of Tables 4 and 5 is that insurance knowledge, when specific for non-life or life insurance, does not affect the individual insurance risk propensity. However, it positively and significantly influences the purchase of non-mandatory non-life and life insurance products. In the author's opinion, this conclusion is very interesting because it means that purchasing non-mandatory insurance products is an active decision and for individuals who understand the technical terms included in the contract and the resulting rights and duties. Thus, insurance knowledge is significant when it can exert its positive effects, during the purchase of the insurance contract. From a policy point of view, this specific result suggests that supervisory authorities and governments should promote insurance education programs among consumers, in particular students, especially on university courses.

Tables 4 and 5 show that homeowners exhibit a positive insurance risk propensity, and that they are interested in purchasing all three types of insurance products examined in this study. This last conclusion is also valid for people who live in the north of Italy. These two aspects highlight the fact that the purchase of non-mandatory insurance products is influenced by the level of wealth. The north is the wealthiest area of Italy (MEF, 2022) and home ownership is a manifestation of wealth. Therefore, the purchase of natural disaster policies, death policies, and supplementary pension plan policies expresses an individual's intention to protect their standard of living and that of their families. In this regard, Table 5 shows that the presence of children has a positive and significant influence on the purchase of death policies and supplementary pension plans. Furthermore, the unemployed and employed are less interested in purchasing the three non-mandatory insurance products examined in this study. This result may also be linked to the wealth issue. An unemployed individual probably does not have sufficient financial resources to purchase non-mandatory insurance products. Employees very often enjoy company insurance benefits and public pensions. Self-employed individuals do not enjoy any of these privileges and have to protect themselves by purchasing non-mandatory insurance products. This is possible for them because in Italy the self-employed are among the highest-income workers (MEF, 2022).

These observations lead the way to some considerations at both policymaker and industry levels. From a policy point of view, government and supervisory authorities should improve the dissemination of social security education programs among employees. Indeed, many employees are unaware of the gap between their last paycheck received and their pension amount. This gap can range between 30% and 50% (COVIP, 2023), thus generating a loss in retired well-being which could be covered through the purchase of supplementary pension plans and death policies. From the insurance companies' point of view, two prospects open up. On the one hand, these companies could increase their market penetration through communication targeting the wealthiest individuals, in particular the self-employed and homeowners, offering them increasingly customized products. On the other hand, insurance companies could design non-mandatory insurance products aimed at less wealthy individuals, for example by offering the opportunity of paying the premium over time (or in low monthly installments), or by offering multi-risk insurance products that could be modular, starting from the coverage of the simplest and least expensive risks, with the option of choosing to add risks that are more expensive to cover.

The first limitation of this study is that our sample considers only Italy. Future studies could extend the investigation to other countries and compare results. For this purpose, a questionnaire recognized at the international level (see e.g. the most recent OECD/INFE 2022) should be used, as for financial literacy. The questionnaire proposed and validated by the Italian insurance supervisory authority could represent an initial step towards an international initiative to capture individuals' insurance risk propensity and non-mandatory insurance product purchases. Secondly, the sample used in this research derives from just one survey, therefore failing to consider different macroeconomic contexts, which can impact life and non-life insurance demand differently (Hodula et al., 2021).

This study demonstrates that insurance risk propensity is influenced by socio-demographic factors such as gender, marital status and employment status, but is not influenced by an individual's level of insurance knowledge. However, it highlights that insurance knowledge is one of the drivers for purchasing non-mandatory insurance products, both non-life and life insurance. Moreover, this is one of the very few studies that consider individuals' insurance risk propensity and purchase of three non-mandatory insurance products, thus adding to the scarce literature on the topic and opening new indications for future research.

6. DECLARATION OF INTEREST

None.

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