From intention to decision in life insurance and private pensions: different effect of knowledge and behavioural factors[1]

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Abstract

In this paper we test several hypotheses about the influence of behavioural and socio-demographic factors on buying a life insurance policy or a private pension. Data come from a sample of 1579 individuals, representative for the Romanian consumers. We designed a questionnaire which emphasizes four distinct categories of determinants: socio-demographic factors, general behavioural factors and specific behavioural factors, as well as a self-constructed index of insurance knowledge. Through logit regression models we highlight a different mechanism which distinguishes between intention and decision for both life insurance and private pensions. We show that specific behavioural factors and insurance knowledge are highly significant for the decision, but not significant for the intention to buy both types of products.

Keywords: behavioural factors, knowledge, retirement, life insurance, intention, decision

Jel Classification: G22, D14, C25

Introduction

Life insurance demand is often studied at macroeconomic level, concentrating mainly on economic, socio-demographic and institutional factors, which can be observed and collected more easily. The cross-country literature regarding the influence of behavioural factors on life insurance is rather limited (studies considering the cultural indicators of Hofstede's – Park and Lemaire (2011), Mare et al. (2016)). Data regarding life insurance density at national level show huge discrepancies among European countries (from Switzerland 3.656 Euro/year to Romania 20 Euro/year). The gaps are explained to some extent by the economic standard of the population. Even in the case of controlling for income, as major influence factor, substantial differences are still observed in the ratio between life insurance density and net average wage (from 11.8 % in

Finland to 0.32 % in Latvia - see Appendix 1). This major variation is also found among individuals from each country. The source of these disparities can be better emphasized at household level by economic, socio-demographic and mostly behavioural factors, explaining the individual decision to buy a life insurance product.

A similar mechanism can also be highlighted for private pensions, whose reforms represent a priority for most European countries governments. These reforms transfer to the individuals a much greater responsibility to save and invest for their retirement (Nosi et al. (2014); Feldstein and Siebert (2002); Franco (2002)). In these conditions of changing pension systems and growing complexity of financial products, the importance of financial education has considerably increased. Our aim is to assess, through a sample research, the individual's abilities to make informed choices about retirement and savings through an indicator of knowledge in insurance pointing to the degree of understanding the complexity of life insurance and private pensions.

From the insurer's view, individuals fall into three main categories: insureds (individuals having an insurance, implying a past experience/ history), potential insureds (people having the intention to buy insurance) and individuals who do not want to buy any insurance. From a theoretical point of view the mechanism of deciding to buy a life insurance/ private pension is widely debated. Still there is a lack of literature for studies investigating the path from intention to decision in insurance. This gap of research for differences between intention and actual behaviour (decision) in insurance/retirement can be overcome through sample level analysis.

Starting from the idea of Nosi et al. (2014) that a discrepancy between intention and actual behaviour exists, we prove by regression analysis that people do not always transform their intentions into actions. The main contribution of our paper is to outline the distinction between *intention* and *decision* for life insurance and private pensions in terms of behavioural, cultural and socio-demographic factors, through a sample analysis representative for the active Romanian population.

Secondly, our study contributes to the existing literature by proposing and validating a measure for the insurance knowledge of the population of a former communist country. Since the life insurance market is affected by information asymmetry, meaning that insurers understand the offered products, but most of the policyholders do not, Mackenzie (2006), we assess the degree of knowledge of life insurance products (and private pensions) on a specific developing market.

Finally, we analyse the differences between life insurance and private pensions (annuities) in terms of intention and decision. Besides the general and specific behavioural factors we also assess the influence of insurance knowledge on the decision to buy life insurance or private pensions. This measure proves to be highly significant for the decision, but not significant for the intention to buy both types of products.

The empirical results of this paper show that insurance specific behavioural factors clearly distinguish between intention and decision both for life insurance and private pensions. Trust in insurance companies and financial advice are the only specific factors determining both the intention and the decision to subscribe to a life insurance.

The general financial behavioural variables and the socio-demographic factors rarely distinguish between intention and decision. An exception to general behavioural factors is the propensity to consume in the case of private pensions (influences only decision, not intention). For socio-demographic variables the exceptions are age (influences only the intention for life insurance) and financial resources (determine the decision not the intention for private pensions). In terms of policy implications our study offers some behavioural patterns for the Romanian life insurance/ private pension consumers, giving relevant information to insurance companies in designing their offer.

The remainder of the paper is organized as follows. Section 2 reviews previous studies regarding the influence of socio-demographic, economic, institutional and behavioural determinants on life insurance and private pension consumption and formulates the hypothesis to be tested. Section 3 describes the data, the methodology and the construction of the index of knowledge in insurance. Section 4 presents the results of our regression models and discusses them and section 5 concludes and provides some policy implications.

2. Literature review and hypothesis development

2.1. Literature review

All the theoretical and empirical papers on life insurance consumption start with the work of Yaari (1965) who considers that the optimal solution for a household is to subscribe to an annuity for protection against the risk of outliving its assets. Yaari's model was developed by Lewis (1989) to incorporate dependence preferences. According to Lewis the customer's decisions to consume and save (including life insurance) are determined by economic (income, wealth), socio-demographic (age, gender, location) and cultural variables (education, religion). Lately the literature on life insurance has also integrated the institutional and behavioural factors as determinants.

According to Modigliani and Brumberg (1954) and Friedman (1957) a rational and well informed individual will save a part of his/her income to support consumption after retirement. Theoretical models suppose that individuals are making informed decisions about retirement pensions, savings and investment even though, in reality, few people have an appropriate knowledge of the subject. Luciano and Rossi (2014) consider that the effect of illiteracy on insurance is stronger than in other saving instruments because insurance contracts have a financial component and a life contingency (risk of mortality).

In the literature life insurance is usually associated with protection against bad events (death) (Brown, 2009), whereas private pensions are not connected to protection because retirement means a longer life, so a positive event. Dragota et al. (2015) prove that individuals who consider "protection" the most important characteristic of life insurance show a greater probability to buy such products. At the same time the perception of private pensions as an investment opportunity increases their demand.

The perception of these financial products is also influenced by national cultural factors. According to the Hofstede et al. (2010) model, in a collectivist culture the individual's behaviour is influenced by his/her position within a group (which can be family). Even though, in cultural terms, Romanians have a collectivist pattern focused on family (David, 2015), Shulruf et al. (2011) show that the cultural profile of Romanian students is more individualistic compared to the results of Hofstede's model. The fact that in individualistic cultures (mainly developed countries) the care for the elderly members of a family is less self-evident stimulates them to appeal to specialized financial institutions for retirement.

Besides the type of the culture the individual belongs to, the importance of financial literacy, capability and education for financial products has considerably increased in recent years due to their growing diversity and complexity (OECD, 2005). Mackenzie (2006) considers that the potential buyer's lack of understanding of a life insurance/ private pension properties is one of the main reasons which negatively influences the demand for these products. This lack of understanding which reduces their popularity can be generated by insufficient knowledge of these financial instruments. Besides financial properties, this insufficient knowledge also refers to regulatory issues related to the life insurance business (rights and obligations derived from the contract, behaviour in the case of bankruptcy). In order to make an informed decision when buying such products a policyholder must know and understand the properties and the regulatory issues.

In previous literature the capacity of understanding these products was associated with education (% of people with tertiary education), which is often considered a proxy for "risk aversion". The effect of education over the life insurance demand was mainly discussed in macroeconomic studies. Hammond et al. (1967), Schlesinger (1981), and Gandolfi and Miners (1996) found a strong positive relationship between education and life insurance purchasing. Among the papers which found no significant relation between education and life insurance we mention Outreville (1996), Beck and Webb (2003), and Park and Lemaire (2011). Most recently, Millo and Carmeci (2015) prove on a survey on Italian households that more educated people, with a higher capacity to manage risks themselves, are less inclined to buy life insurance. This result is partially confirmed by Luciano et al. (2016) who show that, in some specifications, risk aversion (measured as risk attitude of individuals) has a negative effect on the decision to buy life insurance. Bayer et al. (2009) argue that instead of education, access to financial knowledge would be a more relevant indicator. Lusardi and Mitchell (2007a, b) and Alessie et al. (2011) show that individuals with higher financial literacy are more likely to adhere to private retirement plans.

Goedde-Menke et al. (2014) investigate the influence of annuity literacy on the annuity demand through a self-constructed measure representative for the German market. They find that consumers know rather the disadvantages of private pensions (illiquidity of annuities) than the advantages (participation to profits), a fact that lowers the demand.

Individuals having a low level of financial knowledge could rely on financial advisors. Generally, people with low education rely on the help of family and friends for their financial decisions. The existing studies do not asses to what extent financial advice improves financial decision-making, but Collins (2011) and Finke (2013) consider financial literacy and financial

advice complements rather than substitutes. Goedde-Menke et al. (2014) imply that financial consultants do not always provide information in an exact and efficient manner.

Financial literacy and risk aversion can also explain the gender gap in deciding to invest in risky assets (Bannier and Neubert (2016)). The gender gap was explained in the literature either by women's lower knowledge of financial products (Van Rooij et al. (2012), Prast et al. (2014)) or by their higher risk aversion (Croson and Gneezy (2009), and Dohmen et al. (2011)). In a recent study Luciano et al. (2016) show on a survey on Italian households that women are less likely to be insured that men because they are more risk adverse than men, not because of gender.

In the literature two major theories exist that connect intentions to decisions: the theory of reasoned action (TRA) and the theory of planned behaviour (TPB), the latter being an expansion of the former. TRA (Fishbein and Ajzen, 1975; Ajzen and Fishbein, 1980; Fishbein and Ajzen, 1975) states that the most important predictor of behaviour is behavioural intention evaluated from two perspectives: attitudes and subjective norms. Hastings and Fletcher (1983) evaluate attitudes from the statement "buying life insurance will ensure a pension, having a pension is a good thing" while Nosi et al. (2014) use the sentence "most of the people influencing my decisions think I should purchase a longevity annuity" to estimate subjective norms.

Because TRA does not entirely explain behaviour, and in order to better illustrate how intentions affect decisions, Ajzen (1985; 1991) developed the theory of planned behaviour (TPB). The major difference between these two theories is that TPB includes an additional construct - perceived control – that refers to "people's perception of the ease or difficulty of performing the behaviour of interest" (Ajzen, 1991). According to TPB, human action is based on behavioural, normative and control beliefs. For example, Sheeran (2002) analyses 422 previous studies and finds that intentions predict behaviour and considers that intentions can be defined as "instructions that people give to themselves to behave in certain ways".

The behavioural intention in insurance is examined in many articles as Wiener et al. (1986), Fletcher and Hastings (1984), Omar (2007), Omar and Owusu-Frimpong (2007), Rahim and Amin (2011), Innan and Moustaghfir (2012) and Rostami and Mansoori (2015). In life insurance context, only a few articles have used TRA or TPB to explain the intention to purchase life insurance products. The main advantage of applying TRA and TPB is a profound understanding of factors that influence insurance choices. TRA was applied by Omar and Owusu-Frimpong (2007) on a survey on Nigerian consumers' attitudes towards buying life insurance. They prove that lack of trust and confidence in insurance companies, the level of knowledge of insurance products, the family needs, and the negative experiences are key factors of behavioural intention. A more recent study of Nosi et al. (2014) used TRA to explore the longevity annuity buying intention. They found a positive relationship between the subjective norms and attitudes, a result which is inconsistent with the assumptions of TRA. Innan and Moustaghfir (2012) use TPB and find that the major influence on employees' intention to purchase healthcare insurance is based on perceived behavioural control and subjective norms.

The literature does not offer much evidence on the subject of transforming intention into decision (actual behaviour). Sheeran (2002), analysing past studies of intentions that predict behaviour, concludes that on average less than a third (28 %) of the variance in future behaviour is

explained by intentions. Often enough, even if we declare our intentions to buy an insurance policy, we never buy it because of different reasons. Sheeran and Webb (2016) state "that people do not always do the things that they intend to do" and Nosi et al. (2014) conclude that "people do not always translate intentions into actions". Such statements beg the question of the motives (factors) that generate this situation in the life insurance sector.

A common and frequently cited definition of trust belongs to Rousseau et al. (1998, p. 395): "a psychological state comprising the intention to accept vulnerability based upon positive expectations of the intentions or behaviour of another". In an exploratory study, Balkrishnan et al. (2003) find that a lower trust in the insurer was statistically associated with unpleasant previous experiences and poor mental health. It seems that all disputes or past disagreements have an impact on trust. A similar result is found by Zheng at al. (2002), namely a strong relationship between insurer trust and satisfaction. Guiso et al. (2008) found trust to be an important influence factor for the decisions of households to save. Goedde-Menke et al. (2014) also underline that the decision to invest in private pension is influenced by overconfidence and distrust in financial institutions.

2.2. Hypothesis development

H1: The gap between intention and decision for LI/PP is explained mainly by control behavioural specific factors / compared to general behavioural factors

In the literature is no agreement concerning the influence of past experience on intentions. Quelette and Wood (1998) show that intentions better predict behaviours when there is little past experience in that field (behaviour) compared to greater past experience. Their results are opposed to those of Kashima et al. (1993) who prove that intentions are a stronger predictor for behaviours for more experienced participants. This lack of agreement can result from the fact that authors consider that individuals always translate their intentions into actions.

Nakada-Gamage et al. (2016) consider that trust is based on the confidence of an individual in how another person or institution will behave in the future. Guiso et al. (2008) show that trust in financial institutions has a strong effect on savings and is a strong incentive for economic behaviour, observing a lack of trust in the insurance industry in developing countries.
This lack of trust in insurance in developing countries, including Romania, makes this factor the most important intangible asset both for intention and for decision. In a study conducted on the same sample as ours, Muresan and Armean (2016) show that "individuals that affirmed having a high level of trust are 2.25 times more likely to be interested in such contracts (LI/PP) than those whose trust is very low".

Risk aversion as proxy for education proved not to be significant in explaining the amount spent on life insurance. A better proxy for risk aversion is the attitude of individuals towards investment in real estate and stock markets. Luciano et al. (2016) show that individuals who are more familiar with investments in stocks and real estate are more willing to buy life insurance.

H2: The path from intention to decision for life insurance and private pensions is conditioned by the level of knowledge in insurance

In our research the behavioural intention is the degree of a person's goodwill to purchase an insurance policy. We want to illustrate the difference between intention and decision by understanding decision as a process that transforms intention into action.

Sheeran (2002) explains the consistency between intentions and behaviour through the existence of two types of individuals: those with positive intentions, who act, and those with negative intentions, who do not act. If there is a gap between intentions and behaviour it follows that individuals do not act according to their intentions. Furthermore, Sheeran (2002) shows that control factors can determine whether an intention is transformed into an action. According to him, the most important control factor is ***knowledge.***

In spite of all previous information concerning *knowledge* and *education,* we believe that an Index of Insurance Knowledge would be a more reliable indicator for the life insurance purchase. Such an index has never been constructed and tested for an emerging market. So our hypothesis is that in order to realize one's intention to buy a life insurance or private pension one must have a certain education in the field (how the product functions, what the rights/ benefits are). In our case we show that knowledge is better represented by the Index of Insurance Knowledge than by education (the level of latest graduated school).

H3: The decision and the intention to buy LI/PP are influenced by different socio-demographic factors

A socio-demographic factor responsible for not transforming all intentions into decisions (actions, behaviours) is the existence of ***resources***. So our hypothesis is that even if one intends to buy a private pension in order to secure retirement, (one has the knowledge) one won't be able to transform his/her intention into action if he/she don't have money.

Even if most of the previous studies have found that age is not significant for life insurance decision if contracts are fairly priced (Gandolfi and Miners (1996), Chen et al. (2001)), the work of Luciano et al. (2016) prove that ***age*** acts differently on the willingness to pay for life insurance (insignificant effect) and the willingness to buy life insurance (positive effect).

3. Data and Methodology

3.1. Data

In the current study we examine the individual's behaviour in subscribing to a life insurance policy or a private pension. We are interested mostly in the different impact of some factors on intention, and on the decision to buy those products, respectively.

The population considered for our study is the active Romanian population (18-65 years) from urban and rural areas. The questionnaires were randomly administered by MMT (Metro Media Transylvania) through Computer-Assisted Telephonic Interview (CATI), in the period April - June 2016. A total of 1579 valid questionnaires with full data for all variables were returned.

Endogenous variables
For comparing the buying decision mechanisms, the endogenous variables were defined similarly for life insurance and private pensions. In exchange, the endogenous variable was differently defined according to the estimation method.

For the *binary logit model* we use the variable *LIFE_bin*: 0 if the individual does not have life insurance (82.39%) and 1 if the individual has life insurance (17.61%); likewise the variable *PENSION_bin*: 0 if the individual does not have private pension (80.81%) and 1 if the individual has private pension (19.19%). This definition allows only for the explanation of the decision to buy a life insurance or a private pension, but not of the intention to do so as well.

For the ordered and multinomial logit we use the variables *LIFE_multi* and *PENSION_multi*. For the variable *LIFE_multi* we have three outcomes: 1 if the individual has no life insurance and no intention to buy it in the future (7.54%), 2 if the individual has no life insurance but has the intention to buy it in the future (74.85%) and 3 if the individual has life insurance (17.61%). For the variable *PENSION_multi* the three outcomes are: 1 if the individual has no private pension and no intention to buy it in the future (8.87%), 2 if the individual has no private pension but has the intention to buy it in the future (71.94%) and 3 if the individual has private pension (19.19%).

Exogenous variables
Our questionnaire was designed to gather information on four categories of explanatory variables influencing the decision / intention of individuals to buy life insurance/ private pension: general financial behavioural variables, insurance-specific behavioural variables, variables related to insurance knowledge and socio-demographic variables.

The *general financial variables* refer globally to the financial-economic behaviour of individuals. The measures used to capture this specific behaviour refer to risk attitude (*BANK_DEPOSIT*) and risk preference (*GAMES*), propensity to consume (*TEND_CONSUM*) and preference for liquidity (*LIQUID*).

The *insurance specific behavioural variables* refer mainly to the individual's belief regarding the life insurance or the private pension: trust in insurance companies (*TRUST_INSUR*), previous experiences in insurance (*PREV_INSUR*), the individual's perception on the role of life insurance /pension (*LIFE_PROTECT, PENS_INVEST*), information source or advice (*FINANC_CONSULT*) and the sufficiency of public pension (*PENS_SUF*). Moreover, we use two variables describing the individual's reaction in financial situations that can be solved through life insurance or private pension: overconfidence in own financial abilities (*INVEST_INSTIT*) or institutional help for financial difficulties (*HELP_INSTIT*).

The *variables related to insurance knowledge* mention the degree of understanding life insurance and private pension (*IK_LIFE, IK_PENSION*), the individual's awareness of the differences between those products (*IK_DIFFER*), the rights and obligations derived from the contracts (*IK_RIGHTS*) and consequences of bankruptcy (*IK_BANKRUPT*).

The fourth category of explanatory variables are the *socio-demographic and financial factors* such as: gender (*MALE*), marital status (*MARRIED*), age (*AGE*), level of education (*EDUCATION*), net monthly income (*LN_INCOME*) and residential area (*RURAL*).

All the explanatory variables together with the descriptive statistics are presented and explained in Appendix 2.

3.2. Methodology

Our estimation method is to apply successively a binary, ordered and multinomial logit regression technique. Through the binary regression we can explain only the decision to buy life insurance or private pensions. In this case the depending variable discriminates between those who own and those who do not own a life insurance policy or a private pension.

The multinomial logit allows us to explain differently the intention versus decision mechanism by considering successively as base outcome one of the three alternatives (1 – individuals who do not own, and do not have the intention to buy, 2- individuals who do not own, but have the intention to buy, and 3- individuals who own a life insurance policy/ private pension). We also use the ordered logit as a supplementary control instrument. Some inconsistencies in relation to the other two models can be generated by the rejection of proportional odds assumption.

In the binary logit we regroup all individuals who do not have (*Y*=0) life insurance (or private pension), regardless of their future intention, and we compare them with those who have (*Y*=1) life insurance (or private pension). Binary logit can thus explain exclusively the decision of the individual. The individual's probability to choose (*Y*=1) or not to choose (*Y*=0) a life insurance policy (or a private pension) is modelled by the formula:

$$\Pr(Y_i = 1) = \frac{\exp(x_i b)}{1 + \exp(x_i b)} \tag{1}$$

$i = \overline{1, N}$ index of each individual; x_i the vector of the exogenous variables; b the coefficients' vector.
Equation (1) can be rewritten in an equivalent form, customizing the explanatory variables:

$$\log\left(\frac{\Pr(Y_i = 1)}{1 - \Pr(Y_i = 1)}\right) = CONST + b_1 GEN\_BEHAV_i + b_2 SPEC\_BEHAV_i + b_3 IIK_i + b_4 SOC\_DEM_i$$

GEN_BEHAV, SPEC_BEHAV, IIK, SOC_DEM are vectors of the explanatory variables. The variables composing those vectors are described in section 3.1.

In the multinomial logit model those who don't have life insurance (or private pension) are isolated according to their intention (*Y*=1 if the individual has no life insurance and no intention

to buy it in the future , $Y=2$ if the individual has no life insurance but has the intention to buy it in the future and $Y=2$ if the individual has life insurance). The model can distinguish between intention and decision according to the value of the endogenous variable chosen as reference. The individual's probability to choose one of the three alternatives ($Y=1$, $Y=2$, $Y=3$) is modelled by the formula:

$$\Pr(Y_i = j) = \frac{\exp(x_i b_j)}{\sum\limits_{j=1}^{m} \exp(x_i b_j)} \tag{2}$$

$i = \overline{1, N}$ index of each individual; $j = 1, 2, 3$ index of each alternative, x_i the vector of the exogenous variables and b_j the coefficients' vector. In the present application, all variables vary with respect to the individual (i) but remain constant with respect to alternatives (j). The values of b_j coefficients are interpreted with respect to a reference alternative.

The ordered multinomial logit is employed mostly as a checking role (part). The *proportional odds assumption* specific to the ordered logit is difficult to be assumed in our application. Moreover, the estimations from the multinomial logit tend to reject it.

$$\text{Prob}(y_i = j \mid x, b, c) = \frac{\exp(c_{j+1} - x_i b)}{1 + \exp(c_{j+1} - x_i b)} - \frac{\exp(c_j - x_i b)}{1 + \exp(c_j - x_i b)} \tag{3}$$

$i = \overline{1, N}$ index of each individual; $j = 1, 2, 3$ index of each alternative, x_i the vector of the exogenous variables, b the coefficients' vector and c_j, $j = \overline{0,3}$ cut-offs. The conditions $c_0 = -\infty$, $c_j \leq c_{j+1}$, $c_3 = +\infty$ ensure that the probability sum for each interval equals.

3.3. Constructing and validating the Index of Insurance Knowledge

Knowledge in insurance is measured in our study through five items (*IK_LIFE, IK_PENSION, IK_DIFFER, IK_RIGHTS, IK_BANKRUPT*). All the components of knowledge in insurance are highly significant statistically if they are included separately in the regression. Their concomitant use in regressions raise multicollinearity problems some of them becoming in-significant (See Appendix 3). So we prefer a unique variable Index of Insurance Knowledge (*IIK*) which includes information from all the five items.

The *Index of Insurance Knowledge* contains declarative information of the subjects at the moment of the survey. Answers were recorded on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). Each of the items capture aspects like: types of life insurance and pensions, differences between them, rights and obligations of the parts and consequences of an insurance company bankruptcy on personal finances. This final item is justified by some major failures on the Romanian insurance market in the past two years.

To ensure validity and to verify the extent to which all the items in a test measure the same concept or construct or the internal consistency according to Tavakol and Dennick (2011), we determine the alpha coefficient. Our internal consistency reliability analysis revealed a

Cronbach's alpha of 0.84 for IIK (see Appendix 4), which according to Cortina (1993) is a strong result.

The weight of each item in *IIK* is given by the effect that each has on the probability that an individual–buy life insurance/ private pension. The impact can be estimated econometrically through odds ratios: we estimate the binary logit models with dependent variables *LIFE_BIN* and *PENS_BIN*. The values of odds ratios are synthetized in figure 1.

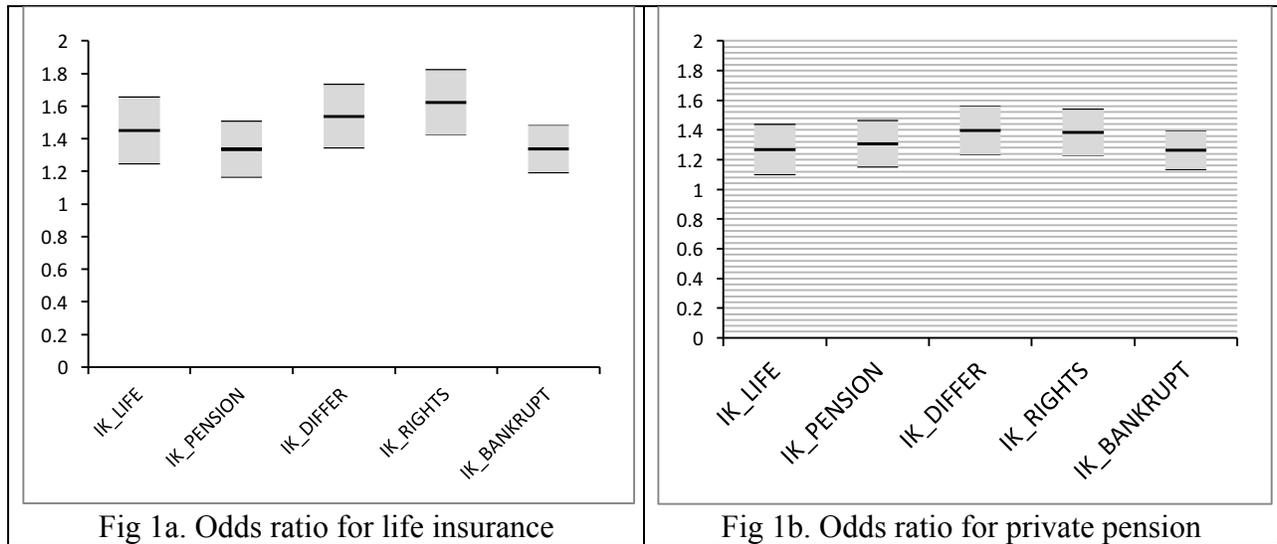| Fig 1a. Odds ratio for life insurance | Fig 1b. Odds ratio for private pension |

Figure 1. **Odds ratio from binary logit models for the five components of knowledge in insurance (estimation and 95% confidence interval)**

Statistically, there are no significant differences between the values of odds ratios corresponding to the five items of insurance knowledge. The result is valid for both the effect on life insurance (left) and private pensions (right). As a result we use in regression the Index of Insurance Knowledge (*IIK*) computed as a weighted arithmetic average calculated of the five items.

4. Results and discussions

The regression coefficients estimate the intention and the decision to buy a life insurance policy (table 1) and a private pension (table 2). Specifically, binary logit models (eq. 1) and multinomial logit models with specifications 3 vs. 1 and 3 vs. 2 (eq. 2) estimate the decision of buying a life insurance policy/ private pension. The intention of buying a life insurance policy/private pension is estimated by the multinomial logit model (eq. 2) with specification 2 vs. 1. The ordered logit models (eq. 3) are considered a control instrument subject to acceptance of the proportional odds assumption.

Table. 1. Determinants of intention and decision to subscribe to a life insurance policy

	Binary logit	Ordered logit	Multinomial logit		
			2 vs. 1	3 vs.1	3 vs. 2
TRUST_INSUR	0.147***	0.147***	0.195*	0.331***	0.136***
	(2.99)	(3.53)	(1.70)	(2.73)	(2.76)
EXP_INSUR	0.173**	0.113*	-0.002	0.171	0.172**
	(2.19)	(1.79)	(-0.02)	(1.34)	(2.18)
PREV_INSUR	0.479***	0.318***	0.094	0.566***	0.472***
	(6.24)	(5.77)	(1.12)	(5.17)	(6.13)
LIFE_PROTECT	0.987***	0.714***	0.328	1.286***	0.958***
	(4.27)	(4.56)	(1.45)	(4.15)	(4.13)
FINANC_CONSULT	0.328**	0.378***	0.529***	0.815***	0.287*
	(2.09)	(3.03)	(2.63)	(3.35)	(1.82)
HELP_INSTIT	0.460***	0.309**	-0.028	0.435*	0.463***
	(0.037)	(2.45)	(-0.13)	(1.74)	(2.96)
TEND_CONSUM	-0.103	-0.033	0.059	-0.047	-0.106
	(-0.68)	(-0.27)	(0.30)	(-0.20)	(-0.70)
DEPOSIT	-0.187	-0.260**	-0.497**	-0.644***	-0.148
	(-1.16)	(-2.04)	(-2.43)	(-2.60)	(-0.91)
GAMES	0.096	0.070	-0.027	0.073	0.100
	(0.92)	(0.81)	(-0.21)	(0.46)	(0.95)
LIQUID	0.057	0.005	-0.090	-0.026	0.064
	(0.84)	(0.10)	(-1.05)	(-0.25)	(0.94)
MALE	0.413**	0.062	-0.641***	-0.183	0.459***
	(2.47)	(0.48)	(-2.92)	(-0.69)	(2.73)
MARRIED	0.624***	0.638***	0.551**	1.123***	0.572***
	(3.14)	(4.22)	(2.48)	(3.95)	(2.86)
AGE	-0.007	0.007	0.022**	0.014	-0.008
	(-0.82)	(1.23)	(2.54)	(1.30)	(-1.08)
EDUCATION	0.142*	0.151**	0.158*	0.287**	-0.129*
	(1.90)	(2.55)	(1.68)	(2.51)	(1.71)
LN_INCOME	0.712***	0.532***	0.265*	0.955***	0.690***
	(4.81)	(5.11)	(1.72)	(4.64)	(4.63)
RURAL	-0.040	-0.164	-0.368*	-0.381	-0.012
	(-0.24)	(-1.27)	(-1.72)	(-1.47)	(-0.07)
IIK	0.670***	0.484***	-0.047	0.626***	0.673***
	(7.49)	(6.55)	(-0.38)	(4.30)	(7.48)
Constant	-13.02***		-1.347	-13.94***	-12.60***
	(-10.8)		(-1.09)	(-8.33)	(-10.4)
Pseudo R2	0.218	0.128	0.169	0.169	0.169
LR χ^2(17)	320.98	290.76	383.06	383.06	383.06
Prob > χ^2	0.000	0.000	0.000	0.000	0.000
N	1579	1579	1579	1579	1579

Results from binary logit, ordered logit and multinomial logit, *t*-statistic in parentheses
*** p<0.01, ** p<0.05, * p<0.1

For life insurance we show that all specific behavioural factors have a positive and significant influence on the decision to buy life insurance. The level of trust in insurance companies and the source of information are the only specific factors which determine the intention to subscribe to a life insurance.

Among the general behavioural factors, only the institutional help in the case of financial difficulties proves to be positively and significantly linked to the decision of subscribing to life insurance. This result shows that in terms of behavioural financial patterns the cultural profile of Romanians proves to be rather individualistic, not influenced by position within a group (family, friends). People who would rather invest in risky assets declare their intention to buy life insurance. This result may be due to illiteracy regarding more complex financial instruments including, in addition to stock market investments, real estate investments and life insurance, too. Since deposits are the simplest methods of saving/investing, people with little financial knowledge prefer them, being less inclined to buy life insurance. In this case the intention is not materialized into an actual behaviour because the effect of the variable *DEPOSIT* is ambiguous on the decision to buy life insurance. The ambiguity may come from the fact that a part of the effect of *DEPOSIT* variable was captured by the *EDUCATION* variable (also used in the literature as proxy for risk aversion).

The level of knowledge in insurance expressed by the newly constructed index (*IIK*) is a more powerful determinant for the decision to subscribe to life insurance (significant at 1%) than for the intention (significant at 10%) to do so.

Concerning the socio-demographic factors, they mostly influence the intention to buy life insurance, the decision being positively determined only by marital status (married), level of education and financial resources. Age significantly influences only the intention to buy insurance, not the decision to do so as well. This result is in line with the findings of Luciano et al. (2016), who found age insignificant for the willingness to pay for life insurance and significant for the propensity to buy insurance.

The logit multinomial model in the second specification versus the first one explains the intention of the individual. The other specifications and the binary logit explain the decision of the individual. The ordered logit is used only as control, because of the very restrictive hypothesis of *proportional odds.*

Table. 2. Determinants of the intention and decision to buy private pensions

	Binary logit	Ordered logit	Multinomial logit		
			2 vs. 1	3 vs.1	3 vs. 2
PENS_SUF	-0.284***	-0.235***	-0.010	-0.288**	-0.278***
	(-3.00)	(-3.14)	(-0.09)	(-2.04)	(-2.90)
PENS_INVEST	-0.279**	-0.222*	0.166	-0.426**	-0.260*
	(-2.00)	(-1.95)	(-0.88)	(-1.97)	(-1.84)
FINANC_CONS ULT	0.481***	0.282**	-0.073	0.414*	0.488***
	(3.25)	(2.40)	(-0.39)	(1.86)	(3.25)

INVEST_INSTIT	0.697***	0.428***	-0.103	0.604***	0.707***
	(4.83)	(3.68)	(-0.54)	(2.74)	(4.84)
TEND_CONSU M	-0.366***	-0.260**	-0.152	-0.498**	-0.346**
	(-2.63)	(-2.92)	(-0.80)	(-2.30)	(-2.45)
DEPOSIT	-0.190	-0.201*	-0.330*	-0.472**	-0.143
	(-1.27)	(-1.68)	(-1.71)	(-2.11)	(-0.94)
GAMES	-0.062	-0.039	0.039	-0.024	-0.064
	(-0.62)	(-0.48)	(0.30)	(-0.16)	(-0.63)
LIQUID	-0.056	-0.062	-0.073	-0.120	-0.047
	(-0.92)	(-1.29)	(-0.89)	(-1.26)	(-0.75)
MALE	-0.216	-0.215*	-0.123	-0.317	-0.194
	(-1.40)	(-1.76)	(-0.60)	(-1.37)	(-1.24)
MARRIED	0.677***	0.656***	0.603***	1.164***	0.561***
	(3.73)	(4.62)	(2.90)	(4.61)	(3.06)
AGE	-0.052***	-0.011**	0.059***	-0.001	-0.059***
	(-7.42)	(-2.22)	(6.74)	(-0.07)	(-8.26)
EDUCATION	-0.041	0.094*	0.377***	0.289***	-0.088
	(-0.59)	(1.70)	(4.21)	(2.78)	(-1.25)
LN_INCOME	0.557***	0.305***	-0.232	0.342*	0.575***
	(4.27)	(3.09)	(-1.49)	(1.83)	(4.33)
RURAL	0.132	-0.008	-0.312	-0.141	0.172
	(0.87)	(-0.07)	(-1.55)	(-0.60)	(1.11)
IIK	0.507***	0.341***	-0.063	0.454***	0.518***
	(6.21)	(4.98)	(-0.55)	(3.47)	(6.25)
Constant	-4.280***		0.601	-3.258**	-3.859***
	(-4.61)		(0.54)	(3.47)	(-4.09)
Pseudo R2	0.146	0.063	0.132		
LR χ²(15)	224.81	154.23	320.57		
Prob > χ²	0.000	0.000	0.000		
N	1579	1579	1579		

Results from binary logit, ordered logit and multinomial logit, *t*-statistic in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Among general behavioural factors, the propensity to consume (*TEND_CONSUM*) negatively influences the decision to buy private pensions, but has no influence on the decision. All the specific behavioural factors as well as the insurance knowledge distinguish between intention and decision for private pensions: they do not influence the intention, only the consumer's decision. In the case of people who seek financial consultancy (FINANC_CONSULT) and in the case of those who address specialized institutions (INVEST_INSTIT), the probability of buying a private pension is higher, while those who do not perceive private pensions as an investment (PENS_INVEST) present a lower probability of buying. The level of income (LN_INCOME) is the only socio- economic factor which reveals a different mechanism for decision and intention: even if people intend to buy private pension (are aware of the advantages), they do not materialize the intention because they have no material resources.

Because of the high number of estimations we synthetize the significance of the explanatory variables in Table 3.

Table. 3. Decision versus intention: synthesis of the influence of factors on life insurance and private pensions

	Factors	Life insurance		Private pension	
		Decision	Intention	Decision	Intention
General financial behaviour GEN_BEHAV	*TEND_CONSUM*	No	No	Yes	No
	GAMES	No	No	No	No
	LIQUID	No	No	No	No
	BANK_DEPOSIT	?	Yes	?	?
Insurance specific behaviour SPEC_BEHAV	*TRUST_INSUR*	Yes	Yes		
	EXP_INSUR	Yes	No		
	PREV_INSUR	Yes	No		
	LIFE_PROTECT	Yes	No		
	HELP_INSTIT	Yes	No		
	FINANC_CONSULT	Yes	Yes	Yes	No
	PENS_SUF			Yes	No
	INVEST_INSTIT			Yes	No
	PENS_INVEST			Yes	No
Index of Insurance Knowledge (IIK)	*IIK*	Yes	No	Yes	No
Socio-demographic SOC_DEM	*MALE*	?	Yes	No	No
	MARRIED	Yes	Yes	Yes	Yes
	AGE	No	Yes	Yes	Yes
	EDUCATION	Yes	Yes	?	Yes
	LN_INCOME	Yes	Yes	Yes	No
	RURAL	No	No	No	No

We notice some general patterns on the set of regression for the two types of financial products (life insurance and private pensions). *General financial behavioural variables* rarely influence the intention (only *DEPOSIT* for life insurance) and the decision to buy (only *EXPENSES* for private pensions). The attitude towards risk, the preference for liquidity and the propensity for expenditure are not decisive factors for subscribing to a life insurance policy. In the case of private pensions, the propensity to save/invest does not influence the individual intentions, but positively influences the decision of buying them.

Insurance specific behavioural factors clearly distinguish between decision and intention for life insurance/ private pensions. Intentions do not materialize into decisions for buying life insurance if individuals did not have previous insurance, if they (or their relatives) had unpleasant

experiences with insurance, if they do not perceive the protective role of life insurance or if they resort to friends, or relatives in the case of financial difficulties.

In the case of private pensions, individuals who do not perceive pension as an investment prefer to invest themselves, consider public pension as being adequate and rely on the advice of friends, relatives and the mass media concerning their financial decisions, and show a lower probability to make the step from intention to decision.

Among the specific behavioural factors we find trust in the insurer and trust in the specialized financial consulting body as determinants that positively influence both intention and decision to subscribe to a life insurance policy.

The *Index of Insurance Knowledge* clearly distinguishes the intention from decision, both for life insurance and private pensions. Therefore, the lack of awareness of the products that exist on the market, of the rights and obligations arising from a private pension/life insurance contract and of the consequences of bankruptcy in insurance on its own portfolio constitute a serious obstacle in converting intention to buying decision.

As a general view, the socio-demographic factors do not distinguish between intention and decision in the case of life insurance and private pensions. These factors have mainly the role of control variables in our study. Individuals who are married, are more educated and have a higher income show a greater probability to intend to subscribe and subscribe to a private pension or life insurance contract. For all the other socio-demographic variables we cannot prove a clear link with the buying behaviour for those two types of financial products.

5. Conclusions

In this article we have tested several hypotheses regarding the behaviour of individuals towards life insurance and private pensions. Our main result shows the different influence of certain factors on the intention versus the decision to buy one of those two financial products. Often individuals perceive correctly the utility of possessing insurance/pension, but there are some obstacles in the incidence of the buying decision such as: the lack of previous experiences or unpleasant experiences relating to insurance, the low level of financial knowledge and the lack of financial resources. On the contrary, the accurate perceptions of the role of pension as investment and of life insurance as protection encourage the individual to fulfil his/her intention. Frequently this mechanism is stimulated by the connection of the potential clients with financial consultants which can provide clarification on those aspects.

A common issue in former communist countries is the long absence of private financial systems, specific for nationalized economies. The subsequent development of the financial banking system was often chaotic, with many bankruptcies, mergers and acquisitions. In addition, the

specific legal system, with many gaps, led to many unpleasant situations for the insureds and their relatives, to violation of contractual regulations, failure to pay the insurer's obligations within the contract terms. Even after the transition to a free market economy in those countries, there was a stage when even home or car insurance were not compulsory. Therefore an important percentage of the individuals in a society does not own any kind of insurance policy. So they have no correct perception of the usefulness of those financial instruments or the required knowledge to own a life insurance policy or a private pension. Those insurance markets tend to coagulate around a number of big companies which provide increasingly more stability. Even state institutions are more and more involved, some lines of insurance becoming compulsory or a part of the pension contribution being administrated privately, thus forcing the involvement of individuals on this market.

In the case of life insurance, an important part of the population is concerned about the financial return compared to the stock market or the real estate market. The lower financial return of life insurance discourages the acquisition of such policies. Those who correctly perceive the protection role of life insurance have a significantly increased propensity for subscribing. Also, in the case of private pensions, the correct identification of their role as investment has positive effects on the demand.

Individuals rarely possess the natural ability or the necessary financial education for correctly identifying those main functions of life insurance and pensions. An important role in addressing these gaps can be played by financial consultants whose expertise would lead to competent decisions. There is a growing significant/marked trend that, as in the banking system, insurance companies and pension funds develop networks of proximity so as to be in more frequent contact with actual or potential customers. This enables the understanding of the role of insurance and pensions and increases their relative importance in relation to other forms of investment or institutionalized self-helping methods.

Among the socio-demographic variables the most significant is marital status. The individual who is in a stable relationship perceives more correctly and strongly the necessity of protection and investment on the long term. High levels of school education and income are also strong incentives for life insurance and private pensions.

However, as we have shown in the introductory part through international comparisons, income is far from fully explaining the financial decision. A highly statistically significant and leading role is played by financial education. To increase the level of knowledge of these sophisticated financial products, it would be useful to organize mass information campaigns by regulatory institutions. Since the contemporary economy is very complex, and these financial issues are difficult to understand, the introduction of financial education courses as early as secondary school could increase the level of knowledge of the population in the future, with direct effect on insurance / pensions.

References

Ajzen, I. (1985). From intentions to actions: A theory of planned behaviour. In J. Kuhl and J. Beckman (Eds.), Action-control: From cognition to behaviour (pp. 11-39). Heidelberg: *Springer*.

Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, 50: 179-211.

Ajzen, I., and Fishbein, M. (1980). Understanding attitudes and predicting social behaviour. Englewood Cliffs, NJ: *Prentice-Hall*.

Alessie, R., van Rooij, M., and Lusardi, A. (2011). Financial Literacy and Retirement Preparation in the Netherlands. *Journal of Pension Economics and Finance* 10(4): 527-545.

Balkrishnan, R., Dugan, E., Camacho, F., and Hall, M. (2003). Trust and Satisfaction with Physicians, Insurers, and the Medical Profession. *Medical Care*, 41(9)|: 1058-1064.

Bannier, C. E., Neubert, M. (2016). Gender differences in financial risk taking: the role of financial literacy and risk tolerance, *Economics Letters*, 145: 130-135.

Bayer, P.J., Bernheim, B.D. and Scholz, J.K. (2009). The effects of financial education in the workplace: Evidence from a survey of employers, *Economic Inquiry* 47(4): 605–624.

Beck, T., Webb, I. (2003). Economic, Demographic and Institutional Determinants of Life Insurance Consumption, *The World Bank Economic Review,* 17(1): 51-88.

Brown, J.R. (2009). Understanding the role of annuities in retirement planning, in: Lusardi, A. (ed.), *Overcoming the saving slump*, Chicago, University of Chicago Press.

Chen, R., Wong, K., and Lee, H. (2001). Age, Period, and Cohort Effects on Life Insurance Purchases in the U.S. *The Journal of Risk and Insurance, 68*(2): 303-327.

Collins, J. M., (2011). Improving Financial Literacy: The Role of Nonprofit Providers. In *Financial Literacy: Implications for Retirement Security and the Financial Marketplace.* Eds. O. S. Mitchell and A. Lusardi. Oxford: Oxford University Press: 268-187.

Cortina, J. (1993). What is coefficient alpha? An examination of theory and applications. *Journal of Applied Psychology*, 78(1): 98-104.

Croson, R., and Gneezy, U. (2009). Gender Differences in Preferences. *Journal of Economic Literature*, 47(2): 448-74.

David, D., (2015). Psychology of Romanian people, *Polirom,* Bucuresti.

Dohmen, T., Falk, A., Huffman, D., Sunde, U., Schupp, J, Wagner, G. G. (2011). Individual Risk Attitudes: Measurement, Determinants and Behavioural Consequences. *Journal of the European Economic Association*, 9: 522-550.

Dragota, I.M., Dragos, S.L. and Dragos C.M. (2015). Investment, protection, or waste of money: The determinants of the demand for life insurances and private pensions in the case of Romania, Transformations in Business and Economics, 14 (2): 97-116.

Feldstein, M. and Siebert, H. (2002). *Social Security Pension Reform in Europe*. Chicago: University of Chicago Press.

Fishbein, M. and Ajzen, I. (1975). Belief, attitude, intention and behaviour: An introduction to theory and research. Reading, MA: Addison-Wesle.

Finke, M. (2013). Financial Advice: Does It Make a Difference? In: *The Market for Retirement Financial Advice*. Eds. O. S. Mitchell and K. Smetters. Oxford, UK: Oxford University Press.

Fletcher, K., and Hastings, W. J. (1984). Consumer Choice: A Study of Insurance Buying, Intention and Beliefs, *The Services Industries Journal*, 4(2): 174–188.

Franco, D. (2002). *Italy: A never-ending pension reform*. In Feldstein, M. and H.Siebert (Eds.), Social Security Pension Reform in Europe, 211–251. Chicago: University of Chicago Press.

Friedman, M. (1957). *A Theory of the Consumption Function*. Princeton: Princeton University Press.

Gandolfi, A., and Miners, K. (1996). Gender-Based Differences in Life Insurance Ownership. *Journal of Risk and Insurance*, 63: 683-693.

Goedde-Menke, M., Lehmensiek-Starke, M., and Nolte, S. (2014). An empirical test of competing hypotheses for the annuity puzzle, *Journal of Economic Psychology*, 43 (C): 75-91.

Guiso, L., Sapienza, P. and Zingales, L. (2008), Trusting the Stock Market. *The Journal of Finance*, 63: 2557–2600.

Hammond, J.D., Houston, D.B. and Melander, E.R. (1967). Determinants of household life insurance premium expenditure: An empirical investigation, *The Journal of Risk and Insurance* 34(3): 397–408.

Hastings, W., and Fletcher, K. (1983). The Relevance of the Fishbein Model to Insurance Buying, The Service Industries Journal, 3:3, 296-307.

Hofstede, G., Hofstede G.J. and Minkov, M. (2010). Cultures and Organizations: software of the mind: intercultural cooperation and its importance for survival, McGrawHill, 3rd edition.

Innan, R., and Moustaghfir, K. (2012). Predicting employees' behavior: An application of the theory of planned behaviour–the case of the Moroccan forestry department. Management, Knowledge and Learning, International Conference 2012, Celje: Slovenia, 333-348.

Insurance Europe (2015). European insurance in figures – 2015 data.

Kashima, Y., Gallois, C., and McCamish, M. (1993). The theory of reasoned action and cooperative behaviour: It takes two to use a condom. *British Journal of Social Psychology*, 32: 227–239.

Lewis, F.D. (1989). Dependents and the Demand for Life Insurance. *American Economic Review*, 79: 452-466.

Luciano, E., Outreville, F., and Rossi M. (2016). Life Insurance Ownership by Italian Households: A Gender-Based Differences Analysis, *The Geneva Papers on Risk and Insurance—Issues and Practice*, 41(3): 468-490.

Luciano, E. and Rossi M. (2014). File insurance demand and financial inclusion: Evidence from Italian households, *Carlo Alberto Notebooks*, No. 398.

Lusardi, A., Mitchell. O. S. (2007a). Baby Boomers' Retirement Security: The Role of Planning, Financial Literacy and Housing Wealth, *Journal of Monetary Economics,* 54: 205–224.

Lusardi, A., Mitchell O.S. (2007b). Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education, *Business Economics*, 35–44.

Mackenzie, G. (2006). Annuity markets and pension reform, Cambridge University Press.

Mare, C., Dragoş, S.L., Dragotă, I.M., Mureşan, G.M. and Urean, C.A. (2016). Spatial convergence processes on the European Union's life insurance market, *Economic Computation and Economic Cybernetics Studies and Research,* 50(4): 93-107.

Millo, G., Carmeci, G. (2015). A Subregional Panel Data Analysis of Life Insurance Consumption in Italy. *The Journal of Risk and Insurance*, 82(2): 317-340.

Modigliani, F., and Brumberg, R. (1954). Utility Analysis and the Consumption Function: An Interpretation of Cross-section Data. In *Post-Keynesian Economics*. Ed. K. Kurihara. New Brunswick, NJ: Rutgers University Press: 388–436.

Naradda Gamage S.L., Lin, L., and Haq, I. (2016). Economic and demographic characteristics, social capital and demand for life insurance: evidence from central region of Sri Lanka, Ecoforum, 5(2), 74-82.

Nosi, C., D'Agostino, A., and Pagliuca, M. M. (2014). Saving for old age: Longevity annuity buying intention of Italian young adults. *Journal of Behavioural and Experimental Economics*, 51: 85–98.

OECD (2005). *Improving Financial Literacy: Analysis of Issues and Policies*, Organization for Economic Co-operation and Development.

Omar, O. E. (2007). The retailing of life insurance in Nigeria: an assessment of consumers' attitudes. *The Journal of Retail Marketing Management Research*, 1(1): 41-47.

Omar, O.E. and Owusu-Frimpong, N. (2007). Using the theory of reasoned action to evaluate consumer attitudes and purchase intention towards life insurance in Nigeria. The Service Industries Journal, 27(7):1-14.

Outreville, J.F., 1996. Life insurance markets in developing countries. *Journal of Risk and Insurance,* 63 (2): 263–278.

Park, S.C. and Lemaire, J. (2011). The impact of culture on the demand for non-life insurance, Wharton School working paper IRM 2011-02, University of Pennsylvania.

Prast, H., Rossi, M., Torricelli, C., Druta, C., (2014). Do women prefer pink? The Effect of a gender stereotypical stock portfolio on investing decisions, Netspar Discussion Paper 01/2014-009.

Quelette, J.A., and Wood, W. (1998). Habit and intention in everyday life: The multiple processes by which past behaviour predicts future behaviour. Psychological Bulletin, 124: 54-74.

Rahim, FA., and Amin, H. (2011). Determinants of Islamic insurance acceptance: an empirical analysis. International Journal of Business and Society, 12(2): 37-54.

Rostami, M.B., and Mansoori, A. (2015). The model for explaining the behavioural intention of consumers to buy more (Case: Insurance Industry). *International Academic Journal of Business Management* 2(8): 8-20.

Rousseau, D. M., Sitkin, S. B., Burt, R. S., and Camerer, C. (1998). Not so different after all: A cross-discipline view of trust, *Academy of Management Review*, 23: 393–404.

Schlesinger, H. (1981). The optimal level of deductibility in insurance contracts, *The Journal of Risk and Insurance*, 48(2): 465–481.

Sheeran, P. (2002). Intention–behaviour relations: A conceptual and empirical review. *European Review of Social Psychology*, 12 (1): 1–36.

Sheeran, P., and Webb, T. L. (2006). The intention-behaviour gap. *Social and Personality Psychology Compass*, 10(9): 503-518.

Shulruf, B., Alesi, M., Ciochina, L., Faria, L., Hattie, J., Hong, F., Pepi, A.M. and Watkins, D. (2011). Measuring collectivism and individualism in the third millennium, *Social Behaviour and Personality: An International Journal*, 39 (2): 173-187.

Tavakol, M. and Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 2: 53–55.

Van Rooij,M., Lusardi, A., and Alessie, R. (2012). Financial literacy, retirement planning, and households wealth. *Economic Journal*, 122: 449–478.

Zheng, B., Hall, M. A., Dugan, E., Kidd, K. E., and Levine, D. (2002). Development of a Scale to Measure Patients' Trust in Health Insurers. *Health Services Research*, 37(1): 185–200.

Yaari, M.E., (1965). Uncertain lifetime, life insurance, and the theory of the consumer, *Review of Economic Studies* 32: 137-150.

Wiener, J., Gentry, J., and Miller, R. (1986). The Framing of the Insurance Purchase Decision. *Advances in Consumer Research*, Vol. 13, Richard Lutz, ed., Provo, UT: Association for Consumer Research, 251-256.

Appendix 1. Ratio between the life insurance density and the net annual salary in European countries
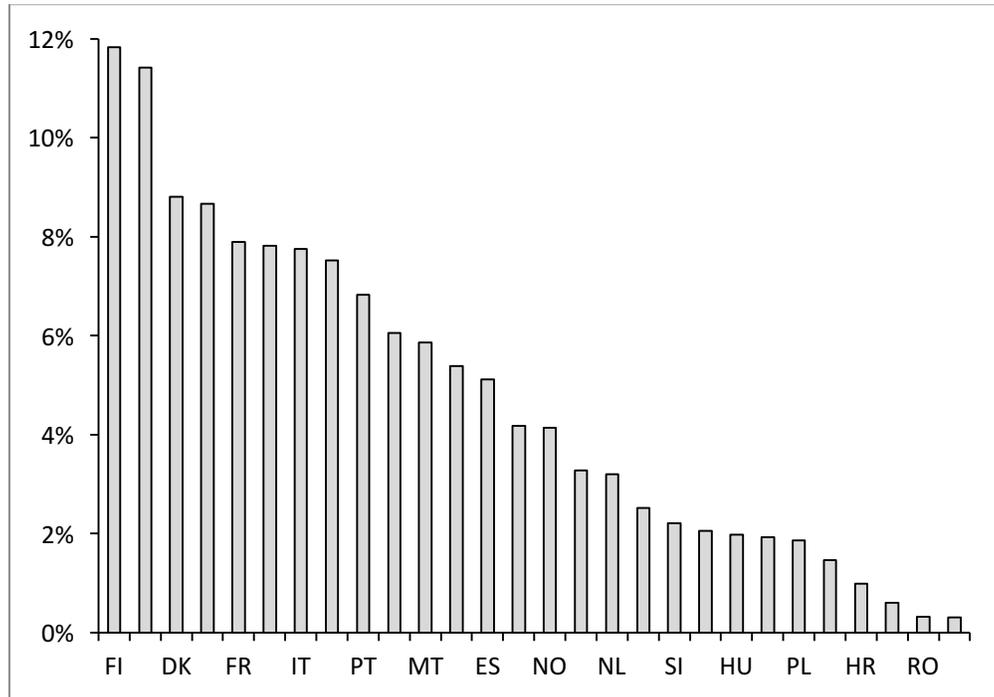
Source: Insurance Europe (2015)

Appendix 2. Sample characteristics

Variable		Proportion or mean (st.dev.)
TRUST_INSUR	How much trust do you have in insurance companies?	
	1 Not at all	24.45%
	2 Little	56.05%
	3 Much	14.95%
	4 Very much	1.33%
EXP_INSUR	Your experiences or those of your relatives regarding insurance companies were	
	1 Very unpleasant	7.22%
	2 Unpleasant	29.51%
	3 Neutral or not existing	24.76%
	4 Pleasant	37.49%
	5 Very pleasant	1.01%
PREV_INSUR	Have you subscribed to or do you have any type of insurance now?	

	1 No, I have never subscribed to any type of insurance	32.93%
	2 Yes, I have submitted only compulsory insurance (MTPL, homeowners)	11.40%
	3 Yes, I have subscribed only to voluntary insurance (Own Damage, Life, Health, Pensions)	33.88%
	4 Yes, I have subscribed to both compulsory and voluntary insurance	21.79%
LIFE_PROTECT	Do you consider that life insurance is rather a-form of	
	0 Investment	19.38%
	1 Protection	80.62%
PENS_INVEST	Do you consider that private pension is rather a form of	
	0 Protection	48.58%
	1 Investment	51.42%
PENS_SUF	To what extent do you think that the public pension will cover your needs?	
	1 Very small extent	31.54%
	2 Small extent	50.22%
	3 High extent	14.76%
	4 Totally	3.48%
FINANC_CONSULT	In case you want to subscribe to a life insurance policy or a private pension, which of the following would be the main source of information?	
	0 Advice of friends, relatives, acquaintances , mass-media, internet	42.56%
	1 Advice of a financial consultant, broker	57.44%
HELP_INSTIT	In the future, in the case of financial hardship, which solution seems more appropriate?	
	0 To ask for help from relatives, friends, acquaintances	55.60%
	1 To resort to specialized institutions (banks, insurance companies…)	44.40%
INVEST_INSTIT	Do you prefer or would prefer to...?	
	0 Invest by yourself , without resorting to any specialized institution	49.65%
	1 Resort to specialized institutions (banks, insurance companies, pension funds, mutual funds	50.35%
LIQUID	There are several ways to invest your money (real estate investment, stocks, deposits, and other ways). How important is it for you to be able to use the money at any time?	
	1 Not at all important	6.71%
	2 Slightly important	8.49%
	3 Quite important	22.36%
	4 Important	30.65%
	5 Very important	31.79%
TEND_CONSUM	When you collect your monthly revenue, the first thing	

	that comes into your mind is ...	
	0 How much I can save/ invest	45.85%
	1 How much I can spend	54.15%
DEPOSIT	If you had a sum of money how would you keep it?	
	0 Stocks, money invested on capital markets, stock exchange, real estate investments, precious metals, art objects (high risk, large potential gain)	62.63%
	1 As bank deposits (minimum risk, low gain)	37.37%
GAMES	Some individuals use to gamble, bet or play the lottery. How often do you practise such activities?	
	1 Never	72.51%
	2 Seldom (Rarely)	19.95%
	3 Sometimes	4.37%
	4 Often	3.17%
IK_LIFE	Knowledge of types of life insurance in Romania	
	1 Not at all	27.17%
	2 Insufficient	35.97%
	3 Sufficient	24.07%
	4 Good	10.39%
	5 Very good	2.41%
IK_PENSION	Knowledge of differences between the types of pension in Romania (public pension, compulsory private pension, voluntary private pension)	
	1 Not at all	25.65%
	2 Insufficient	31.41%
	3 Sufficient	24.89%
	4 Good	14.06%
	5 Very good	3.99%
IK_DIFFER	Knowledge of differences between a voluntary private pension (offer money at retirement) and life insurance (offer money after death)	
	1 Not at all	25.65%
	2 Insufficient	31.41%
	3 Sufficient	24.89%
	4 Good	14.06%
	5 Very good	3.99%
IK_RIGHTS	Knowledge of rights and obligations arising from subscribing to an insurance contract	
	1 Not at all	36.10%
	2 Insufficient	23.37%
	3 Sufficient	21.09%
	4 Good	15.20%
	5 Very good	4.24%
IK_BANKRUPT	Knowledge of what happens with your money in case an insurance company or a pension fund goes bankrupt	

	1 Not at all	52.06%
	2 Insufficient	19.19%
	3 Sufficient	13.43%
	4 Good	10.64%
	5 Very good	4.69%
MALE	0 Female	48.89%
	1 Male	51.11%
MARRIED	0 Not married, divorced or widow	24.45%
	1 Married	75.55%
AGE		45.4 (11.7)
EDUCATION	Your last graduated school is...	
	1 At least 8 years of schooling	4.62%
	2 Vocational school, 10 years of schooling	20.39%
	3 High school	29.07%
	4 Foremen school, Technical school, Post High school	10.26%
	5 University studies, Post-university studies	35.66%
INCOME	Personal monthly net income	1755 (1283)
RURAL	0 Rural	39.27%
	1 Urban	60.73%

Appendix 3. The effect of different components of insurance knowledge on the decision to subscribe to a life insurance policy

	Life Insurance	Life Insurance	Life Insurance	Life Insurance	Life Insurance	Life Insurance
TRUST_IN SUR	1.142*** (2.74)	1.151*** (2.94)	1.137*** (2.66)	1.163*** (3.07)	1.146*** (2.86)	1.156*** (2.91)
EXP_INSU R	1.211** (2.47)	1.235*** (2.72)	1.195** (2.26)	1.165* (1.93)	1.232*** (2.68)	1.160* (1.87)
PREV_INS UR	1.605*** (6.34)	1.601*** (6.36)	1.604*** (6.26)	1.633*** (6.40)	1.603*** (6.35)	1.625*** (6.28)
LIFE_PRO TECT	2.609*** (4.24)	2.540*** (4.12)	2.645*** (4.23)	2.730*** (4.36)	2.500*** (4.06)	2.752*** (4.36)
FINANC_C ONSULT	1.369** (2.03)	1.418** (2.24)	1.415** (2.22)	1.440** (2.32)	1.404** (2.19)	1.406** (4.36)
HELP_INS TIT	1.618*** (3.13)	1.659*** (3.30)	1.695*** (3.41)	1.648*** (3.21)	1.716*** (3.52)	1.629*** (3.10)
TEND_CO NSUM	0.886 (-0.82)	0.921 (-0.56)	0.892 (-0.76)	0.883 (-0.83)	0.889 (-0.79)	0.881 (-0.84)
DEPOSIT	0.827 (-1.19)	0.800 (-1.41)	0.832 (-1.15)	0.837 (-1.10)	0.778 (-1.58)	0.843 (-1.05)
GAMES	1.124 (1.14)	1.136 (1.26)	1.118 (1.08)	1.094 (0.86)	1.106 (0.99)	1.087 (0.79)

LIQUID	1.087 (1.24)	1.087 (1.25)	1.059 (0.85)	1.066 (0.95)	1.100 (1.43)	1.054 (0.77)
MALE	1.564*** (2.72)	1.609*** (2.90)	1.583*** (2.77)	1.559*** (2.67)	1.583*** (2.79)	1.518** (2.48)
MARRIED	1.841*** (3.11)	1.911*** (3.31)	1.858*** (3.13)	1.777*** (2.91)	1.868*** (3.21)	1.795*** (2.94)
AGE	0.994 (-0.88)	0.994 (-0.82)	0.997 (-0.37)	0.994 (-0.81)	0.993 (-0.93)	0.995 (-0.67)
EDUCATI ON	1.216*** (2.64)	1.240*** (2.94)	1.208** (2.56)	1.120** (2.44)	1.239*** (2.94)	1.161** (1.97)
LN_INCO ME	2.184*** (5.34)	2.145*** (5.27)	2.049*** (4.88)	2.041*** (4.84)	2.178*** (5.37)	2.015*** (4.71)
RURAL	1.009 (0.06)	1.029 (0.18)	0.966 (-0.21)	0.941 (-0.36)	1.018 (0.11)	0.925 (-0.46)
IK_LIFE	1.454*** (5.06)					1.093 (0.94)
IK_PENSI ON		1.339*** (4.33)				0.932 (-0.77)
IK_DIFFE R			1.542*** (6.53)			1.240** (2.47)
IK_RIGHT S				1.628*** (7.51)		1.384*** (3.82)
IK_BANKR UPT					1.341*** (5.10)	1.088 (1.24)
Pseudo R2	0.196	0.191	0.208	0.218	0.196	0.226

Results from binary logit model. Odds ratio, *t*-statistic in parentheses.
*** p<0.01, ** p<0.05, * p<0.1

Appendix 4. Index of Insurance Knowledge validity

Reliability Statistics	
Cronbach's Alpha	N of Items
.840	5

Item-Total Statistics				
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
IK_LIFE	8.97	14.437	.647	.809
IK_PENSION	8.82	13.873	.653	.806
IK_DIFFER	8.89	13.292	.682	.797
IK_RIGHTS	8.93	12.920	.712	.789
IK_BANKRUPT	9.25	14.148	.541	.838