

## **The Effect of Social and Demographic Factors on Life Insurance Demand in Croatia**

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### **Abstract**

*According to the theoretical and empirical literature, life insurance demand is influenced by various economic, institutional, social, and demographic factors. The aim of this paper is to analyze social and demographic determinants of life insurance consumption in Croatia. The empirical research is based on the survey data collected on the sample of 95 respondents. The research result shows that age, education and employment impact life insurance demand of household in Croatia while gender, marital status and number of family members do not have statistically significant influence.*

**Key words:** life insurance demand, social factors, demographic determinants, Croatia

### **1. Introduction**

Although life insurance serves as a method of individuals' risk management against death risk, most of the life insurance products are saving instruments. Together with pension insurance and repayment of mortgage, life insurance belongs to the contractual savings instruments. They are characterized by regular and long-term cash flows as well as illiquidity. As such, contractual savings is important source of finance for private and government long-term investment projects. Therefore, there is a question what factors determined decision of individuals to purchase these instruments. In this paper we are focused on determinants of life insurance purchase.

According to the theoretical considerations on factors that influence life insurance demand as well as the results of empirical studies, income is the most influential determinant (Beenstock et al., 1986; Truett & Truett, 1990; Browne & Kim, 1993; Outreville, 1996; Ward & Zurbruegg, 2002; Beck & Webb, 2003; Li et al., 2007). Besides income, among economic factors, empirical studies confirm the influence of inflation (Browne & Kim, 1993; Ward & Zurbruegg, 2002; Beck & Webb, 2003; Li et al., 2007), price (Browne & Kim, 1993; Outreville, 1996) and development of financial system (Ward & Zurbruegg, 2002; Beck & Webb, 2003; and Li et al., 2007). Empirical researches of Ward & Zurbruegg (2002) and Beck & Webb (2003) show the importance of institutional determinants for life insurance demand. They encompass legal origin, rule of law, and corruption. In addition to economic and institutional factors the empirical studies analyze social and demographic determinants of life insurance consumption that are in the focus of our research.

The aim of this paper is to analyze social and demographic determinants of life insurance demand in Republic of Croatia. According to the main indicators, life insurance market in Croatia is still undeveloped compared to the market of Western Europe. However it shows better performances than average life business in Central and Eastern Europe. Precisely, life insurance penetration in Croatia was 0.73 percent of GDP in 2012 while the same indicator was 4.58 percent of GDP in Western Europe and 0.57 percent of GDP in Central and Eastern Europe. Life insurance density shows that Croatians on average spent 95 USD for life insurance in 2012. In Western Europe the life insurance density was 1,612.3 USD while in Central and Eastern Europe it accounted 63.6 USD in 2012. Low level of development of life insurance indicates that there is potential for growth. Although one of the main reasons for this stage of development of life insurance is economic development and it will be important driver of the future growth, there are other determinants that could be influential, as well. Thus, there is a need to investigate social and demographic factors which are in focus of our research. The analysis is based on the survey data collected on the sample of 95 respondents in Croatia.

Findings of the research show that the life insurance purchase is determined by age, employment and qualification while gender, marital status and number of family members do not show statistically significant influence.

According to the authors' best knowledge, this is the first paper that investigates factors of life insurance demand in Croatia. Namely, Croatia was just one of the countries in samples of some cross-country researches of life insurance demand. Additionally, the paper contributes to the literature on life insurance determinants in emerging markets.

The rest of the paper is structured as it follows. The next section provides literature review structured according to social and demographic determinants of life insurance demand. The methodology is described in Section 3. Section 4 presents and discusses results. The main conclusions are given in Section 5.

## **2. Literature review**

According to the life-cycle hypothesis of Ando & Modigliani (1963), individuals plan their saving behavior over the long-term. Since income varies over the individual's life cycle, saving differs depending on the individual's age. The same is true for contractual savings through life insurance. Age class of 18 to 30 is very heterogeneous. Some of the individuals get employed after age 18 while some continue education. Part of them gets married. Consequently, insurance demand of the individuals belonging to this age class varies remarkably. During age between 30 and mid-40 individuals spend most of the income on dependent members of family and durable goods. Thus, less income is available for life insurance comparing to those in age class of mid-40 to mid-50. Precisely, in the middle age of lifetime individuals have higher level of income and less pressure on consumption. The same is true for the following age period until retirement when income decreases. Truett & Truett (1990) and Showers & Shotick (1994) find positive relationship between age and life insurance demand while Hammond et al. (1967) show insignificance of the relationship. Following the results of Gandolfi & Miners (1996) there is no influence of age on life insurance demand by wives, while husbands' age negatively affects life insurance consumption.

Gandolfi & Miners (1996) investigate influence of gender on life insurance consumption. Namely, demand for insurance could vary among men and women based on difference in lifetime. Following the assumption that the insurance demand is increasing with probability of death and the fact that men live shorter than women, they will demand insurance more.

Risk aversion is important reason why people decide to buy insurance in general despite the fact that they have to pay for insurance premium more than mathematical expectation of loss. Thus, it is expected that risk aversion has positive effect on life insurance purchase as well. It is common in empirical researches to use education as proxy of risk aversion. Namely, according to Outreville (1996) individuals with higher level of education are more aware of risk and the importance of risk management. Thus, education increases risk aversion and encourages people to demand life insurance. Additionally, individuals with higher education have higher income and can expect that the income will continue to increase at faster rate and in long term compared to those of lower level of education. Consequently, more life insurance will be purchased by more educated individuals. Moreover, according to Browne & Kim (1993) higher education implies that individuals are dependent on family income earner. Thus, education could serve as additional proxy for dependence on the family breadwinner.

Additionally, as the family income earner is more educated, implying that he/she has higher income, there will be higher financial loss to the family in case of his/her death in comparison to those of with lower education. Education is found to be positively related to life insurance demand in empirical studies of Hammond et al. (1968), Truett & Truett (1990), Browne & Kim (1993), and Li et al. (2007). Findings of Beck and Webb (2003) are inconclusive.

Hammond et al. (1967) and Mantis and Farmer (1968) find influence of employment on life insurance consumption. Namely, employment provides source of income and according to the theory of consumption it is permanent factor which determines level and distribution of income among consumption and saving. Thus, life insurance will be demanded more by individuals who are employed compared to those unemployed.

Mantise & Famer (1968) find that marriages have effect on life insurance demand but contrary to the expectation, it is negative. Namely, they expect that married men spend more money on life insurance than single men since they want to protect their dependents of death risk of family breadwinner. The explanation of the empirical results could be that unmarried individuals have more disposable income and thus more resource to buy life insurance than those married.

Following Lewis's model (1989) life insurance demand is determined by maximization of the beneficiaries' expected lifetime utility. Protection of dependent members of family against financial hardship in the case of a wage earner's premature death is important motive of buying life insurance. Thus, higher number of dependents implies increasing demand for life insurance. However, numerous family members may limit the wage earner's financial sources, implying negative effects of families' members on life insurance consumption. Findings of Hammond et al. (1967), Beenstock et al. (1986), Truett & Truett (1990), Browne & Kim (1993), Li et al. (2007) show positive impact of dependency ratio on demand for life insurance. Beck and Webb (2003) found that old dependency ratio (ratio of the population over 65 to the working population) is more important than young dependency ratio (under 15).

Although Outreville (1996) holds that life expectancy reflects the actuarial fair price of life insurance, the researchers usually categorize this variable among social and demographic ones (for problems associated with using life expectancy as proxy for life insurance price, see Ward & Zurbruegg (2002)). The influence of life expectancy on life insurance demand depends on types of life insurance policies. Precisely, longer life expectancy implies lower probability of death and lower demand for life insurance products that provide pure protection of death risk (term life). However, in the case of life insurance policies which, besides death risk protection, serve as instrument of contractual savings, higher life expectancy increases demand for life insurance. Beenstock et al. (1986), Outreville (1996) and Ward & Zurbruegg (2002) find positive correlation between life expectancy and demand for life insurance. Contrary results are shown by Li et al. (2007). Beck & Webb (2003) find that influence of life expectancy on life insurance demand is not robust.

Beck & Webb (2003) analyze effect of urbanization on life insurance demand with expectation of positive sign. Namely, urbanization implies geographic concentration of people and thus lower costs of distribution of life insurance. Since distribution costs are among the highest costs of insurance companies, their lowering positively contribute to life insurance supply and consequently, demand. Additionally, urban individuals are in average more familiar with risk and risk management compared to those who live in rural areas, implying positive effect of urbanization on life insurance demand. However, findings of Beck & Webb (2003) do not confirm statistically significant impact of urbanization on life insurance demand.

Based on Lewis (1989) and Browne & Kim (1993) social security reflects the national wealth and it is a substitute for life insurance. Thus, increased social security expenditures decrease demand for life insurance. The negative effect of social security system on life insurance consumption is additionally explained by social security contributions that cover social security expenditures, which reduce available income for buying life insurance. However, social security expenditures may have positive effect on life insurance demand. According to Browne and Kim (1993) social security benefits are household asset that increase consumption as long as the wage earner survives in case that social security pension benefits cease upon the wage earner's death and are not replaced by survivorship benefits. Negative effect of social security on life insurance consumption is found in the studies of Ward and Zurbruegg (2002) and Le et al. (2007) while Browne and Kim (1993) show positive relationship between social security and life insurance.

### 3. Data and methodology

The analysis is based on the survey data collected through questionnaires. There were 95 questionnaires and all of them were found fit. The sample consisted of both individuals who buy life insurance and those who do not buy. The survey questionnaire created for the purpose of the analysis consists of 9 questions relating to the influence of the social and demographic factors on the life insurance demand. The data relates to the following variables: age, gender, qualifications, employment, marital status, and number of the family members.

We test following hypotheses:

H<sub>01</sub>: There is no significant effect of the respondents' age on life insurance consumption.

H<sub>02</sub>: There is no significant difference in life insurance demand across different gender categories of the respondents.

H<sub>03</sub>: There is no significant difference in life insurance consumption across different group of respondents' qualifications.

H<sub>04</sub>: Employment does not significantly influence life insurance demand.

H<sub>05</sub>: There is no significant difference in life insurance consumption between married and single individuals.

H<sub>06</sub>: There is no significant difference in life insurance demand across different categories of the respondents based on family size.

The data are analyzed using statistical software SPSS 19.0. Chi-Square test is used to analyze the relationship between the social and demographic factors and life insurance demand.

### 4. Empirical results

The relationship between the age, divided into five classes, and life insurance demand is presented in Table 1. The largest number of respondents – 29 out of total of 95, belongs to the age group 31 -43. The smallest number of respondents is in the age group 70 and older. More than half of the respondents purchase for life insurance and the largest number of them is in the age group 31 – 41 years. Out of 26 respondents in the age group 18-30 years, more than half do not buy for life insurance. The most numerous buyers of life insurance are individuals in the age group 44 – 56 years, while the number of those who purchase and do not purchase life insurance in the age group 57 – 69 is almost the same. One out of five respondents in the age group of 70 years and more, buy life insurance.

In order to determine the link between the age and life insurance demand, the Chi-Square test is conducted, at the significance level of 5 percent. The obtained results are presented in the Table 2. Since p-value is less than 5 percent the null hypothesis H<sub>0</sub> of no relationship between the age of the respondents and life insurance demand is rejected. Different age groups of the individuals behave differently regarding the life insurance demand. Their life insurance demand is in line with the life-cycle theory due to income variability during the individuals' lifetime.

The next analyzed determinant is gender. The nexus between the gender and life insurance demand is presented in Table 3. The proportion between the surveyed male and female respondents is almost the same. Equal number of men and women buys life insurance, and also the same number does not. More than half of the total respondents demand life insurance. The results of Chi-Square test of link between the gender factor and life insurance demand at the level of significance of 5% are shown in Table 4. Due to the p-value null hypothesis H<sub>0</sub> is accepted. Thus, there is no correlation between the gender and life insurance demand. Saying differently men and women equally demand life insurance.

Relationship between education and life insurance demand is presented in the Table 5. The largest number of the respondents in the survey has secondary education, and the smallest number has lower qualifications. One third of the lower-qualified respondents purchase life insurance products. This proportion rises to one half in the groups of respondents with secondary and higher education. Respondents with university degree demonstrate the largest demand for life insurance – only one of the respondents does not have life insurance policy. According to the results presented in Table 6, there is relationship between the variable of education and life insurance demand. This confirms that individual with higher education are more familiar with risk management and earn higher incomes compared to those less educated.

Table 7 shows influence of employment on the purchase of life insurance. The largest number of the respondents in this survey is employed and more than half of them buy life insurance. Out of total of 14 unemployed, only 4 individuals purchase life insurance while students mostly do not. Less than half of the surveyed retirees buy life insurance. The results of the Chi-Square test at 5% significant level are presented in Table 8. The alternative hypothesis is accepted. Namely, employment positively contributes to life insurance demand because employed individuals receive income and have funds to buy life insurance.

Marital status is next demographic determinant whose influence on life insurance demand is analyzed and the observed results are presented in Table 9. Out of total number of the respondents, 56 are married and 39 are unmarried. More than half of married respondents purchase life insurance, while that proportion in group of unmarried respondents is almost the same. The results of the Chi-Square test are shown in Table 10, indicating that there is no relationship between marital status and life insurance demand. Unmarried individuals buy life insurance products because they have more of their income available in comparison with married ones who spend more on supporting their families. However, there is also a reverse influence – married persons would also buy life insurance products because in this way they can ensure resources for their families in case of their early death.

The link between the life insurance demand and number of family members is presented in Table 11. The most respondents live in two-member families, and the smallest number of respondents lives in families with 6 members and more. Individuals who live alone mostly buy life insurance. In two-member families, the number of those who buy and who do not buy life insurance is about the same. Only 4 out of total three-member families do not buy life insurance. In families with 4 members, as well as in families with 5 members, the number of those who do not buy life insurance is larger than the number of those who do. Based on the results of Chi-Square test, shown in Table 12, null hypothesis  $H_0$  is accepted, meaning there is no relationship between two variables – number of family members and life insurance demand. Households with fewer members in the family buy life insurance products because they have more income available comparing to persons with more family members who spend more of their income on their dependents. Nevertheless, there is an opposite effect – individuals with more family members also buy life insurance products because they want provide financial protection for the family members.

## **5. Conclusion**

In this paper we analyzed social and demographic determinants of life insurance demand in Croatia. The empirical research is based on the survey data collected on the sample of 95 respondents. According to the results, age, employment, and education show statistically significant impact on life insurance demand of households in Croatia. Other examined factors – gender, marital status and number of family members have no influence on the life insurance consumption.

The results of the research have implications on decision makers on both macroeconomic and insurance companies' level. In order to encourage life insurance demand macroeconomic decision makers should provide policies that ensure employment and encourage education. This is especially important in situation of lowering pensions and other social welfare provisions. The findings of the research should be taken into consideration by life insurance companies especially in planning their distribution channels. Namely, since age, education and employment are the relevant factors of insurance demand and banks have these information on their customers, life insurance companies should use banc assurance more in distributing their products.

For the future work there is suggestion to broaden the set of social and demographic variables for expected lifetime, urbanization, and social welfare system.

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**Table 1 : Relationship between the variables age and life insurance demand**

		Age					Total
		18-30	31-43	44-56	57-69	70 & more	
<b>Do you purchase life insurance:</b>	<b>Yes</b>	10	20	13	8	1	52
	<b>No</b>	16	9	5	9	4	43
<b>Total</b>		26	29	18	17	5	95

Source: Authors' calculations based on the survey results

**Table 2: Results of Chi-Square test of link between the variables age and life insurance demand**

	Value	df	Asymp. Sig. (2-sided)
<b>Pearson Chi-Square</b>	10,210 <sup>a</sup>	4	,037
<b>Likelihood Ratio</b>	10,491	4	,033
<b>Linear-by-Linear Association</b>	,006	1	,940
<b>N of Valid Cases</b>	95		

Source: Authors' calculations based on the survey results

**Table 3 :Nexus between gender and life insurance demand**

		Gender		Total
		Male	Female	
<b>Do you purchase life insurance:</b>	<b>Yes</b>	26	26	52
	<b>No</b>	22	21	43
<b>Total</b>		48	47	95

Source: Authors' calculations based on the survey results

**Table 4 :** Results of Chi-Square test of relationship between gender and life insurance demand

	Value	Df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
<b>Pearson Chi-Square</b>	,013 <sup>a</sup>	1	,910		
<b>Continuity Correction<sup>b</sup></b>	,000	1	1,000		
<b>Likelihood Ratio</b>	,013	1	,910		
<b>Fisher's Exact Test</b>				1,000	,537
<b>Linear-by-Linear Association</b>	,013	1	,911		
<b>N of Valid Cases</b>	95				

Source: Authors' calculations based on the survey results

**Table 5:**Link between variable education and life insurance demand

		Qualifications				Total
		Lower education	Secondary education	Higher education	University degree	
<b>Do you purchase life insurance:</b>	<b>Yes</b>	5	19	11	17	52
	<b>No</b>	10	21	11	1	43
<b>Total</b>		15	40	22	18	95

Source: Authors' calculations based on the survey results

**Table 6:** Results of Chi-Square test of nexus between variables education and life insurance demand

	Value	Df	Asymp. Sig. (2-sided)
<b>Pearson Chi-Square</b>	15,273 <sup>a</sup>	3	,002
<b>Likelihood Ratio</b>	18,174	3	,000
<b>Linear-by-Linear Association</b>	12,089	1	,001
<b>N of Valid Cases</b>	95		

Source: Authors' calculations

**Table 7:** Link between the employment and life insurance demand

		Employment				Total
		Employed	Unemployed	Student	Retiree	
<b>Do you purchase life insurance:</b>	<b>Yes</b>	39	4	2	7	52
	<b>No</b>	17	10	7	9	43
<b>Total</b>		56	14	9	16	95

Source: Authors' calculations based on the survey results

**Table 8:** Results of Chi-Square test of the relationship between employment and life insurance demand

	Value	df	Asymp. Sig. (2-sided)
<b>Pearson Chi-Square</b>	13,511 <sup>a</sup>	3	,004
<b>Likelihood Ratio</b>	13,875	3	,003
<b>Linear-by-Linear Association</b>	6,898	1	,009
<b>N of Valid Cases</b>	95		

Source: Authors' calculations based on the survey results

**Table 9:** Link between marital status and life insurance demand

		Marital status		Total
		Married	Unmarried	
<b>Do you purchase life insurance:</b>	<b>Yes</b>	33	19	52
	<b>No</b>	23	20	43
<b>Total</b>		56	39	95

Source: Authors' calculations based on the survey results

**Table 10:** Results of Chi-Square test on relationship between marital status and life insurance demand

	Value	df	Asymp. Sig. (2-sided)	Exact Sig. (2-sided)	Exact Sig. (1-sided)
<b>Pearson Chi-Square</b>	,967 <sup>a</sup>	1	,325		
<b>Continuity Correction<sup>b</sup></b>	,599	1	,439		
<b>Likelihood Ratio</b>	,967	1	,325		
<b>Fisher's Exact Test</b>				,403	,219
<b>Linear-by-Linear Association</b>	,957	1	,328		
<b>N of Valid Cases</b>	95				

Source: Authors' calculations based on the survey results

**Table 11:** Relationship between number of family members and life insurance consumption

		Number of family members						Total
		1	2	3	4	5	6 & more	
<b>Do you purchase life insurance:</b>	<b>Yes</b>	8	15	13	8	5	3	52
	<b>No</b>	2	12	4	14	7	4	43
<b>Total</b>		10	27	17	22	12	7	95

Source: Authors' calculations based on the survey results

**Table 12:** Results of Chi-Square test of link between number of family members and life insurance demand

	Value	df	Asymp. Sig. (2-sided)
<b>Pearson Chi-Square</b>	10,048 <sup>a</sup>	5	,074
<b>Likelihood Ratio</b>	10,487	5	,063
<b>Linear-by-Linear Association</b>	4,557	1	,033
<b>N of Valid Cases</b>	95		

Source: Authors' calculations based on the survey results