THE SIGNIFICANCE OF LIFE INSURANCE SALE MANAGEMENT FOR THE DEVELOPMENT OF THE FINANCIAL MARKET

Milena NIKOLIĆ[1], Danka MILOJKOVIĆ[2], Mirjana JEMOVIĆ[3]
[1]*Singidunum University in Belgrade, Danijelova 32, 11000 Belgrade, Serbia, Phone: +381 62 433 158,*
E-mail address: milena.nikolic@singidunum.ac.rs
[2] *Singidunum University in Belgrade, Danijelova 32, 11000 Belgrade, Serbia, Phone: +381 65 520 71 21,*
E-mail address: dmilojkovic@singidunum.ac.rs
[3]*University of Niš, Faculty of Economics, Trg Kralja Aleksandra Ujedinitelja 11, 18000 Niš, Serbia, Phone: +381 62 505 915,*
E-mail address: mirjana.jemovic@eknfak.ni.ac.rs

Abstract:
Life insurance companies as institutional investors are key participants in the global financial market. By collecting the savings of the insured, accumulating large amounts of funds and their long-term investment into various financial instruments, these companies affect the development and stability of the financial market. Considering their significance, the aim of this paper is to determine the determinants of life insurance demand by analysing the environment in which these companies operate on the European financial markets, in order to detect the possibilities for increasing the sale of life insurance policies, and thus the amount of collected amount that will be invested in the financial market for a long term. Based on the research results,

---

[1] Corresponding author - Singidunum University, Danijelova 32, Belgrade, 11010, Serbia, +381 62 43 31 58, Email: milena.nikolic@singidunum.ac.rs.

determinants that may encourage the life insurance demand in European countries are determined and the recommendations on how to manage the sale of life insurance policies, with the aim of increasing the amount of collected funds.

Introduction

Life insurance is long-term insurance that provides significant security to society, by protecting individuals and their families from experiencing various life adversities [Žarković, 2008, p. 24; Nikolić et al., 2021], but also with the security for the economy because it collects significant funds that are invested in the capital market in the long term and attracts investors who affect the development of the economic environment and the financial market [Oyedokun et al., 2022; Surdu et al., 2020; Bhatia et al., 2021]. During their length of service, the insured pay a life insurance premium for a long period of time, forming in this way a fund that will enable them to pay the funds after the expiration of the prescribed period – upon retirement [Vojvodić & Vojvodić, 2016], that is, after the occurrence of death, when funds are paid to beneficiaries that they have specified. Owing to the accumulation of funds that are available for the economy over a long time period, this type of insurance significantly affects the economic growth and development of the country [Marović & Njegomir, 2015, pp. 27-30; Su-Yin & Han, 2022].

Along with life insurance policies, the insured are often provided with accident insurance (in case of injury) as additional insurance, protecting individuals from the risks of injury and physical injuries, creating additional security for individuals and their families. In situations when companies provide their employees with the aforementioned, along with the application of numerous occupational health and safety measures, the preconditions for achieving greater efficiency and productivity of employees are created [Nikolić et al., 2022, p. 145]. This contributes to the affirmation of life insurance and injury insurance, as well as to the creation of opportunities for increasing the level of collected premium funds for these types of insurance. The same impact and effect is achieved by health insurance, when it is included as supplementary insurance along with life insurance.

Life insurance companies, as institutional investors collecting large amounts of funds from the insured, have great financial potential and their acitivities greatly impact the trends on the financial market [Hadžić, 2021, p. 13; Labudović, 2007, p. 31; Marinković et al., 2016]. Their significance and impact are the consequence of the following features: stable insurance premium flow, long-term nature of the source of funds, long-term investments, inconsistency of payments and payouts, as well as the predictability of the occurrence of the insured event affecting the predictability of withdrawal of funds [Labudović, 2007, p. 30].

The amount of funds that life insurance companies collect from their insured, and then invest, depends on the supply of a life insurance company and the demand of the insured for life insurance. The analysis of the determinants of demand is of great significance for increasing the value of collected life insurance premium funds at a time of numerous changes in the life insurance sector, and especially after the introduction of life insurance products that, in addition to protection against the risk of death, offer opportunities for savings and investment [Dobrin, 2010]. Previous research were not sufficient for adequate management and for increasing the amount of collected life insurance premium funds. These research on the determinants of life insurance demand were limited in terms of time, number of analyzed countries or number of dependent variables that represented the life insurance demand. Most research were often, conducted for a shorter period of time or using data from the period covering the second half of the 20th century, and possibly the first decade of the 21st century. Most research was conducted for specific countries or one country, rarely for European countries. The impact of independent variables on one dependent variable was often investigated, while research including two or more dependent variables for investigating life insurance demand were rare. The authors of this paper investigate the general environment of life insurance companies and the determinants of demand for life linsurance policies in 23 European countries, in the period from 2006 to 2019, using four dependent variables that indicate the life insurance demand, which contributes to the credibility of the obtained results. The aim of the paper is to determine the determinants that significantly impact the life insurance demand on the European financial market, in order to determine the possibilities for increasing the sale of life insurance policies in European countries and impact the development of their financial markets.

In accordance with the defined subject and goal of research, the paper is divided into a few sections. After the introduction, the first section provides a brief overview of literature and research on determinants of life insurance demand. The

methodology of empirical research is presented in the following section. Then, the research results are presented, along with the discussion of the results. The last section of the paper summarizes the conclusions of the empirical analysis of the determinants of life insurance demand and it is indicated how using the results of this research can increase the sale of life insurance policies and impact the development of financial markets.

Literature Review

Research on life insurance demand dates back to the second half of the 20th century, when Yaari [1965] created theoretical model to explain the life insurance demand. The basic assumptions on which they based their models were that households had uncertain income due to the probability of premature death of the wage earner and that life insurance reduced the volatility of household consumption [Li et al., 2007]. Using Yaari's theoretical model, Lewis [1989] developed his life insurance demand model that included the preferences of other household members. He analysed the life insurance demand from the perspective of the insurance beneficiary, while previous research emphasized the perspective of the wage earner. In this research, the determinants of life insurance demand most often cited are as follows: wealth, expected income during an individual's lifetime, interest rate, administrative costs, assumed subjective discount rate for the current in comparison to the future consumption and the probability of death of the primary wage earner [Kjosevski, 2012].

In later research, numerous authors discovered demographic, economic and social determinants of life insurance demand and they used them to extend the exiting life insurance demand models. The most frequent life insurance demand determinants from these groups were as follows: the income level, industrialization rate, employment rate, savings rate, inflation, life expectancy at birth, education level, size of the social protection system of a country or public expenditures for social insurance.

Burnett and Palmer [1984], Beenstock et al. [1986, p. 261], Feyen et al. [2011], Kjosevski [2012) and Mahdzan and Victorian [2013) proved in their research that income was one of the most significant determinants of life insurance demand and they pointed out that it has a strong and positive impact on the life insurance demand. Burnett and Palmer [1984) pointed out that persons with high incomes were the owners of large amounts of life insurance policies and Beck and Webb [2002] that with an increase in income, both insurance penetration and insurance density increase. Beck and Webb [2002] and Feyen et al. [2011] point out several

reasons for the significant and positive correlation between income and life insurance demand: greater availability of life insurance products, a stronger need to protect the potential income of the insured and the expected consumption of dependents, as well as reduced unit cost of larger life policies. Dragota et al. [2022] revealed postitive and statistically significant impact of income (GDP per capita) on the demand for life insurance products. Mare et al. [2019] considered the impact of employment on the purchase of life insurance and they obtained results showing that there was a significant and positive relationship between employment and life insurance demand.

The industrialization rate often appears as a determinant of the life insurance demand. The industrialization rate is mentioned by Kočović and Šulejić [2006] who indicate that there is a positive correlation between the industrialization rate and the life insurance demand and they explain that the life insurance demand is increased in countries that industrialize faster.

In their research, Headen and Lee [1974] showed that the life insurance demand depends on the net savings rate and the interest rates. They believe that life insurance is viewed as an alternative investment asset by low-asset holders while demand is encouraged by high savings rates.

Inflation is a very important life insurance demand determinant. In their research, Babbel [1985], Outreville [1996], Beck and Webb [2003], Li et al. [2007], Chiaramonte et al. [2020], Segodi and Sibindi [2022] proved that inflation had a negative impact on life insurance demand. Life insurance policies represent savings instruments that provide financial benefits during longer time periods. An increased inflation rate discourage savings, because it creates monetary uncertainty. [Kjosevski, 2012]. Fortune [1973], Brown and Kim [1993], Li et al. [2007] and Feyen et al. [2011] proved that inflation hinders the development of the life insurance sector and they explained that it devalues life insurance policies, making them less desirable and less attractive products.

Life expectancy is often cited in research by numerous authors as a significant determinant of the life insurance demand. Beenstock, Dickinson & Khajuria [1986] developed a model to determine the impact of various economic and social variables on the supply and demand, and they discovered that life insurance premiums increased with the increase of life expectancy. Outreville [1996] also found that life expectancy at birth positively and significantly affected the life insurance density. A positive correlation between life expectancy and the life insurance demand is pointed out by Zerriaa et al. [2017] and by Kočović and Šulejić [2006]. Kočović and Šulejić [2006] explain that is because longer life

expectancy impacts the increase of life insurance demand, as a savings instrument. They believe that longer life expectancy should also impact the reduction of the life insurance premium. On the other hand, Feyen et al. [2011] found that the life expectancy negatively and significantly impacted life insurance in their research that included approximately 90 countries during the period from 2000 to 2008, and they explained that occurred because longer life expectancy reduces life insurance demand because the probability of premature death decreases.

In Beck and Webb's [2002] and Feyen et al. [2011] research, the impact of the size of the country's social security system or national expenditures on social security on the life insurance demand. Feyen et al. [2011] point out that the size of the social security system (expressed by the contribution rate) negatively affects the life insurance demand and the development of this type of insurance. The negative impact is the consequence of the fact that by paying contributions to the state pension system the level of disposable income that remains for the population to invest in life insurance policy is reduced. On the other hand, in their research, Browne and Kim [1993] determine a positive correlation between the size of social security (expressed by public expenditures for social security) and the life insurance demand.

Kočović and Šulejić [2006] state that there is a positive correlation between the life insurance demand and the education level, emphasizing that more educated population shows a higher demand for life insurance. Browne and Kim [1993] point out that education extends the dependence period and they believe that in countries in which population is educated for a longer period of time, there is a greater demand for life insurance policies. In addition, they emphasize that more educated individals have a greater need to protect themselves from risk and to insure themselves in general. Mahdzan and Victorian [2013], Truett and Truett [1990] had similar initial assumptions and they determined in their research on the determinants of life insurance demand in Malaysia, that is, Mexico and the USA the positive impact of education on the life insurance demand. In their research on the determinants of life insurance demand in OECD countries, that is, the countries of Central and Eastern Europe, Li et al. [2007] and Kjosevski [2012] also confirmed a positive relationship between the education level and the life insurance demand.

Data and Methodology

Empirical research is focused on the analysis of life insurance demand determinants in 23 European countries in the period from 2006 to 2019. Secondary

data from different sources were used in the analysis – the World Bank, Eurostat and OECD statistics. The group of European countries included in this analysis are: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and the United Kingdom.

In order to determine the determinants of life insurance demand and provide recommendations and guidelines for increasing the demand and sale of life insurance products in European countries, the following hypotheses were proposed in this research:

H1: Economic determinants are significant for the prediction of the life insurance demand in European countries;

H2: Socio-demographic determinants have an impact on the life insurance demand in European countries.

Testing of hypotheses was performed using standard multiple regression by forming 4 models for determining the impact of 8 independent variables on 4 dependent variables (Table 1). Independent variables are the gross domestic product per capita, the employment ratio, the industry, the education level (the tertiary education), the aggregate replacement ratio for pensions, the life expectancy at birth, the gross savings, and the inflation (consumer prices index). Dependent variables are the life insurance penetration (Model 1), the life insurance density (Model 2), the life insurance share (Model 3) and the total life insurance gross premiums (Model 4).

Table 1. Variables and data used in statistical analysis

Variable	Variable description	Type of variable	Data source
GDPPC	Gross domestic product per capita accommodated with purchasing power parity (current international dollars)	Independent	The World Bank
EM	Employment ratio (%)	Independent	The World Bank
IR	Industry (% GDP)	Independent	The World Bank
GS	Gross savings (% GDP)	Independent	The World Bank
ICPI	Inflation - consumer price index (annual %)	Independent	The World Bank
ELT	Education level - tertiary education (%)	Independent	Eurostat

Variable	Variable description	Type of variable	Data source
LEB	Life expectancy at birth - total (years)	Independent	The World Bank
ARRP	Aggregate replacement ratio for pensions (%)	Independent	Eurostat
LIP	Life insurance penetration (%)	Dependent	OECD
LID	Life insurance density (US dollar)	Dependent	OECD
LIS	Life insurance share (%)	Dependent	OECD
TLIGP	Total life insurance gross premiums (millions US dollar)	Dependent	OECD

Source: Adapted from the authors.

Independent variables

With the aim of determining the impact of economic variables on insurance demand in the analysis, the following variables were used: the gross domestic product per capita, the employment ratio, the industry, the gross savings, and the inflation expressed as consumer price index.

The gross domestic product per capita is an indicator used for measuring the income of the population at the national level. In order to be used for comparative analysis between countries, it is adjusted for purchasing power parity and it is expressed in international US dollars. Having in mind the data on the gross domestic product per capita are given in absolute values, before applying the standard multiple regression analysis, the data were transformed using a logarithmic function.

The employment rate represents the share of the employed population of the country population. This indicator includes only working-age persons, starting from the age of 15 or more who were engaged in an activity for the production of goods or the provision of services for a salary or profit, during a shorter reference period, regardless of whether they were at work or not at work during that period (e.g. due to temporary absence from work) [The World Bank, 2022].

The gross savings is an indicator obtained when gross national income is reduced by total consumption and increased by net transfers [The World Bank, 2022]. The inflation is measured by the consumer price index and it shows the annual percentage change in the costs of the average consumer for the purchase of a consumer basket of goods and services (the consumer basket). The consumer

basket may be fixed or it may change after a certain period (e.g. annually) [The World Bank, 2022]. The industry refers "the values added in production, mining, construction, electricity, water and gas, and it is expressed as a share of GDP" [The World Bank, 2022].

The impact of socio-demographic determinants on the life insurance demand was determined using the life expectancy at birth and the education level. The life expectancy at birth represents the number of years that a new-born could live, provided that the existing mortality patterns valid at the time of his/her birth do not change during his life [The World Bank, 2022]. This indicator represents the expected age expressed in years and the total value for both genders. To determine the impact of people's education on the life insurance demand, the education level indicator was used, which represents young people who are in the tertiary education process, aged 25-29, due to the assumption that young people with a higher level of education have a more developed awareness of the need for savings for the third age and protection against the risk of death and disease. According to Eurostat methodology, the tertiary level of education represents undergraduate, master and PhD students.

The analysis of the impact of social determinants of the life insurance demand was conducted using the aggregate replacement ratio for pensions indicator. This indicator represents the ratio of the median gross of an individual pension of the population aged between 65 and 74, and the median gross individual earnings of the population aged from 50 to 59, excluding other social benefits [Eurostat, 2022]. The aggregate replacement ratio for pensions was chosen for measuring the impact of social determinants on the life insurance demand, because it represents the disposable income of pensioners in the so-called "third age", and the need for additional income in this period of life (e.g. from life insurance).

Dependent variables

In order to determine the degree of development of the life insurance market and the demand for life insurance policies, 4 dependent variables were used in the analysis - the life insurance penetration, the life insurance density, the life insurance share and the total life insurance gross premiums.

The life insurance penetration represents the share of the life insurance premium in the country GDP. It is used to determine the development of life insurance in relation to the size of the country economy and it is therefore suitable for the comparison of the development of life insurance between countries [Beck & Webb, 2003]. The life insurance density is an indicator that is obtained when the total

value of the life insurance premium is related to the total number of inhabitants of a country, so that it represents the amount of the life insurance premium per capita. It shows how much each resident of a certain country spends on life insurance in US dollars on average [Beck & Webb, 2003]. Considering the fact that the data for this variable is given in absolute amounts, in order to unify the data for the analysis, it was adjusted using a logarithmic function. The life insurance share represents the share of the life insurance premium in the total insurance premium of a country [OECD, 2022a]. The total life insurance gross premiums indicate the total life insurance premium of a certain country. It is the most important indicator of the significance of this type of insurance in the economy of a country. The value of this indicator is expressed in millions of US dollars [OECD, 2022b]. With the aim of adjusting the data given in absolute values, the total life insurance gross premiums were transformed by applying a logarithmic function.

Results and Discussion

The impact of independent variables on the life insurance penetration was analyzed in the first model, and the results are shown in Table 2. The results of the analysis show that the multiple correlation between these independent variables and the life insurance penetration is strong and significant (R=86, p=0.00). It is obvious that the selected independent variables can explain 74% of the variation in the life insurance penetration (R^2=0.74), but that 6 are statistically significant for the regression model. Therefore, the regression equation for this model is as follows:

$$LIP = -120.631+0.243*GDPPC+9.139*ARRP-1.438*LEB-0.118*IR-0.494*GS+0.349*ICPI$$

Based on the results of the regression analysis, it can be seen that the gross domestic product per capita, the aggregate replacement ratio for pensions and the inflation encourages the life insurance demand. An increase in the gross domestic product per capita, the aggregate replacement ratio for pensions and the inflation by 1 percent affect the increase in life insurance penetration by 0.24, 9.14 and 0.35 percent, respectively. On the other hand, the life expectancy at birth, the industry and the gross savings have a discouraging effect on the life insurance demand in the observed countries. Increasing the life expectancy at birth by 1 year, the industry and the gross savings by 1 percent leads to a decrease in life insurance penetration by 1.44, 0.12 and 0.49 percent, respectively.

Table 2. Regression results for the life insurance penetration

Variable	Regression Coefficients					Number of observation
	B	β	P	Tolerance	VIF	
Constant	-120.631		0.000			
GDPPC	24.297	1.219	0.000	0.243	4.177	322
EM	-0.110	-0.075	0.066	0.534	1.871	322
TE	-0.029	-0.034	0.330	0.739	1.353	322
ARRP	9.139	0.120	0.001	0.712	1.405	321
LEB	-1.438	-0.556	0.000	0.354	2.827	322
IR	-0.118	-0.086	0.030	0.573	1.745	322
GS	-0.494	-0.375	0.000	0.545	1.834	322
ICPI	0.349	0.090	0.010	0.737	1.356	322
R=0.861						
R Square=0.741						
p=0.000						

Source: Authors` calculations.

The impact of independent variables on the life insurance density was analysed in the second model, and the results are shown in Table 3. This regression analysis shows that the multiple correlation between the independent variables and the life insurance density is strong and significant (R=86, p=0.00) and that they can explain 75% of the variation in the life insurance density (R^2=0.75). The most statistically significant independent variables for the regression model are 4. Therefore, the regression equation for this model is as follows:

$$LID = -34.211 + 3.120*GDPPC + 11.500*LEB - 5.900*GS + 15.900*ICPI$$

In this model, in which the life insurance density is used as an indicator of the life insurance demand, the encouragement of the life insurance demand is impacted by the gross domestic product per capita, the life expectancy at birth and the inflation. An increase in the gross domestic product per capita by 1 percent affects an increase in the life insurance density by 3.12 percent, while an increase in the life expectancy at birth by 1 year and the inflation by 1 percent affects an increase in the life insurance density by 11.50 and 15.90 percent. As in the previous model, the negative impact of the gross savings on the life insurance density can be seen,

an increase in the gross savings by 1 percent affects a decrease in the life insurance density by 5.90 percent.

Table 3. Regression results for the life insurance density

Variable	Regression Coefficients					Number of observation
	B	β	P	Tolerance	VIF	
Constant	-34.211		0.000			
GDPPC	3.120	0.781	0.000	0.243	4.177	322
EM	0.020	0.069	0.086	0.534	1.871	322
TE	-0.010	-0.059	0.085	0.739	1.353	322
ARRP	-0.520	-0.034	0.328	0.712	1.405	321
LEB	0.115	0.222	0.000	0.354	2.827	322
IR	-0.012	-0.043	0.273	0.573	1.745	322
GS	-0.059	-0.225	0.000	0.545	1.834	322
ICPI	0.159	0.204	0.000	0.737	1.356	322
R=0.864						
R Square=0.747						
p=0.000						

Source: Authors` calculations.

In the third model, the results of the regression analysis are presented, which determines the impact of the same independent variables on the dependent variable - the life insurance share (Table 4). This analysis showed that the multiple correlation between the independent variables and the life insurance share is strong and significant (R=61, p=0.00), but that the independent variables can explain only 38% of the variation in the life insurance share (R^2=0.38). The regression equation for this model is as follows:

$$LIS=-271.125+0.375*GDPPC-1.436*GS+1.378*ICPI$$

The results of the regression model 4 show that the increase of the gross domestic product per capita and the inflation by 1 percent affects the increase of the life insurance share by 0.38 and 1.38 percent, respectively. As opposed to that, an increase in the gross savings by 1 percent affects a decrease in the life insurance share by 1.44 percent. According to this model, an increase in demand can be expected with an increase in the gross domestic product per capita and the inflation.

Table 4. Regression results for the life insurance share

Variable	Regression Coefficients					Number of observation
	B	β	P	Tolerance	VIF	
Constant	-271.125		0.000			
GDPPC	37.493	0.726	0.000	0.243	4.177	322
EM	-0.155	-0.041	0.520	0.534	1.871	322
TE	-0.096	-0.044	0.419	0.739	1.353	322
ARRP	18.713	0.095	0.084	0.712	1.405	321
LEB	-0.528	-0.079	0.311	0.354	2.827	322
IR	0.182	0.051	0.403	0.573	1.745	322
GS	-1.436	-0.420	0.000	0.545	1.834	322
ICPI	1.378	0.137	0.012	0.737	1.356	322
R=0.612						
R Square=0.375						
p=0.000						

Source: Authors` calculations.

The fourth regression model was created by replacing the previous dependent variable with the new dependent variable - the total life insurance gross premiums (Table 5). The results of the regression analysis in this model show that the multiple correlation between the independent variables and the total life insurance gross premiums is strong and significant (R=75, p=0.00) and that the independent variables can explain 57% of the variations in the total life insurance gross premiums (R^2= 0.57). The regression equation for this model is as follows:

$$TLIGP=-42.147+5.100*EM+57.300*LEB-8.300*GS+25.400*ICPI$$

Based on the results of the regression analysis in the fourth model, it can be seen that the life expectancy at birth and the inflation in this model also have a positive impact on the dependent variable, in this case the total life insurance gross premiums. The employment ratio, which did not appear in the previously mentioned models, has such an impact in this model. The increase of the employment ratio by 1 percent, the life expectancy at birth by 1 year and the inflation by 1 percent affect the increase of the total life insurance gross premiums by 5.10, 57.30 and 25.40 percent, respectively. On the other hand, the negative impact of the gross savings on the total life insurance gross premiums was

confirmed in this model as well. An increase in the gross savings by 1 percent affects a decrease in the total life insurance gross premiums by 8.30 percent.

Table 5. Regression results for the total life insurance gross premiums

Variable	Regression Coefficients					Number of observation
	B	β	P	Tolerance	VIF	
Constant	-42.147		0.000			
GDPPC	0.414	0.075	0.335	0.243	4.177	322
EM	0.051	0.125	0.018	0.534	1.871	322
TE	-0.016	-0.069	0.125	0.739	1.353	322
ARRP	0.168	0.008	0.860	0.712	1.405	321
LEB	0.573	0.804	0.000	0.354	2.827	322
IR	0.028	0.073	0.153	0.573	1.745	322
GS	-0.083	-0.228	0.000	0.545	1.834	322
ICPI	0.254	0.238	0.000	0.737	1.356	322
R=0.753						
R Square=0.568						
p=0.000						

Source: Authors` calculations.

Conclusion

The analysis of the research results determined that most economic variables significantly affect the life insurance demand, but that their impact on the demand for these products is different. The most important economic variables that encourage the life insurance demand are the gross domestic product per capita, the employment ratio and the inflation. Increasing the level of national income and employment increases the amount of funds that can be invested in life insurance policies. The positive impact of inflation on the life insurance demand reveals by Zerriaa and Noubbigh [2016]. It can be explained by the tendency of people to invest in life insurance policies that have an option to protect the insured against inflation. The variable that has a discouraging impact on the life insurance demand is the gross savings. The reason for the negative impact may be that people who are oriented towards savings generally invest money in financial instruments that cause high returns, while investment in insurance policies is safer, but in developed European countries where there is a culture of savings and insurance, it is an investment that does not make great returns.

The impact of socio-demographic variables on the life insurance demand was also confirmed. The variable of life expectancy at birth has an encouraging impact on the life insurance demand in the second and fourth models (models where the demand is expressed in terms of value), while the variable of aggregate replacement ratio for pensions showed a significant and positive impact only in the first model. The life expectancy at birth has a positive impact on the life insurance demand, because people expect to live longer and that they will need funds to maintain their standard of living, and this can be achieved by securing an additional pension through a life insurance policy. The positive impact of the aggregate replacement ratio for pensions on the life insurance penetration can be explained in two ways. First, it may be a consequence of people's desire to secure additional income for old age compared to that provided by the social security system. On the other hand, considering the fact that this variable was found to be significant only in the first model, where it is the dependent variable of the life insurance penetration, an increase in this dependent variable may also be a consequence of a decrease in the country's gross domestic product, rather than an increase in the value of the paid premium. Therefore, these results can be taken with certain level of doubt. The education level did not prove to be significant for encouraging and predicting the life insurance demand.

The results of this study have several implications. They give insurance company managers clear guidance on which customer group to target their products and how to manage the demand for life insurance policies. Employed individuals are most likely to purchase a life insurance policy. Also, incorporating and promoting inflation protection clauses can be a good strategy for selling policies, especially today when people are looking for ways to protect their money from losing value. In addition to this clause, over a long period of time the impact of inflation is not very dominant. Increased life expectancy should be used as an important argument for buying life insurance policies to protect people from poverty during old age. This should be especially emphasized in the case of women, who usually have a longer life expectancy. The offer of life insurance policies should be aimed at categories of the population that prefer security, rather than savings. Also, when designing the offer of life insurance policies, it would be useful to offer life insurance policies with a stronger savings component for those categories of people who want a good profit. By monitoring trends in income levels, employment and inflation, it is possible to predict the future demand for life insurance policies and the impact on the increase in insurance premiums. By improving the sale of life insurance policies, an increase in the collected life

insurance premium, that is, the volume of long-term investment funds that are placed on the financial market of the analysed countries can be expected. In this way, the possibility of increasing the share and importance of insurance companies as institutional investors in the financial market is created, which increases the security of individuals and creates conditions for financing projects that are important for the economic growth and development of the country.

With the aim of improving the management of life insurance sales and increasing the amount of collected premium funds that will be placed on the financial market, this study needs to be extended by introducing new independent variables such as: the number of children born, the dependency ratio, the human development index or the level of education of the older population of people (from 30 to 45 years old). Considering that due to the lack of data, the period from 2020 up to this day is not included in the analysis, the study needs to be repeated when the data is available, in order to assess the impact of the COVID-19 pandemic on the life insurance demand and to establish guidelines for managing the sale of this type of insurance under those conditions.

References

[1] Babbel, D. F. 1985. "The Price Elasticity of Demand for Whole Life Insurance." *Journal of Finance, 40*(1): 225-239. doi: https://doi.org/10.1111/j.1540-6261.1985.tb04946.x

[2] Beck, T., & Webb, I. 2002. "Determinants of Life Insurance Consumption across Countries*." Policy Research Working Paper 2792.* Washington, DC: World Bank. Retrieved April 26, 2022, from https://openknowledge.worldbank.org/handle/10986/15614

[3] Beck, T., & Webb, I. 2003. "Economic, Demographic and Institutional Determinants of Life Insurance Consumption Across Countries." *The World Bank Economic Review, 17*(1): 51-88. doi: https://doi.org/10.1093/wber/lhg011

[4] Beenstock, M., Dickinson, G., & Khajuria, S. 1986. "The Determination of Life Premiums: An International Cross-section Analysis 1970-1981." *Insurance: Mathematics and Economics* (5): 261-270.

[5] Bhatia, R., Bhat, A. K., & Tikoria, J. 2021. "Life Insurance Purchase Behaviour: A Systematic Review and Directons for Future Research." *International Journal of Consumer Studies, 45*(6): 1149-1175. doi: https://doi.org/10.1111/ijc.12681

[6] Browne, M. J., & Kim, K. 1993. "An International Analysis of Life Insurance Demand." *Journal of Risk and Insurance, 60*(4): 616-634. doi: https://doi.org/10.2307/253382

[7] Burnett, J. J., & Palmer, B. A. 1984. "Examining Life Insurance Ownership Through Demographic and Psychographic Characteristics." *Journal of Risk and Insurance, 51*(3): 453-467. doi: https://doi.org/10.2307/252479

[8] Chiaramonte, L., Dreassi, A., Paltrinieri, A., & Pisera, S. 2020. "Stability Practices and Stability in the Insurance Industry." *Sustainability, 12*: 5530. doi: https://doi.org/10.3390/su12145530

[9] Dobrin, M. 2010. "Improvement of Life Insurance-Related Accounting Operations within the New Economy."*Annals of Spiru Haret University: Economic Series, 10*(2): 11-22.

[10] Dragota, I.-M., Cepoi, C. O., & Stefan, L. 2022. "Theshold Effect for the Life Insurance Industry: Evidence from OECD Countries." *Geneva Papers on Risk and Insurance - Issues and Practice*. Retrieved February 2023, from https://doi.org/10.1057/s41288-022-00272-8

[11] Eurostat. 2022, May. Retrieved from https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Aggregate_replacement_ratio

[12] Feyen, E., Lester, R., & Rocha, R. 2011. "What Drives the Development of the Insurance Sector? An Empirical Analysis Based on a Panel of Developed and Developing Countries." *Policy Research Working Paper 5572.* The World Bank - Financial and Private Sector Development.

[13] Fortune, P. 1973. "A Theory of Optimal Life Insurance: Development and Tests." *Journal of Finance, 28*(3): 587-600.

[14] Hadžić, M. 2021. *Bankarstvo*. Beograd: Univerzitet Singidunum.

[15] Headen, R. S., & Lee, J. F. 1974. "Life Insurance Demand and Household Portfolio Behavior." *Journal of Risk and Insurance, 41*(4): 685-698. doi: https://doi.org/10.2307/251963

[16] Kjosevski, J. 2012. "The Determinants of Life Insurance Demand in Central and Southeastern Europe." *International Journal of Economics and Finance, 4*(3): 237-247. doi: https://doi.org/ 10.5539/ijef.v4n3p237

[17] Kočović, J., & Šulejić, P. 2006. *Osiguranje.* Beograd: Centar za izdavačku delatnost Ekonomskog fakulteta u Beogradu.

[18] Labudović, J. 2007. "Uloga i značaj kompanija za osiguranje života kao institucionalnih investitora na finansijskom tržištu." *Revija za pravo osiguranja* (4): 30-36.

[19] Lewis, F. D. 1989. "Dependents and the Demand for Life Insurance." *American Economic Review, 79*(3): 452-467.

[20] Li, D., Moshirian, F., Nguyen, P., & Timothy, W. 2007. "The Demand for Life Insurance in OECD Countries." *Journal of Risk and Insurance, 74*(3): 637-652.

[21] Mahdzan, N. S., & Victorian, S. M. 2013. "The Determinants of Life Insurance Demand: A Focus on Saving Motives and Financial Literacy." *Asian Social Science, 9*(5): 274-284. doi: https://doi.org/10.5539/ass.v9n5p274

[22] Mare, C., Dragos, S. L., & Dragota, I.-M. 2019. "The Impact of Human Development on the Romanian Life Insurance Market: A Country Spatial Econometric Analysis." *Cogent Business & Management, 6*(1). doi: https://doi.org/10.1080/23311975.2019.1707609

[23] Marinković, S., Golubović, N., & Jemović, M. 2016. Kolektivni investicioni modaliteti u Srbiji – analiza ključnih trendova razvoja. *21. Naučni skup Regionalni razvoj i demografski tokovi zemalja Jugoistočne Evrope* (pp. 455-466). Niš: Ekonomski fakultet.

[24] Marović, B., & Njegomir, V. 2015. "Osiguravajuća društva u ulozi institucionalnih investitora." *Zbornik radova 26. susret osiguravača i reosiguravača*, (pp. 25-146). Sarajevo.

[25] Nikolić, M., Mitić, V., & Kaličanin, K. 2021. Impact of Covid-19 on the Life Insurance Development in Serbia. *Are you Ready for the ContinuousNEXT®After COVID-19?, Singidunum University International Scientific Online Conference FINIZ 2021* (pp. 51-57). Belgrade: Singidunum University.

[26] Nikolić, M., Pavlović, M., & Milojković, D. 2022. The Importance of Employment Injury Insurance and Protection in Managing Occupational Safety and Health of the Workforce. In S. Živković, B. Krstić, & T. Rađenović (Eds.), *Handbook of Research on Key Dimensions of Occupational Safety and Health Protection Management* (pp. 144-162). Hershey PA: IGI Global.

[27] OECD. 2022a. Retrieved October 2022, from https://www.oecd-ilibrary.org/finance-and-investment/gross-insurance-premiums/indicator/english_eeec25b0-en?parentId=http%3A%2F%2Finstance.metastore.ingenta.com%2Fcontent%2Fthematicgrouping%2Fead4dc70-en

[28] OECD. 2022b. Retrieved October 2022, from https://stats.oecd.org/Index.aspx?DataSetCode=INSIND#

[29] Outreville, J. F. 1996. "Life Insurance Markets in Developing Countries." *Journal of Risk and Insurance, 63*(2): 263-278. doi: https://doi.org/10.2307/253745

[30] Oyedokun, G. E., Akingunola, R., & Somoye, R. 2022. "Effect of Pension Investment on Financial Depth in Nigeria: Empirical Investigation." *Annals of Spiru Haret University: Economic Series, 22*(2): 169-188. doi: https://doi.org/10.26458/22210

[31] Segodi, M. P., & Sibindi, A. B. 2022. "Determinants of Life Insurance Demand: Empirical Evidence from BRICS Countries." *Risks, 10*(4): 73. Retrieved from https://doi.org/10.3390/risks10040073

[32] Surdu, F. B., Caliskan, A. O., & Esen, E. 2020. "Human Resource Disclosure in Corporate Annual Reports of Insurance Companies: A Case of Developing Country." *Sustainability, 12*, 3452. doi:10.3390/su12083452

[33] Su-Yin, C., & Han, H. 2022. "Financial Development, Life Insurance and Growth: Evidence from 17 European Countries." *Geneva Papers on Risk and Insurance - Issues and Practice, 17*(4): 835-860. doi:10.1057/s41288-021-00247-1

[34] The World Bank. 2022, June. Retrieved from https://data.worldbank.org/indicator/SL.EMP.TOTL.SP.ZS

[35] Truett, D. B., & Truett, L. J. 1990. "The Demand for Life Insurance in Mexico and the United States: A Comparative Study." *Journal of Risk and Insurance, 57*(2): 321-328. doi: https://doi.org/10.2307/253306

[36] Vojvodić, N., & Vojvodić, B. 2016. *Marketing u osiguranju.* Banja Luka: Univerzitet za poslovni inženjering i menadžment Banja Luka.

[37] Yaari, M. E. 1965. "Uncertain Lifetime, Life Insurance, and the Theory of the Consumer." *Review of Economic Studies, 32*(2): 137-150. doi: https://doi.org/10.2307/2296058

[38] Zerriaa, M., & Noubbigh, H. 2016. "Determinants of Life Insurance Demand in the MENA Region." *Geneva Papers on Risk and Insurance - Issues and Practice, 41*(3): 499-511. doi: https://doi.org/10.1057/gpp.2016.1

[39] Zerriaa, M., Amiri, M. M., Noubbigh, H., & Naoui, K. 2017. "Determinants of Life Insurance Demand in Tunisia." *African Development Review, 29*(1): 69-80. Retrieved from https://doi.org/10.1111/1467-8286.12239

[40] Žarković, N. 2008. *Ekonomika osiguranja.* Beograd: Univerzitet Singidunum.