

Chapter 3.

LONG-TERM DETERMINANTS OF INSURANCE DEVELOPMENT IN CEE COUNTRIES

The development of insurance is influenced by macroeconomic, demographic, institutional and cultural factors. Key macroeconomic factors that influence the level of insurance development are GDP per capita, financial market development and economic inequality¹⁴³. According to empirical research, real GDP per capita has the strongest connection with the long-term development trend and level of insurance development¹⁴⁴. Faster GDP growth implies faster growth of the insurance sector, and a higher level of GDP per capita implies a higher level of insurance development. There is some evidence that the relationship between GDP and the insurance sector is causal, that is, that GDP growth causes the development of insurance¹⁴⁵. Due to the strong connection between the dynamics and level of GDP per capita with other macroeconomic variables, such as earnings per employee, property value per capita, development of the financial market, etc., GDP can be interpreted as a proxy variable that reflects the influence of several other macroeconomic variables relatively well. The relationship between macroeconomic factors and insurance is two-sided - macroeconomic factors have a key influence on the level of development of insurance, but insurance also has a positive effect on economic activity, and thus on the level of income, employment, and the speed of property accumulation¹⁴⁶. The impact of macroeconomic factors on the

¹⁴³ Beck, Y., & Webb, I. (2003). Economic, demographic, and institutional determinants of life insurance consumption across countries. *World Bank Economic Review*, Vol. 17, pp. 51-88; Christophersen, C., & Jakubik, P. (2014). Insurance and the Macroeconomic Environment. *EIOPA Financial Stability Report - Thematic Articles I*, Frankfurt am Main: EIOPA.

¹⁴⁴ Beck & Webb (2003), op. cit.

¹⁴⁵ Outreville, J. (2013). The relationship between insurance and economic development: 85 empirical papers for a review of the literature. *Risk Management and Insurance Review*, 16(1), pp. 71-122.

¹⁴⁶ Arena, M. (2008). Does insurance market activity promote economic growth? A cross-country study for industrialized and developing countries. *Journal of Risk and Insurance*, 75(4), pp. 921-946; Ward, D., & Zurbrugg, R. (2000). Does insurance promote economic growth? Evidence from OECD Countries. *Journal of Risk and Insurance*, 67(4), pp. 489-506; Curak, M., Loncar, S., & Poposki, K. (2009). International sector development and economic growth in transition countries.

insurance sector is partly realised through interaction with other factors, such as the development of institutions, demographic and cultural factors.

In the long term, macroeconomic factors affect the level of development, that is, the trend of insurance, while in the medium term they affect cyclical fluctuations in the volume of activities in the insurance sector. Fluctuations in economic activity, unemployment, real interest rates, inflation, etc. affect the fluctuation of activities in the insurance sector. In periods of economic slowdown and economic crises (decline in GDP per capita, growth in unemployment, decline in the real value of income and property), the volume of insurance activities decreases, while it increases in periods of economic expansion. Cyclical fluctuations of the economy affect the prices of assets in the portfolio of insurance companies, and thus the fluctuations in the value of their assets. Acceleration of inflation creates uncertainty and devalues the return on insurance premiums by negatively affecting the volume of insurance activity, while the relationship between interest rate fluctuations and insurance is uncertain because interest rates affect insurance through several opposing mechanisms¹⁴⁷.

Institutional factors that determine the development of insurance are general, such as contract security, protection of property rights, etc., which are important to the overall economy and they affect people's willingness to enter into insurance contracts. Specific institutional factors affecting the insurance sector are the development of social (public) insurance, the compulsory nature of some types of insurance, the existence of tax incentives for some types of insurance, etc. The willingness of people to insure is also influenced by the characteristics of the culture of a certain population, such as the type of family in which people live (atomized or extended family), attitude to risk, tendency to save, acceptance of responsibility for one's own future, religion, etc. The cultural characteristics of the population directly influence the development of insurance, but also indirectly through the influence on the characteristics of institutions and economic growth. Although cultural and institutional factors are primary compared to the economy, there is also a secondary boomerang effect of the economy on them.

International Research Journal of Finance and Economics, 34(1), pp. 29-41; Outreville (2013), op. cit.

¹⁴⁷ Feyen, E., Lester, R. R., & de Rezende Rocha, R. (2013). What Drives the Development of the Insurance Sector? An Empirical Analysis Based on a Panel of Developed and Developing Countries. *Journal of Financial Perspectives*, 1(1)

Theoretical arguments and empirical research indicate the importance of demographic factors, such as life expectancy, dependency rate (percentage of dependent population), population density, and urbanisation rate, for the development of insurance. It is expected that the increase in life expectancy, a higher percentage of the dependent population (young and old), a higher population density, and a higher degree of urbanisation will have a positive effect on the development of insurance. There is a two-way causal relationship between the mentioned demographic and macroeconomic factors, whereby macroeconomic factors generally have a primary impact on demographics.

In addition to the impact of macroeconomic factors on insurance, there is also the impact of insurance on economic growth, and thus on employment and the level of income in real terms¹⁴⁸. Insurance enables the pooling of risks, which increases the willingness of entrepreneurs to initiate risky projects such as research and development, international trade, etc., which are important drivers of economic growth. Insurance also enables the equalisation of household and business incomes, which reduces the amplitude of economic cycles, which then affects the increase in the long-term GDP growth rate. The insurance premium paid by the insured is a part of the total savings in society, which is used to finance investments and they represent an immediate determinant of economic growth. Insurance protects the economy from accidental risks that cause damage to the economy's physical capital.

The chapter consists of an introduction and four sections. In Section 1, the basic indicators of insurance development are analysed. In Section 2, the impact of macroeconomic factors on the level of insurance development (long-term interest) as well as cyclical fluctuations in the insurance sector is analysed. Section 3 analyses the influence of other factors of long-term developments in insurance. Finally, based on the expected trends of macroeconomic and other determinants of insurance, qualitative assessments of the perspective of insurance development in CEE countries are given in Section 4.

1. INSURANCE DEVELOPMENT INDICATORS

The basic indicators of insurance development are the amount of insurance premiums per inhabitant (insurance density), the share of premiums in GDP

¹⁴⁸ Levine, R. (2005). Finance and growth: theory and evidence. *Handbook of economic growth*, Vol 1, part A, Aghion, P., Durlauf S. N. (eds.), Elsevier, pp. 865-934; Arena (2008), op. cit.; Outreville, J. (2013). The relationship between insurance and economic development: 85 empirical papers for a review of the literature. *Risk Management and Insurance Review*, 16(1), pp. 71-122.

(insurance penetration), and the share of insurance companies' assets in GDP. The development of insurance is measured based on the share of the life insurance premium in the total insurance, whereby a higher share of the life insurance premium in the total premium signals a higher level of insurance development.

The basic indicator of the development of the insurance sector is the average amount of insurance premiums per inhabitant. Average insurance premium per inhabitant in Serbia and CEE countries¹⁴⁹ is several times lower than the average insurance premium in developed European countries¹⁵⁰. The development of insurance in the CEE countries is also compared with the group of Anglo-Saxon countries¹⁵¹, whose social security systems are characterised by low public pensions, as well as modest public health services. Selecting this group of highly developed countries aims to assess the impact of public social insurance on the development of private insurance. For example, immediately before the COVID-19 pandemic, the insurance premium per inhabitant in current dollars in Serbia amounted to only 4.5% of the average premium per inhabitant in developed European countries (Table 1). CEE countries are still lagging quite behind developed European countries because the insurance premium per inhabitant is only 10.1% of the average of developed European countries (Table 1). Among the countries of Central Eastern Europe, the lowest insurance premium per inhabitant compared to developed countries in 2019 was in Albania (1.8%) and North Macedonia (3%), while the highest percentage of premium per inhabitant compared to developed countries was held by Slovenia (33.7%) and the Czech Republic (20.7%).

Based on Table 1, it is noticeable that the lag in relation to developed European countries is significantly higher in the case of life insurance premiums than in the case of non-life insurance. This is because life insurance premiums are the result of free decisions of individuals that depend on their income, premium amount, and preferences, while some forms of non-life insurance, such as property insurance (cars, real estate, some types of economic activities) are compulsory.

¹⁴⁹ In our sample, CEE countries include: Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Czech Republic, Estonia, Hungary, Latvia, Lithuania, North Macedonia, Poland, Romania, Serbia, Slovak Republic, and Slovenia.

¹⁵⁰ Developed European countries are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden and Switzerland.

¹⁵¹ Anglo-Saxon countries in our sample are: Australia, Canada, USA, and Great Britain.

The most important reason why Serbia and other CEE countries are lagging behind in terms of insurance premiums per capita compared to developed countries is their lower level of development measured by GDP per capita in current dollars¹⁵² (see Table 1). The lower level of GDP per inhabitant limits the ability of citizens and business people to set aside part of their income in order to protect themselves from various types of risks (health, death, damage to property and goods, etc.) and therefore ensure income equalisation over time. Low household income is spent mainly on subsistence needs, and the possibility of investing in insurance and other forms of savings is minimal. Similarly, low real income in low-productivity activities (agriculture, small businesses, etc.) reduces the possibility of insuring property and goods against various potential damages. However, based on Table 1, it can be seen that the lag in the development of insurance for CEE countries compared to developed Europe is greater than the lag in the level of development measured by GDP per capita in current USD, which indicates the unfavourable influence of other factors, such as cultural and institutional factors.

Table 1 Insurance Premium and GDP Per Capita

	GDP per capita (current US\$)	Insurance premiums per capita (developed Europe =100, average 2017-2019)		
		Total	Life	Non-life
Serbia	13.5	4.5	1.7	10.3
CEE	27.8	10.1	4.8	21.5
Developed Europe	100.0	100.0	100.0	100.0
Anglo-Saxon	99.9	132.1	125.2	146.9

Source: calculations based on World bank DataBank

By comparing the share of insurance premiums in GDP by country, the effect of differences in the level of GDP on the level of premiums is excluded, and the remaining differences in the level of premiums can be attributed to the influence of other factors, such as cultural, institutional and demographic factors. This assumes that the relationship between GDP growth and insurance premiums is linear, that is, that premiums grow in proportion to GDP growth. However, it is possible that the relationship is non-linear, i.e. that premiums grow faster than GDP after GDP per capita reaches certain limits¹⁵³. Although the difference in

¹⁵² The lagging behind of Serbia and other CEE countries according to the level of development in PPP dollars is less but the difference still remains significant.

¹⁵³ Chang, C. H., & Lee, C. C. (2012). Non-Linearity Between Life Insurance and Economic Development: A Revisited Approach. *The Geneva Risk and Insurance Review*, 37, pp. 223-257; Lee, C. C., Lee, C. C., & Chiu, Y. B. (2013). The link

the share of insurance premiums in GDP between Serbia and other CEE countries on the one hand and developed European countries on the other is still significant, it is many times smaller than the difference in the amount of premium per capita in current USD. According to the share of insurance premiums in GDP, Serbia is approximately 1/3 of the average of developed Europe, while the CEE countries are at 36.4% of the average of developed Europe. By comparing the data from Table 1 and Table 2, it can be seen that according to the amount of insurance premium per inhabitant in USD, Serbia is significantly below the average of CEE countries, while according to the share of the premium in GDP, it is close to the CEE average. From this, it can be concluded that the lagging of premiums per capita in Serbia compared to CEE countries is primarily a consequence of lower GDP per capita, while the lagging behind in comparison to developed Europe is under the significant influence of cultural and institutional factors. At the same time, the lagging behind of Serbia and the CEE countries in the development of life insurance compared to developed Europe is drastic, while the lagging behind in the development of non-life insurance is significantly less (see Table 2).

*Table 2. Insurance Premium to GDP, Average 2017-19,
Developed Europe = 100*

	Total	Life	Non-life
Serbia	33.2	12.8	76.3
CEE	36.4	17.1	77.3
Developed Europe	100.0	100.0	100.0
Anglo-Saxon	132.2	125.1	147.0

Source: calculations based on World bank DataBank

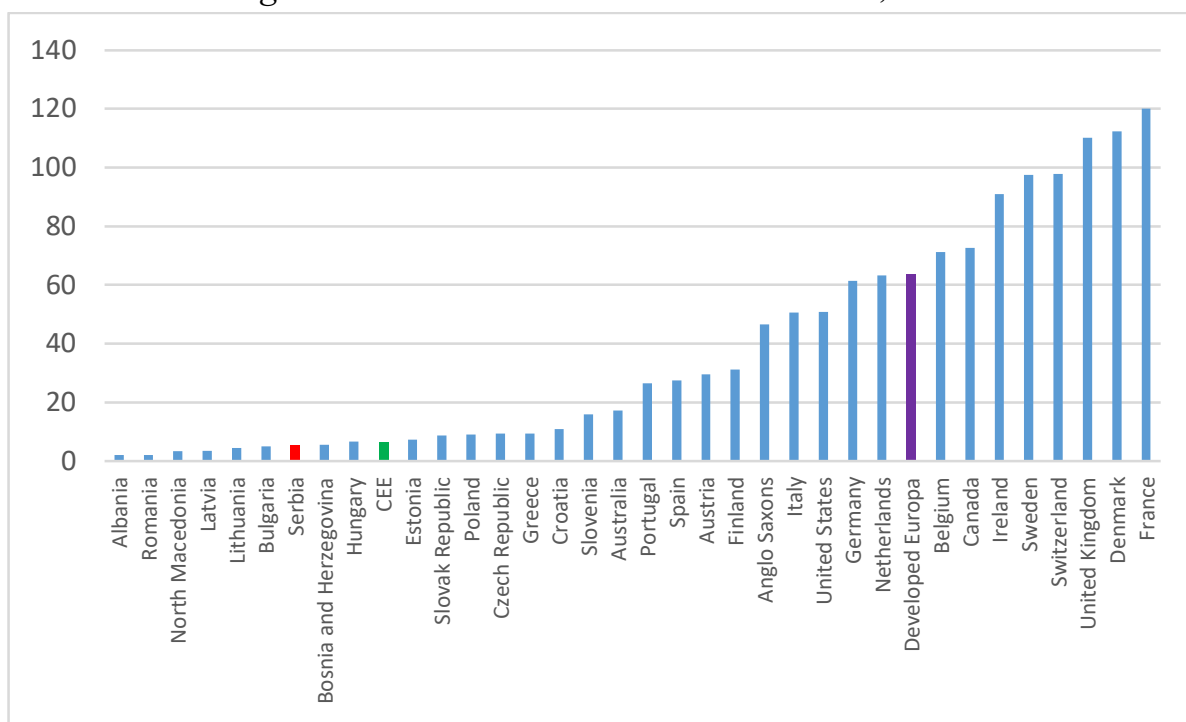
By comparing the developed European countries with the Anglo-Saxon countries, it can be concluded that the generous social insurance systems that exist in European countries are to a certain extent displacing private insurance. Modest public pensions in Anglo-Saxon countries encourage people to join private pension and life insurance. Due to unfavourable demographic trends in European countries, both developed and CEE countries, which lead to an increase in the percentage of the old population in relation to the working population, it is expected that the generosity of their pension systems will decrease in the future. By reducing the ratio of the average public pension to the average salary, which is expected in the coming decades, the European public pension systems will succeed less and less in equalising consumption during

between life insurance activities and economic growth: Some new evidence. *Journal of International Money and Finance*, 32(C), pp. 405-42.

one's lifetime. In such circumstances, the inclusion of citizens in private pension systems, life insurance, and other forms of long-term savings will be a necessary condition for preventing the decline of citizens' standards in old age.

Insurance companies' assets show the accumulated insurance premium increased by the return on investments and reduced by the payment of compensations based on the incurred damages and the costs of the insurance companies' operations. While insurance premiums show the volume of activity in the insurance sector in one year, the assets or insurance companies' assets show the development of insurance as a result of development over a longer historical period. Insurance companies' assets to GDP ratio in Serbia and CEE countries is many times smaller than in developed European countries, which is a consequence of lower insurance premiums to GDP ratio during the previous decades, a short period of accumulation of assets of insurance companies and a low share of life insurance in total insurance¹⁵⁴.

Figure 1. Insurance Assets to GDP 2017-19, in %



Source: Nonbanking financial database, World Bank

Assets of insurance companies in the period 2017-2019 in Serbia amounted to 5.3% of GDP, in CEE countries to 6.6% of GDP, while in developed European

¹⁵⁴ Given that life insurance represents long-term savings, a larger share of life insurance increases the assets of insurance companies both based on the payment of premiums and the return on investment of paid premiums.

countries they amounted to 63% of GDP. In several European countries (France, Britain, Denmark) the assets of insurance companies in the mentioned period were higher than the annual GDP. The high share of insurance premiums in GDP in developed countries is the result of decades of development of the insurance sector in them, as well as the high share of life insurance in total insurance. An additional factor affecting the amount of assets is the rate of return that insurance companies make when placing insurance premiums. The underdevelopment of the financial market in CEE countries adversely affects the rate of return of insurance companies, and thus the amount of their assets.

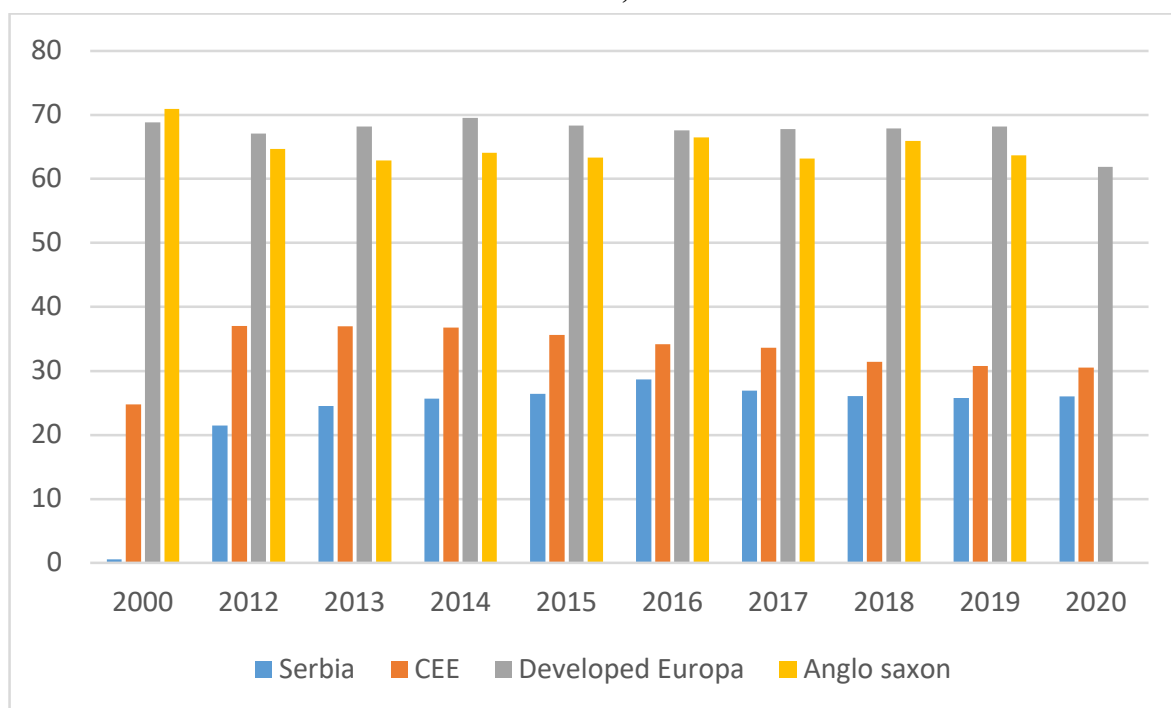
An important structural indicator of the development of the insurance sector is the participation of the life insurance premium in the total insurance premium. A high share of the life insurance premium in the total insurance premium is an indicator of a developed insurance sector in a country. Life insurance premiums account for about 1/4 of the total insurance premium in Serbia, about 1/3 in the CEE countries, and about 2/3 in developed European countries. The low share of the life insurance premium in the total insurance premium is an important indicator of the underdevelopment of insurance in Serbia and the CEE countries. Developed life insurance has potentially positive macroeconomic implications, as it provides a form of long-term savings that can be used to finance investments, thereby stimulating economic growth¹⁵⁵. Achieving a positive impact of life insurance on economic growth depends on how developed the shares and corporate securities market is in a country. If this market is developed, as in the USA, and Western Europe, insurance companies appear as significant financiers of private investment and economic growth¹⁵⁶. If the financial market is not developed, as is the case with Serbia, insurance companies invest most of their assets in state securities, which has a much smaller impact on economic growth, because the state uses only 10-15% of its spending on investments. According to NBS data, insurance companies in Serbia invest 50-60% of their assets in government securities, which is significantly more than in developed countries where most of their assets are invested in corporate bonds and shares¹⁵⁷.

¹⁵⁵ Arena (2008), op. cit.; Outreville (2013), op. cit.

¹⁵⁶ Ibid.

¹⁵⁷ MAPFRE (2020). *Insurance Industry Investment*. Madrid: Fundación MAPF

Figure 2. The Share of the Life Insurance Premium in the Total Insurance Premium, in %



Source: calculated based on World bank DataBank

Although the insurance sector in Serbia and the CEE countries still lags significantly behind developed European countries, it has achieved relatively strong growth over the last two decades. The average annual growth of insurance premiums in Serbia and CEE countries in the period 2000-2020 exceeded the growth of insurance premiums in developed countries many times over (see Table 3).

Table 3. Average Annual Insurance Premium Growth Rate, in %

	Period 2000-2020			Period 2012-2020		
	Total insurance	Life insurance	Non-life insurance	Total insurance	Life insurance	Non-life insurance
Serbia	11.2	34.5	9.6	6.2	8.8	5.4
CEE	7.6	8.7	7.1	2.2	-0.3	3.4
Developed Europa	3.7	3.1	4.7	0.7	-0.3	2.5
Anglo-Saxon	2.0	1.5	3.2	-1.1	-1.4	-0.8

Source: calculated based on World bank DataBank

However, after 2012, there was a strong slowdown in the growth of insurance premiums in CEE countries, while in developed countries the value of insurance premiums stagnated. Interestingly, the value of life insurance premiums in

developed countries and CEE countries declined after 2012, which is probably a consequence of the decline in confidence in the financial sector after the Great World Financial Crisis, which also caused a temporary decline in the value of assets of insurance companies (quote). Even after 2012, Serbia continued with relatively high growth in insurance premiums, which can be explained by the low level of development of this sector.

The significant lag behind the share of insurance premiums and insurance companies' assets in GDP, as well as the small share of life insurance premiums in the total premium in CEE countries, indicate that the development of insurance, apart from the level of development, was adversely affected by other factors. CEE countries started building a market economy three and a half decades ago, which is a short period from the perspective of building institutions, and especially from the perspective of changing cultural values. Under socialism, the insurance sector was relatively neglected, especially life insurance. In general, within the framework of socialist ideology, a paternalistic attitude prevailed, according to which the state protects citizens from various risks, while their responsibility was limited to protection from some non-life risks (traffic damage, property insurance, etc.). Some types of insurance, such as private health and life insurance, were almost non-existent under socialism, while others were underdeveloped. To a certain extent, the socialist legacy affects the fact that citizens still expect that in the event of certain damages, the state will compensate for such damages. Also, the generous systems of public pension and health insurance, in relation to the level of development, influenced the slower growth of private insurance. The slower development of insurance is partly due to the absence of tax incentives, but also to the lack of information among citizens about the benefits of entering into insurance schemes. Slower insurance growth in CEE countries is partly a consequence of the series of crises these countries have gone through over the past three and a half decades. First, the CEE countries went through a transitional recession, then the big financial crisis of 2008-09 followed, and more recently the crisis caused by the COVID-19 pandemic and the war in Ukraine. Serbia had particularly unfavourable circumstances for the development of insurance. During the 90s, it was exposed to sanctions and then NATO bombing, as a result of which its GDP per capita was halved, and between a quarter and a third of employees were formally employed, but did not create any added value, nor did they generate regular income. Sanctions, hyperinflation, and then high inflation in combination with low incomes and ideological resistance to the establishment of market institutions¹⁵⁸, delayed the significant development of insurance in

¹⁵⁸ Arsić, M. (2022). The Quest for Macroeconomic Stability under Sanctions and Weak State. *Panoeconomicus*, 69(2), pp. 205-224.

Serbia until the beginning of the 21st century, which means that the expansion of insurance began a decade later than in most CEE countries. Due to the aforementioned reasons, it is quite certain that a relatively long time is needed for the former socialist countries to catch up with the countries of Western and Northern Europe in terms of insurance development.

2. EFFECTS OF MACROECONOMIC FACTORS ON INSURANCE

This section first investigates the impact of macroeconomic factors on the development of insurance, and then the impact of cyclical fluctuations of macroeconomic variables on the dynamics of insurance in the medium term. Macroeconomic factors are defined relatively broadly in the chapter, so that apart from standard macroeconomic variables, such as GDP, unemployment, inflation and interest rates, they also include the development of the financial sector and economic inequality.

2.1. Effects of Macroeconomic Factors on Insurance Development

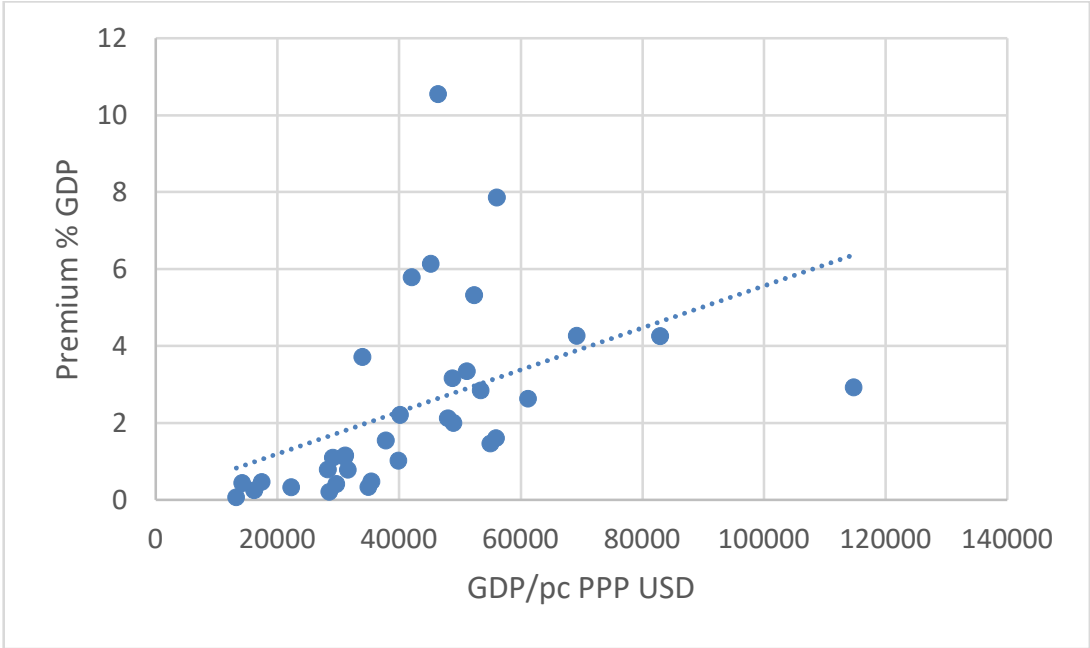
The demand for insurance services in general depends on the income of households and the economy, the amount of the insurance premium, and the preferences of citizens and business owners. In the case of life and private pension insurance, the expected return on the insurance premium potentially affects the attractiveness of this form of long-term savings. Empirical research generally contains evidence that rates of return do not significantly affect the growth of insurance premium payments because the basic function of long-term savings is the transfer of income from the present to the future in order to equalise consumption over a lifetime, while the return on savings is secondary. The specificity of insurance is that some forms are compulsory, which generates demand beyond standard economic mechanisms. However, even when some forms of insurance are compulsory, as is the case with car insurance, there is also an indirect influence of economic factors that influence the number of cars per capita. GDP is an aggregate indicator of household incomes and the economy, on which the demand for insurance services depends. Given that insurance services represent a normal good, the demand for insurance services is expected to increase with GDP growth¹⁵⁹.

¹⁵⁹ Feyen et al. (2013), op. cit.; Grabova, P., & Sharku, G. (2021). Drivers Of Life Insurance Consumption - An Empirical Analysis Of Western Balkan Countries. *Economic Annals*, 66(231), pp. 33-58.

In accordance with the life cycle theory, people strive to maximize income during their lifetime, but also to equalize the level of income and consumption during their lifetime. The risks citizens and entrepreneurs face (injuries, illness, death, inability to work in old age, damage to property and goods, etc.) can lead to a significant drop in income, and thus consumption. Various forms of insurance ensure that households and entrepreneurs, by paying an insurance premium, are protected from a large drop in income if one of the listed risks occurs. Although people face risks at all income levels, their ability to pay an insurance premium increases with income. With the growth of income, the possibility of individuals to dynamically optimise income and consumption through insurance increases. A similar argument applies to the economy - with very low incomes achieved by low-productivity entrepreneurs (small farms, etc.), the possibility of insuring property and goods is low. With the growth of productivity and income of economic entities, their ability to set aside part of their income for insurance increases. GDP per capita is highly correlated with household income (earnings and income from capital), as well as business income, and can therefore be used as a general demand indicator for insurance services.

Based on a sample of 32 European and three non-European countries, a positive relationship can be observed between GDP per capita and life insurance premiums in the period 2017-2019. The correlation coefficient between the level of development measured by GDP per capita in dollars of equal purchasing power is 0.46.

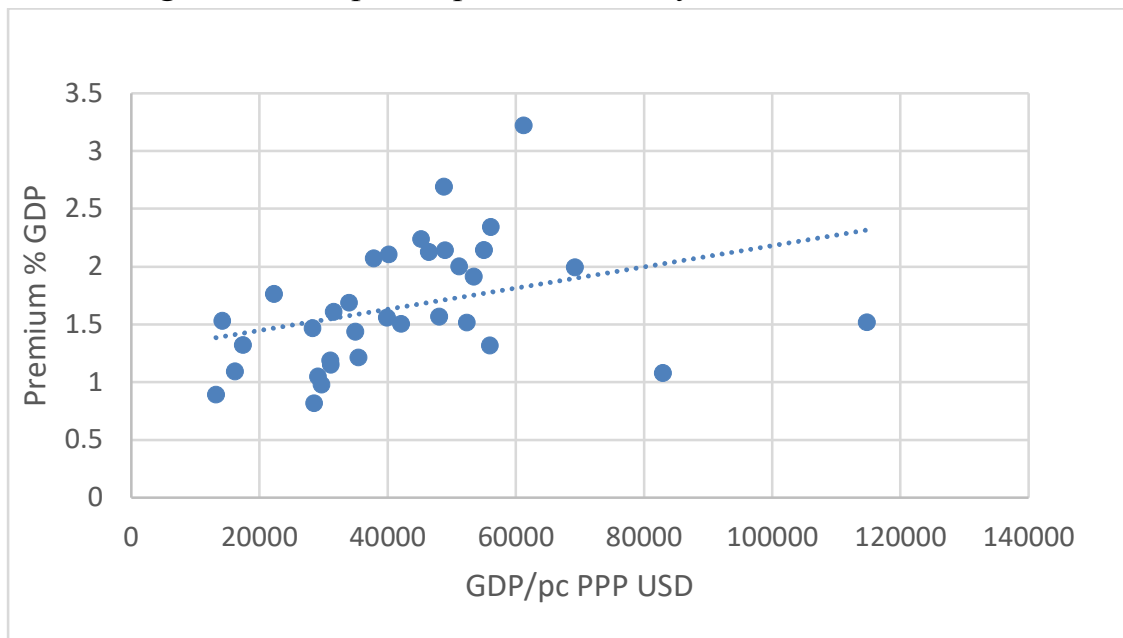
Figure 3. GDP per Capita and Life Insurance Premium



Source: calculated based on World bank DataBank

In the same sample of countries, a positive relationship can be observed between the level of development and the amount of non-life insurance premiums. A positive relationship is expected because the value of property per capita (cars, real estate, equipment, etc.), the scope of economic activities that are the subject of insurance, as well as the willingness of people to get involved in health insurance, increases with the growth of income. The correlation coefficient between non-life insurance and the level of development of the country is positive and amounts to 0.35, which is in line with the expectation that the demand for non-life insurance services increases with GDP growth. The somewhat smaller correlation between non-life insurance and the level of development is due to the fact that some forms of non-life insurance are compulsory, regardless of the level of income.

Figure 4. BDP per Capita and Non-life Insurance Premium



Source: calculated based on World bank data

Econometric studies generally confirm a strong connection between GDP growth and life insurance premiums. By applying the panel model to 13 CEE countries in the period 2000-2010, Bianchi et al. (2011) estimated that the coefficient of elasticity of the insurance premium in relation to GDP growth was 1.5, which means that in the mentioned period the insurance premium grew 50% faster than GDP. The high elasticity of the insurance premium in relation to economic growth is a consequence of underdeveloped insurance in the CEE countries in the observed period. Based on the data from Table 3, it can be concluded that the coefficient of elasticity of the insurance premium in relation to GDP per capita during the second decade of this century in CEE countries was lower than in the first decade. According to other estimates, which include

30 European countries, the impact of GDP growth on insurance premium growth is smaller, but still very high, and the elasticity coefficient is 0.89 for life and 0.75 for non-life insurance¹⁶⁰. Smaller coefficients of elasticity of life and non-life insurance in relation to GDP in a wider set of countries is because the sample includes developed European countries, in which the insurance sector is highly developed, and therefore its growth closely follows the movement of GDP per capita.

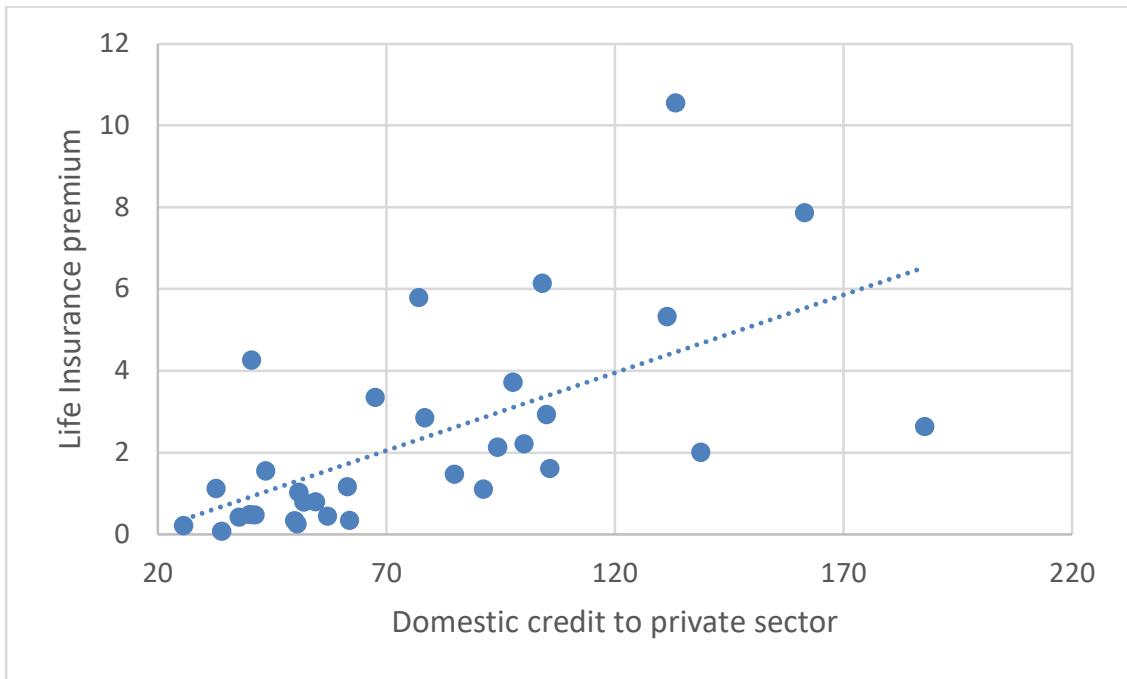
It is observed that countries with the same or similar levels of GDP per capita have different share of life insurance premiums in GDP, which indicates that insurance depends on other macroeconomic and non-economic factors. The development of the financial sector and economic inequality have been identified as macroeconomic factors that influence the development of insurance in the long term.

The development of the insurance sector, as a part of the financial sector, is closely related to the development of other parts of the financial sector, such as the banking sector and the financial market. If the banking sector and the financial market are more developed, then there are more favourable conditions for the development of the insurance sector in that country. Some banking services, such as housing loans, require insurance, which directly affects the growth of insurance coverage. In addition, banks provide some types of insurance, and there are also partnerships between insurance companies and banks. Figure 5 shows a positive relationship between the development of insurance and the banking sector, in a sample of over 30 countries. The correlation between the share of life insurance premiums and domestic loans to the private sector, which represents an indicator of the development of the banking sector, is relatively high and amounts to 0.62. The correlation between the development of non-life insurance and bank loans is even stronger and amounts to 0.74.

The development of the financial market encourages the development of the insurance sector because it creates opportunities for achieving higher returns on insurance premiums, which can encourage people to invest in the forms of insurance that have the characteristics of long-term savings, such as life insurance.

¹⁶⁰ Christophersen & Jakubik (2014), op. cit.

Figure 5. Development of the Banking Sector and Life Insurance Premium, 2017-2019, % GDP



Source: calculated based on the World bank data

Figure 6. Development of the Banking Sector and Non-life Insurance Premium, 2017-2019, % GDP



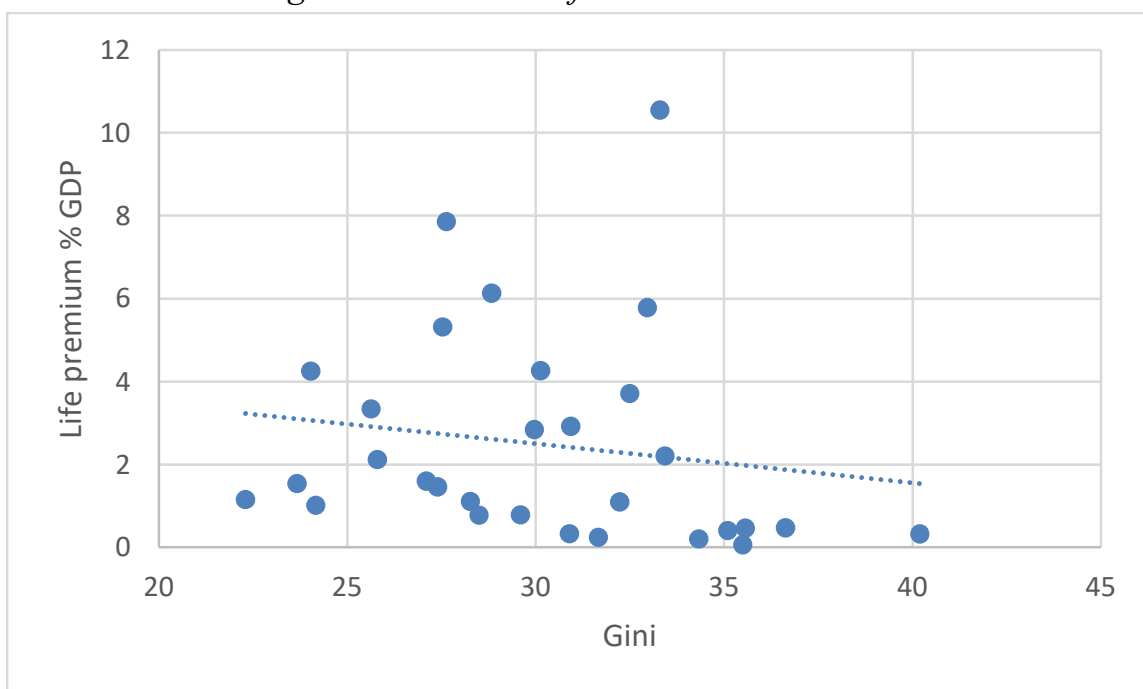
Source: calculated based on the World bank data

There is a hypothesis that high inequality has a negative effect on insurance, because rich individuals have large assets that allow them to equalise

consumption during their lifetime, and therefore do not need to take out life insurance¹⁶¹. On the other hand, the poor have limited liquidity and do not have the ability to pay insurance premiums, even though they are faced with the risks of illness, premature death and damage to property and goods. Life insurance is affordable and attractive to the middle class, whose incomes are high enough to pay the insurance premium, and whose assets are not so valuable that they can sell them to break even. The impact of economic inequality on the amount of non-life insurance is uncertain, although there is a hypothesis that the rich are more likely to insure property than the poor.

Figure 7 shows a weak negative correlation between the non-life insurance premium and economic inequality - the correlation coefficient is -0.16. A somewhat stronger negative correlation exists between economic inequality and non-life insurance premiums, where the correlation coefficient is -0.21. Based on the figure and the correlation for slightly more than 30 countries, it could be concluded that high economic inequality has a negative effect on the development of the insurance sector, but that this influence is not particularly strong. In the majority of econometric studies, no solid connection was found between economic inequality and the development of life insurance¹⁶².

Figure 7. Gini and Life Insurance Premium

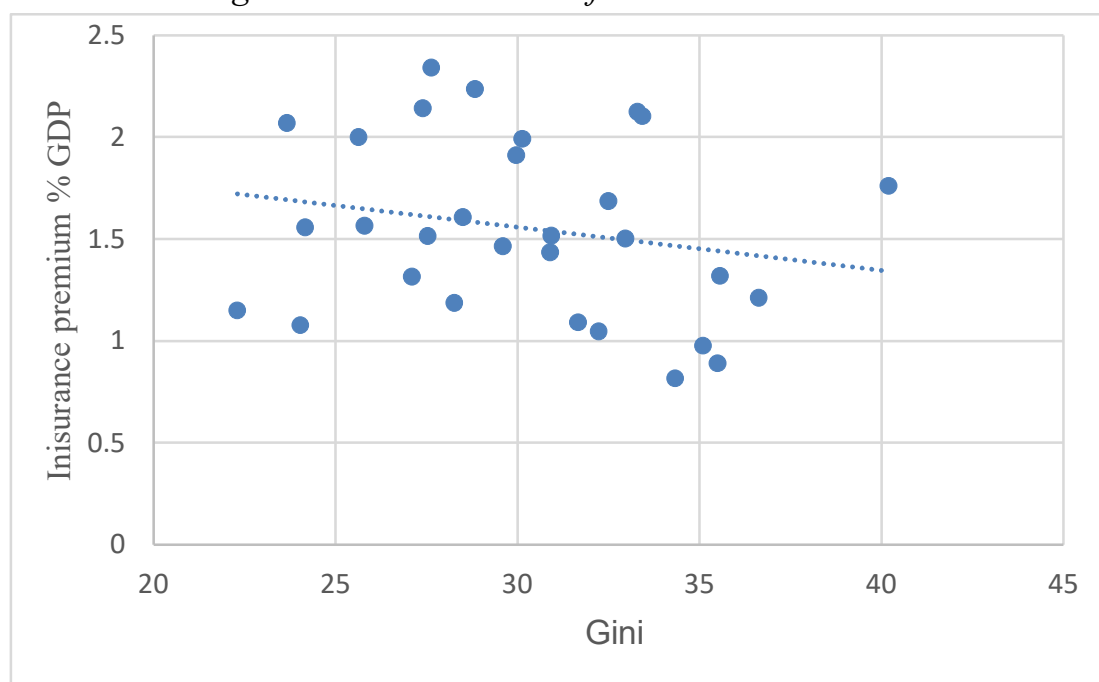


Source: calculated based on the World bank and Eurostat data

¹⁶¹ Beck & Webb (2003), op. cit.

¹⁶² Ibid.

Figure 8. Gini and Non-Life Insurance Premium



Source: calculated based on the World bank and Eurostat data

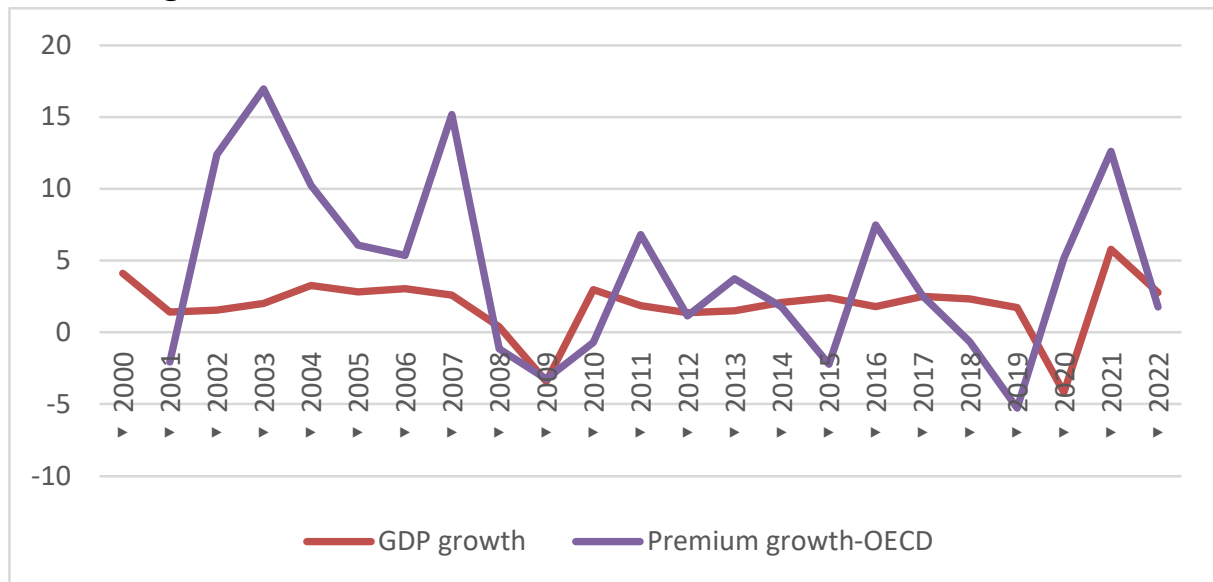
2.2. The Influence of Macroeconomic Factors on Insurance During the Economic Cycle

It is expected that the insurance premium oscillates cyclically in the same direction as economic activity, i.e. the real value of the premium decreases in periods of crisis and increases in periods of expansion. During a recession, the real incomes of households and businesses decrease, and therefore the demand for insurance services is expected to decline, while in periods of expansion, the real incomes of households and businesses increase, as a result of which the demand for insurance services is expected to increase. A decrease in the value of property (real estate, etc.) that occurs during the recession, due to a decrease in citizens' willingness to get insurance, can also have a certain impact on the decline in insurance premiums. At the same time, it is expected that the intensity of the procyclicality of the insurance premium will be moderate because insurance contracts are generally longer-term than the duration of the economic cycle. The existence of the contract can lead to delayed cyclical fluctuations of the premium in relation to cyclical fluctuations of economic activity and unemployment.

The following figure confirms a certain agreement between the cyclical fluctuations of the GDP growth rate and the average premium per capita in OECD countries. The existence of moderate procyclicality is confirmed by the correlation coefficient between the GDP growth rate and the insurance premium

growth rate per capita and the GDP growth rate in OECD countries, which is 0.31. According to econometric research, the amount of gross invoiced insurance premiums is correlated with macroeconomic trends¹⁶³.

Figure 9. GDP and Premium Growth in OECD Countries, in %



Source: OECD database

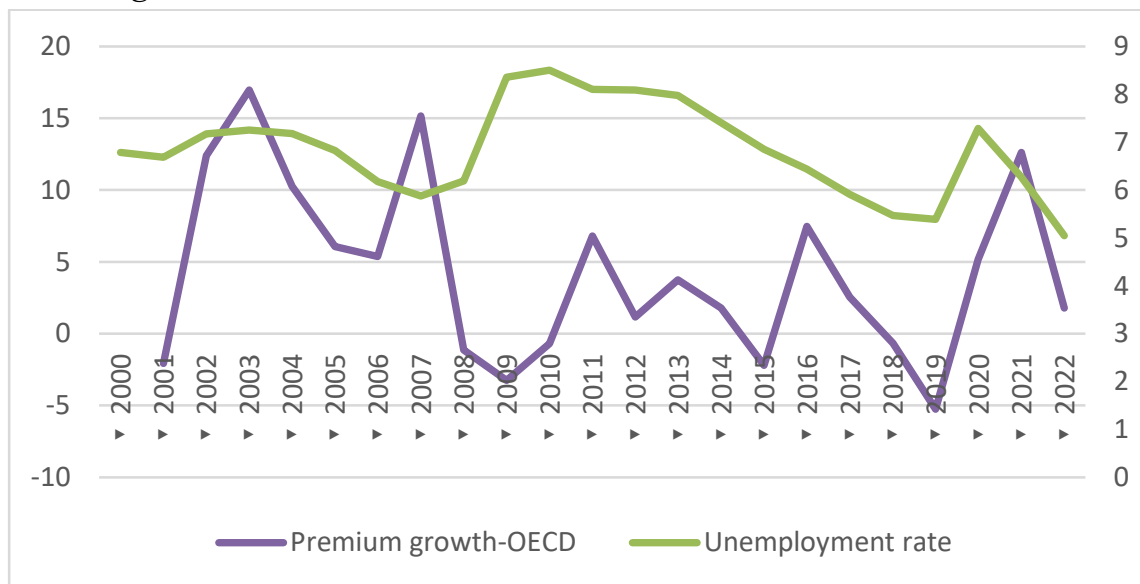
One of the main channels through which macroeconomic fluctuations affect the dynamics of the insurance premium per capita is the change in the unemployment rate. It is expected that with the growth of the unemployment rate, the value of the insurance premium per capita will decrease, due to a lower rate of signing new insurance contracts or due to the cessation of premium payments for the basic existing contracts by insured persons who have lost their jobs. The growth in the unemployment rate is associated with a decrease in activity in the economy, as a result of which a decrease in the payment of insurance premiums by the business sector is expected. In OECD countries, there is a moderate negative correlation between the growth rate of insurance premiums per capita and the growth rate of unemployment, which is -0.34. The procyclicality of the insurance premium is somewhat stronger for life insurance, which indicates that people's willingness to insure themselves depends on their current income. According to research, an increase in the unemployment rate by 1 percentage point reduces the life insurance premium by 1.5% in European countries¹⁶⁴). The stronger dependence of life insurance on macroeconomic trends is a consequence of the fact that it is voluntary insurance, although there

¹⁶³ Faugere, C., & Van Erlich, J. (2006). The Equity Premium: Consistent with GDP Growth and Portfolio Insurance. *Financial Review*, 41(4)

¹⁶⁴ Christophersen & Jakubik (2014), op. cit.

is a certain rigidity here as well, because insurance contracts are of a long-term nature.

Figure 10. GDP and Premium Growth in OECD Countries, in %



Source: OECD database

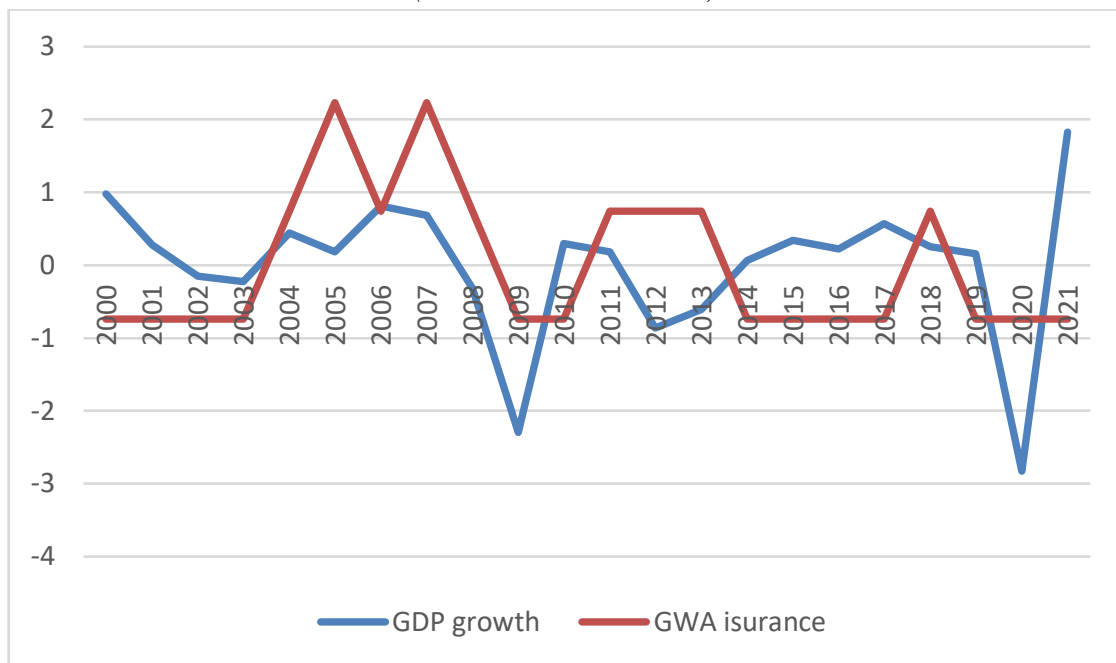
The impact of cyclical fluctuations of the economy on the insurance sector can be assessed based on the movement of Gross Value Added in this sector. It is expected that the Gross Value Added in the insurance sector exhibits procyclical dynamics, i.e. it decreases in the period of recession and increases in the period of expansion. Based on Figure 11, there is a definite delay in the change in the share of added value in the insurance sector in relation to changes in the GDP growth rate. The correlation between the GDP growth rate in period t and the share of Gross Value Added of insurance in period $t+1$ is 0.34%. Although the Gross Value Added in insurance shows cyclical oscillations, its fluctuations are relatively modest, so the participation of this sector in GDP in EU countries in the period 2000-2022 ranges from 0.8 to 1% of GDP. Based on this, it can be concluded that the added value in insurance in EU countries has similar dynamics as the total value added.

Under other unchanged conditions, inflation has a negative effect on insurance, because it devalues the value of insurance policies, which weakens the basic function of insurance - transferring income from the present to the future.¹⁶⁵

¹⁶⁵ Outreville (1996), op. cit.; Beck & Webb (2003), op. cit.; Li, D., Moshirian, F. Nguyen, P., & Wee, T. (2007). The demand for life insurance in OECD countries. *Journal of Risk and Insurance*, 74(3), pp. 637-652; European Insurance and Occupational Pensions Authority (2023). *Impact of Inflation on the Insurance Sector*. Frankfurt am Main: EIOPA.

The impact of inflation on insurance is closely related to the movement of real interest rates. In the initial stages of an inflationary episode, as a rule, real interest rates decline and enter the negative zone, which devalues the assets of insurance companies. In response to inflation, central banks increase interest rates, as a result of which real interest rates rise, and in the final phase of inflationary episodes, they usually reach a value above the long-term trend, which leads to an increase in returns on the insurance companies' portfolio.

Figure 11. Value Added Insurance Industry and GDP Growth, EU (standardised series)



Source: Eurostat

Empirical research has not established a consistent relationship between the level of real interest rates and the development of insurance. In some studies, a positive correlation was obtained¹⁶⁶, while in others a negative correlation was obtained¹⁶⁷, and there are studies in which no statistically significant influence of the level of real interest rates on the development of the insurance market was obtained¹⁶⁸. According to research¹⁶⁹, the growth of real interest rates negatively affects only non-life insurance, which is explained by lower investment in the purchase of assets (cars, real estate, etc.) in periods of high interest rates. The absence of a systematic connection between real interest rates

¹⁶⁶ Beck & Webb (2003), op. cit.

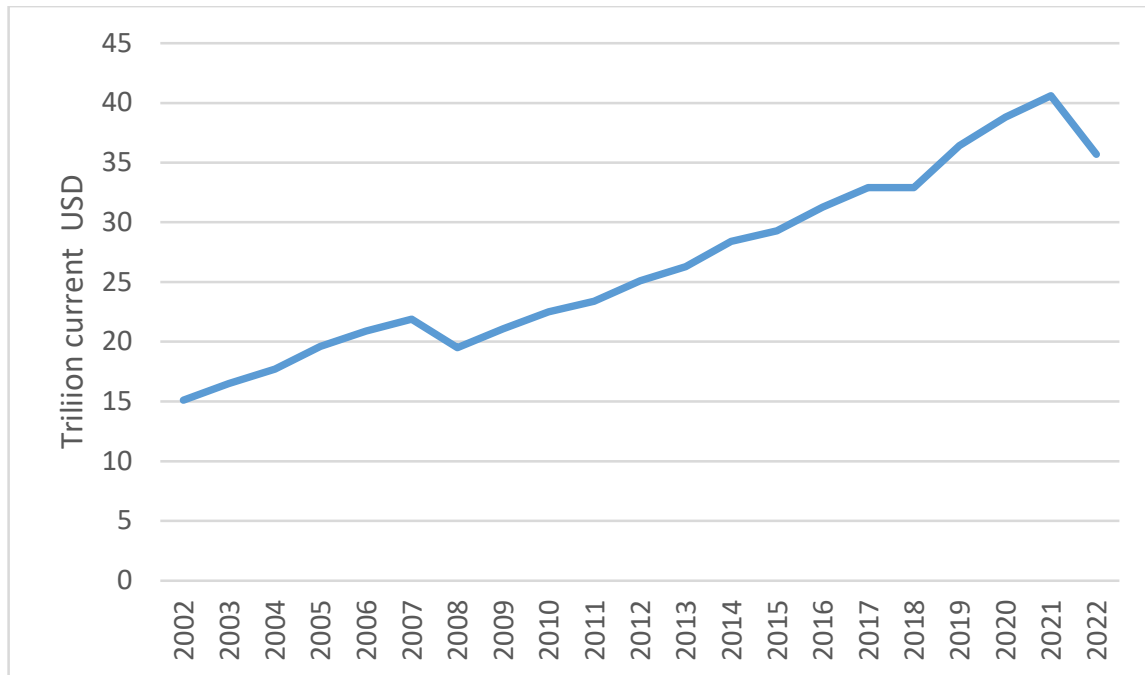
¹⁶⁷ Li et al. (2007), op. cit.

¹⁶⁸ Outreville (1996), op. cit.

¹⁶⁹ Christophersen & Jakubik (2014), op. cit.

and the development of insurance is probably a consequence of cyclical fluctuations in interest rates, which in some periods have a positive and, in others, a negative effect on the development of insurance. Nevertheless, it is quite certain that a longer period of high inflation and negative real interest rates has a negative impact on the development of insurance

Figure 12. Total insurance assets in the world

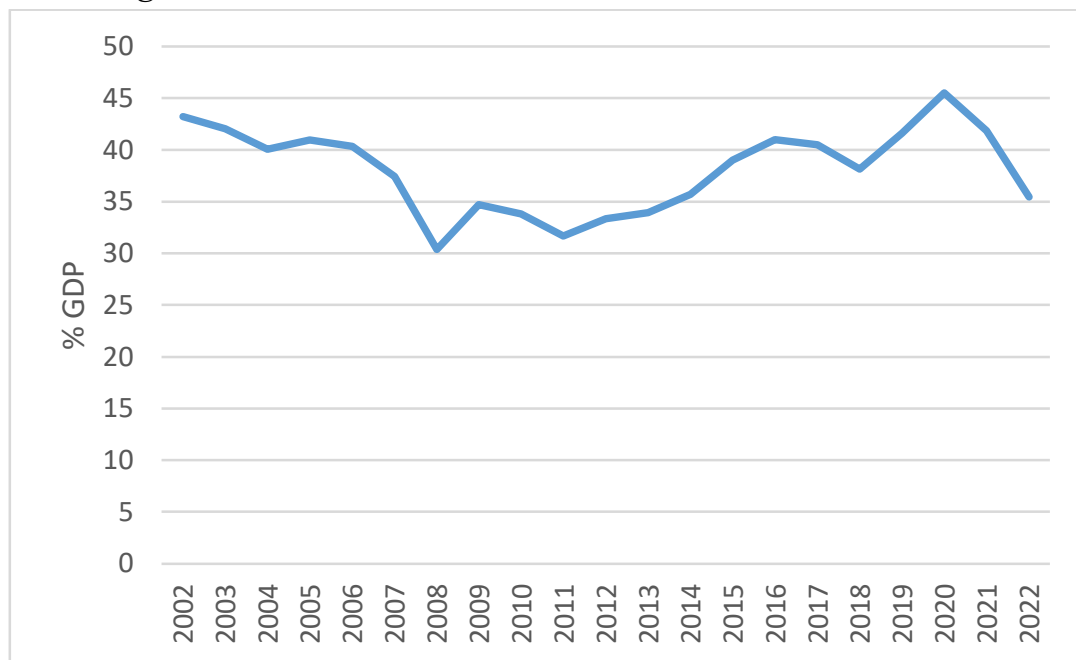


Source: Statista

There is a positive relationship between the value of insurance companies' assets and economic activity. During the period of economic expansion, the value of insurance companies' assets increases both due to the increase in premium payments and due to the increase in the prices of assets (stocks, bonds and real estate) owned by insurance companies. On the contrary, in a period of recession, the value of assets of insurance companies decreases both due to the decrease in the value of paid premiums and due to the decrease in the prices of assets in their portfolio. So, for example, during 2022, the value of the assets of insurance companies at the world level, measured in USD, decreased by 12%. A similar decline in the value of insurance companies' assets occurred during the great financial crisis in the first decade of this century. From the point of view of the basic function of insurance, which is equalization of insurers' incomes, it is relevant that the value of insurance companies' assets returns to the pre-crisis value relatively quickly. After the fall in the value of insurance companies' assets by 11% in 2008, a relatively rapid increase in their value followed, so that the assets of insurance companies in the world already exceeded the pre-crisis level in 2010 (see Figure 12). However, the recovery of

the value of insurance companies' assets in relation to GDP is slower, so it will take several years to reach the pre-crisis level (see Figure 13).

Figure 13. Insurance assets in the world in relation to GDP



Source: Statista and World bank

A decline in the value of insurance company assets can be a signal of a recession or economic slowdown. A significant part of the assets of insurance companies in developed countries consists of corporate bonds and shares whose price variations can precede cyclical changes in economic activity. Insurance companies in the EU hold about 45%, and in the USA close to 65% of assets in bonds and shares of companies. In order to minimize risk, the assets of insurance companies are diversified, so that they are invested in a large number of companies operating in different sectors of the economy. Therefore, the movement of insurance companies' asset values relatively well reflects the state of the financial market. A decline in the value of insurance companies' assets can be a signal of an impending recession, as was the case with the financial crisis of 2007-2008. However, changes in the prices of shares and bonds, and thus the assets of insurance companies, do not represent a perfect signal for changes in the cyclical movement of the economy. Fluctuations on the financial market are much more frequent, and their amplitudes are greater, than is the case with fluctuations in economic activity and employment.

3. THE INFLUENCE OF OTHER FACTORS ON INSURANCE DEVELOPMENT

In addition to economic factors, the development of insurance is influenced by demographic factors, cultural characteristics, the quality of formal institutions, as well as specific institutional solutions that regulate insurance. Relevant demographic factors that influence the development of insurance are the country's population, the ratio between dependent and active population (dependency rate), life expectancy, average level of education, population density, and urbanisation rate. With the growth of the population, the possibility of risk pooling increases, which has a positive effect on the development of insurance. Theoretically, life insurance is expected to grow with an increase in the ratio of the dependent population (persons younger than 15 and older than 65) and the working population (persons between the ages of 15 and 65). By including in life insurance, the active population wants to provide income to young people, in case of premature death of the breadwinner of the family or to prevent a sudden drop in their own income after retirement. Higher population density reduces the cost of acquiring new policyholders, which positively affects the development of insurance.

The results of econometric research on the influence of demographic factors on the development of insurance are mixed. According to some research, the growth in the number of people over 65 years old compared to the working population increases life insurance¹⁷⁰. According to other research, the growth of the number of old people in relation to the number of working people encourages the development of life insurance, while the growth of the number of young people in relation to the number of working people does not affect the development of life insurance¹⁷¹. Based on the previous results, it could be concluded that life insurance aims more to protect the insured from poverty in old age than to protect young people from the risk of premature death of the family breadwinner. However, these results to a greater extent may reflect the relationship between the age structure of the population and the amount of real income, rather than the preferences of the insured. Namely, with the increase in income, the family structure changes with an increasing number of elderly people and a decreasing number of young people. Therefore, the growth of life insurance with the growth of participation of the elderly does not only reflect the concern for old age but also the high incomes that exist in such societies. Analogously, the lower preference for life insurance in societies where the

¹⁷⁰ Li et al. (2007), op. cit.

¹⁷¹ Beck & Webb (2003), op. cit.

percentage of young people in relation to the working population is high does not reflect the absence of care for young people, but the low incomes that exist in such societies.

The theoretical effect of life extension on the development of insurance is ambivalent. On the one hand, it is expected that as life expectancy increases, the demand for insurance services decreases because the probability of premature death decreases. On the other hand, life insurance represents one form of long-term savings that is used to provide income in old age, in case the insured person lives to old age, which affects the growth of life insurance. The results of empirical research on the effect of life expectancy on life insurance are mixed, depending on which effect prevails. Some researchers found that the increase in life expectancy has a positive effect on the development of life insurance¹⁷², others that this effect is negative¹⁷³, while some others found that it is not statistically significant¹⁷⁴.

It is expected that insurance development is higher in countries that have a higher rate of urbanisation. The growth of urbanisation reduces the cost of insurance, and it is associated with the growth of income and the formation of atomised families, which all increase the need and possibility for inclusion in insurance. In econometric analyses based on panel models or cross-sectional data models, the rate of urbanisation by country generally has a statistically significant effect¹⁷⁵. A possible explanation for this result is that the models contain other variables that are causally related to urbanisation, such as the level of development, life expectancy, dependency rate, etc. Based on the panel model for China, relatively solid evidence was obtained that the growth of urbanisation influenced the growth of the insurance sector¹⁷⁶.

Theoretically, it is expected that with an increase in the level of education, the demand for insurance services increases, because the more educated are more aware of life risks and are more inclined to equalise their income over their lifetime. A higher average level of education in a country implies that the population joins the workforce later, i.e. the period of dependency is extended,

¹⁷² Outreville (1996), op. cit.

¹⁷³ Li et al. (2007), op. cit.

¹⁷⁴ Browne, M. J., & Kim, K. (1993). An international analysis of life insurance demand. *Journal of Risk and Insurance*, 60, pp. 616-634.

¹⁷⁵ Beck & Webb (2003), op. cit.

¹⁷⁶ Barrese, J., Wang, P., & Zhang, J. (2016). The effects of urbanization on insurance consumption - The experience of China. *Risk Management and Insurance Review*, 19(2), pp. 285-306.

which should affect the growth of insurance. In the majority of empirical studies, no statistically significant correlation was found between the level of education and the development of insurance¹⁷⁷, but there are also studies in which a positive correlation was found between education and insurance¹⁷⁸.

The development of insurance is generally influenced by the preferences of citizens. In the case of insurance, the attitude of individuals towards risk is relevant, i.e. whether individuals are averse, neutral or prone to risk. Based on theoretical arguments, it is expected that individuals who are risk averse will be involved in insurance, and empirical research indicates that the majority of the population is risk averse. The willingness of people to get insurance is influenced by the belief and value system, that is, the prevailing culture of a certain population. From the point of view of insurance, beliefs about whether individuals are responsible for providing means of support for family members in case of premature death or whether they believe that other family members and the state should assume this obligation are particularly important. Similarly, individuals may believe that they are responsible for providing for their livelihood in old age or believe that it is the duty of family members or the state. The development of insurance also depends on the prevailing religious beliefs of people, that is, on whether they consider themselves responsible for their future and the future of dependent family members, or whether they should leave themselves to fate. In Islamic countries, laws prohibit standard forms of life insurance, due to the belief that they are contrary to the Islamic religion. Although new forms of insurance have been developed in Islamic countries that comply with Sharia regulations, there is empirical evidence that insurance is less developed in Islamic countries¹⁷⁹.

The development of insurance is influenced by the quality of institutions in a country, but also by specific regulations related to insurance. Higher-quality institutions ensure more efficient execution of contracts, fraud protection, and minimise the risk of high inflation, which would devalue the insurance premium. There are certain empirical confirmations that higher-quality institutions positively influence the development of insurance¹⁸⁰. Theoretical

¹⁷⁷ Browne & Kim (1993), op. cit.; Beck & Webb (2003), op. cit.; Browne, M., Chung, J., & Frees, J. W. (2000). International P&C Insurance Consumption. *Journal of Risk and Insurance*, 67(1), pp. 73-90.

¹⁷⁸ Lee, C. C., & Chiu, Y. B. (2012). The impact of real income on insurance premiums: Evidence from panel data. *International Review of Economics & Finance*, 21(1), pp. 246-260; Grabova & Sharku (2021), op. cit.

¹⁷⁹ Beck & Webb (2003), op. cit.

¹⁸⁰ Ibid.

predictions and empirical results do not provide reliable answers to the question of how social (public) insurance affects the development of private insurance. On the one hand, it is expected that a more generous public insurance system protects the insured from the risk of declining income due to illness or loss of earning capacity in old age, which deters citizens from using life and health insurance. However, in most countries, public pensions are modest and amount to 50% of average earnings or less, which means that they protect the insured against extreme poverty, but not against a large drop in standards in old age, which encourages people with higher incomes to join a private pension or life insurance. Health services provided by public insurance are modest in many countries, which encourages people to obtain additional insurance from private companies. The results of empirical research on the impact of public insurance on private insurance are ambivalent, where most often no statistically significant correlation is found¹⁸¹.

One of the important issues in economic science and politics is the question of the justification of granting tax subsidies for insurance, both from the point of view of efficiency and from the point of view of fairness. From the point of view of fairness, the relevant questions are what type of insurance is justified to be subsidized and to what amount is it justified to grant subsidies? From the point of view of fairness, there is relatively high agreement in support of the approval of subsidies for private pension insurance, while agreement in the case of health insurance is somewhat less. In the case of all types of insurance, there should be an upper limit for tax subsidies, in order to reduce tax expenditures, but also to prevent regressiveness of subsidies.

From the point of view of efficiency, the key questions are whether tax subsidies significantly increase the coverage of the population with insurance, is the increase in coverage worth the lost tax revenues, is it better to grant subsidies to individuals or companies where they work? In most studies, there is evidence that tax subsidies increase the coverage of the population with health insurance, but that they do not ensure full coverage. There is also no agreement on whether the increase is so great as to justify state expenditures. As for the method of granting subsidies, there is empirical evidence that greater inclusion in insurance is achieved if subsidies are granted to companies, rather than to individuals¹⁸². From the point of view of fairness as well as efficiency, it is better if subsidies are granted to smaller companies that mainly employ low-wage workers. There are studies showing that the wealthiest sections of the

¹⁸¹ Beck & Webb (2003), op. cit.

¹⁸² Gruber, J. (2002). Taxes and Health Insurance. *Tax Policy and the Economy*, Volume 16, Poterba, J. M. (ed.), Cambridge, MA: MIT Press, pp. 37-66.

population benefit from the generous tax credit programs for health insurance in the US¹⁸³.

Although there are strong econometric confirmations about the importance of non-economic factors for the development of insurance, it is relevant that they are strongly connected with economic factors, and above all with the level of the country's development. With the growth of developed countries, the population characteristics in the prime of life are changing, the growth of the elderly population is increasing in relation to the working population, and the percentage of the urban population is increasing. Achieving a high level of development requires the construction of quality institutions, a high level of education of the population, etc. With the growth of the level of development, the population's value system gradually changes, which also includes norms that are important for the development of insurance, such as willingness to save, acceptance of responsibility for one's own future, etc.

4. LONG-TERM PERSPECTIVES OF INSURANCE DEVELOPMENT IN SERBIA AND THE CEE COUNTRIES

The development of insurance in Serbia and the CEE countries in the coming decades may depend on the dynamics of its key determinants. Empirical research consistently provides results according to which the key driver of development is ensuring income growth, i.e. GDP growth per capita, as an aggregate indicator of income growth. Based on the past three and a half decades and the experience of countries that have gone from poverty to a high level of development over the past few decades, it is expected that CEE countries, including Serbia, will gradually converge towards developed European countries in terms of GDP per capita. With GDP growth, real wages are expected to grow, as well as property value growth per capita, all of which will affect the growth in demand for insurance services. Given that the insurance sector in CEE countries is underdeveloped, there is a potential for it to grow faster than GDP growth, which would lead to an increase in the share of insurance premiums in GDP to levels that currently exist in developed European countries. Life insurance, which is extremely underdeveloped in CEE countries, has a particularly large potential for growth.

Given that the movement of GDP per capita is a key determinant of the development of the insurance sector, the question arises as to how much GDP

¹⁸³ Gruber, J. (2011). The Tax Exclusion for Employer-sponsored Health Insurance. *National Tax Journal*, 64(2, Part 2), pp. 511-530.

growth can be expected in these countries in the future, that is, whether they are expected to converge towards developed European countries. By level of development, measured by GDP per capita in euros at purchasing power parity (PPP), CEE countries in 2023 were at 54% of the average of the 12 developed EU members¹⁸⁴. Among the CEE countries, there are large differences in the level of development, so that in 2023 the EU member states reached 2/3, and the countries of the Western Balkans¹⁸⁵ only 1/3 of the GDP per capita in PPP euros. Based on theoretical arguments, as well as empirical research, it can be assessed that all CEE countries have met some conditions for reaching a high level of development. All CEE countries have established free trade and free movement of capital and, to a large extent, of labour both with the EU and among themselves. Macroeconomic stability in them is relatively firmly established, inflation is similar to that in developed countries, external and internal deficits and debts are sustainable, while interest rates are somewhat higher than in Western Europe. Also, in most countries, solid traffic, energy, telecommunication, and other infrastructures have been built.

Empirical research suggests that the aforementioned conditions are sufficient for reaching a medium level of development, but for reaching a high level of development, high-quality institutions, a highly educated workforce and an economy structure dominated by highly productive jobs are necessary. In general, it can be concluded that the quality of institutions in CEE countries is approximately in accordance with their level of development. According to the quality of institutions, EU members from CEE are in the 69th percentile, while the countries of the Western Balkans are in the 29th percentile (Serbia is in the 35th percentile)¹⁸⁶. The quality of education in the CEE countries, Central Europe and the Baltics is at a significantly higher level than in the countries of Southeast Europe¹⁸⁷. As part of the PISA testing in 2022, the countries of Central Europe and the Baltics achieved an average of 483.5 points, while the countries of Southeast Europe achieved an average of 405.3 points. Based on the OECD assessment, it follows that an additional two years of schooling are

¹⁸⁴ The average of the 12 old EU members is similar in GDP per capita at purchasing power parity to Germany, so similar results would be obtained when comparing the development of CEE countries with Germany.

¹⁸⁵ The data for the Western Balkan countries refer to the year 2022.

¹⁸⁶ According to the World Bank methodology, in the World Governance Indicators research, the 100th percentile includes the countries that are the most successful in corruption control, and the countries that are the least successful in corruption control are in the first percentile.

¹⁸⁷ According to the results of the PISA tests, Romania and Bulgaria are more similar to the Western Balkan countries than to the countries of Central Europe and the Baltic States, so they are therefore classified in the group of countries of Southeast Europe.

needed in order for fifteen-year-olds from the Western Balkans to catch up with their peers from Central Europe and the Baltics in terms of the quality of education.

Previous data indicate that the CEE member states of the EU, and especially the countries of Central Europe and the Baltics, have good prospects of catching up with the developed European countries in terms of level of development in the coming decades. In the coming years, the Balkan countries, as the least developed part of Europe, have a chance of achieving relatively high GDP growth rates. It is estimated that the countries of the Western Balkans will achieve an average GDP growth of 3-4% in the coming years, which will create a solid growth in the demand for insurance services. However, in order for the Western Balkan countries to continue achieving high GDP growth rates in the long term, it is necessary to improve the quality of institutions and education, as well as to change the structure of the economy towards more productive jobs.

Other economic factors that influence the development of insurance, such as the development of the banking sector and economic inequality do not represent an obstacle for the development of the insurance sector in CEE countries. In all countries, there is a solid banking sector, whose volume of activity is still smaller than in developed countries, and therefore a solid growth in the volume of bank activity is expected in the future. Economic inequality in CEE countries is low to moderate, which will have a favourable effect on the development of insurance. The financial market in most countries, especially in the countries of the Western Balkans, is underdeveloped, which will adversely affect the development of insurance to a certain extent.

Combinations of demographic, economic and institutional factors are expected to encourage the development of private pension and life insurance. On the one hand, the elderly population of CEE countries has a relatively long life expectancy, during which they spend 15-20 years in the status of pensioners, and public pensions are on average about 50% of the average salary, which means that public pensions enable a modest standard. On the other hand, the convergence of GDP per capita towards the countries of developed Europe also implies the convergence of wages towards wages in developed Europe. With the increase in wages, an increase in various forms of long-term savings is expected, including growth in investments in life insurance and private pension funds. However, for the development of life insurance, it is necessary to change the preferences of citizens in the direction of increasing readiness for various forms of long-term savings. The growth of readiness for long-term savings will be enabled by the growth of real incomes and low and stable inflation. Apart

from economic factors, the development of life insurance and other forms of long-term savings could be encouraged through education and the media.

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