INSURANCE-ECONOMIC GROWTH NEXUS – EVIDENCE FROM SELECTED WESTERN BALKAN'S COUNTRIES

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Abstract
The insurance-growth nexus has attracted the attention of many academics and researchers, due to the huge potential the insurance industry constitutes for the economic development of developed and developing countries as well. The purpose of this paper is to investigate the impact the insurance industry has on economic growth of emerging countries, such as the Western Balkan's countries. The impact is studied through two indicators of insurance industry: density and penetration, and for the total, life and non-life insurance market. The authors have applied a multiple regression analysis using annual data on insurance industry and GDP per capita from 2004 to 2019. This paper has contributed in the existing literature by exploring (i) whether insurance market has a positive or negative effect on economic growth of developing countries; (ii) which of the insurance indicators explains better the impact – insurance penetration or density indicator; and (iii) which of insurance activities has the largest effect on economic development: total, life or non-life insurance. The conclusions of this paper will serve to the public and private operators to evaluate the significance that each segment of insurance industry has on the economic development and to undertake the proper policies.

Keywords: Insurance penetration, insurance density, GDP per capita
JEL classification: G22, C23, O52

1. Introduction

The oldest law on insurance in the Western Balkan countries, is the Dubrovnik marine law of 1568. In the 19th century, the insurance was sold by foreign companies, mainly Italian ones. At the beginning of 20th century, the first domestic insurance companies were opened, mainly joint-venture ones. The insurance industry was concentrated in the main cities and the property fire insurance was the most underwritten insurance class. After the Second World War the insurance companies have been nationalized and almost all kinds and branches of domestic insurance became state monopoly. At the beginning of the 90s, the centralized economy of the Eastern Europe countries has been transformed to the open market economy. The transformation which involved the insurance industry as well, was not the same for all the Eastern Europe countries. While the major part of the Eastern Europe countries was successfully developed toward free market economy and joined to the EU, six countries - the so-called Western Balkan (Albania, Bosnia and Herzegovina, Kosovo, Montenegro, North Macedonia, and Serbia) – are still out of EU. The western Balkan countries are included in developing countries - the GDP per capita of Western Balkan countries is far away from the EU average. According to World Bank data, in 2020, Montenegro has the highest GDP per capita (USD 7,686) and Kosovo has the lowest (USD 4,287). The same figure for EU, in 2020 is USD 33,928. But in terms of GDP growth rate, the Western Balkan countries exceed the EU – while in 2019, GDP in EU grew on average by 1.54%, in Serbia it grew by 4.25% and in Albania by 2.17%. Such growth shows the potential the Western Balkan countries has for growth in the future. A bunch of theorical and empirical literature supports the thesis that the financial system has a crucial role in promoting the economic development. Regarding, the western Balkan's countries, a special attention has been given to the development of the banking sector, and less to the financial market and institutions, owing to the fact that the

banking sector accounts the major part of the financial systems total assets, as described in the Section II. Due to the scarce empirical studies in the region of Western Balkan's countries, this paper is focused on a specific sector of the financial system - the insurance market. Insurance companies foster a more efficient capital allocation. They are potential institutional investors in financial markets, because a great deal of the premium volume is invested in local and international capital markets. This paper investigates the impact the insurance industry has on the economic development of the Western Balkan countries, aiming to answer the following questions:

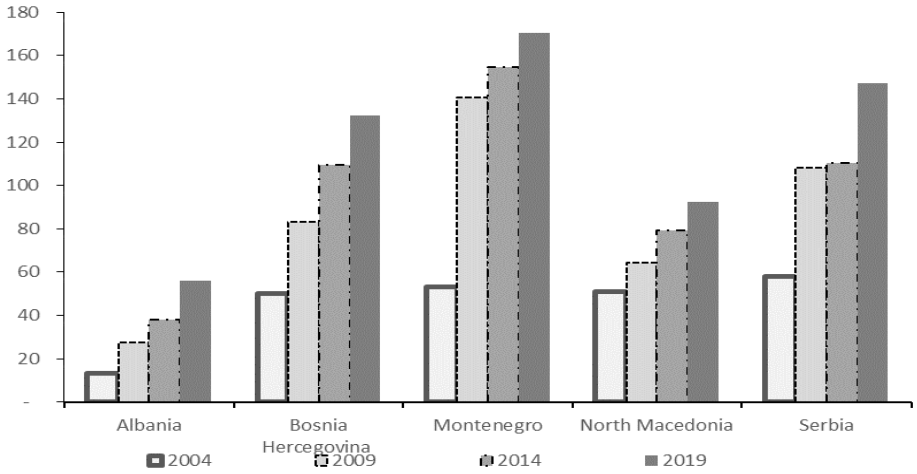
- Does the insurance industry have an impact on Western Balkan's economic growth?
- Which of the insurance indicators has the greatest impact on economic growth?
- Which of the insurance segments has the greatest impact on economic growth?

The analysis is performed by a multiple regression analysis, including data of five Western Balkan's countries – Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia. After the introduction, the second section describes the present conditions of insurance market in each of the Western Balkan countries, in order to provide a framework of similar characteristics of insurance sector in this region. The literature review regarding the impact of insurance market in economic development is summarized in the Section III. The next section explains methodology and data base used in the paper. The section 5 contains the model findings and the results interpretation. The conclusions are presented in the final section of the paper.

2. Actual conditions of the insurance market in Western Balkan countries

This section presents a short overview of the insurance market in each of the Western Balkan countries. The data are retrieved from the annual reports and statistics of respective national supervisory entities. The evolution of insurance market indicators in Western Balkan's countries is illustrated by the Figure 1 and Figure 2.

Figure 1. Insurance density rates in Western Balkan's countries

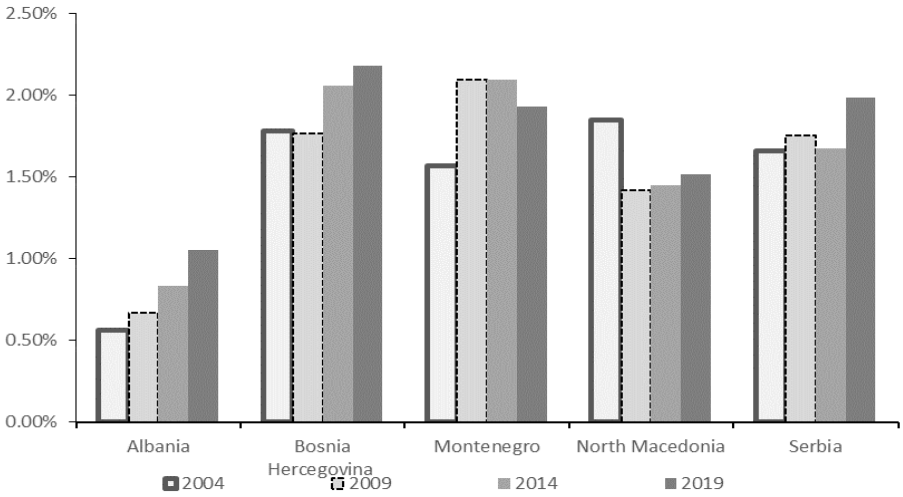


Source: Author's calculations

Financial system in Albania is supervised by Bank of Albania and Albanian Financial Supervisory Authority. The largest share was held by the commercial banks (89%), followed by the investment funds and the insurance companies which shared respectively 4.3 and 2.2% of financial system's total assets. At the end of 2019, eight and four insurance companies operated respectively in non-life and life insurance market. During 2019 insurance companies have collected USD 160 million, increasing by approximately 4.1% compared to 2018. Such increase is due to the increase of the gross written premiums volume by 3.91% and 6,33% respectively in the non-life insurance and life insurance segments. Premium per capita was USD 56 and the ratio of gross written premiums to GDP was 1.05 %. At end of 2019, foreign-owned capital in insurance industry amounted about 51.51%. Regarding to its structure, the market continued to be oriented towards non-life insurance, which accounts for 93.1% of the total volume of gross written premiums in this market. In 2019, the "Motor third party liability" insurance class kept the leading share in gross written insurance premium

(64%), followed by the "Fire and other property damages" (7,86%). With regard to the life insurance, the largest share is held by the "Debtor Life" insurance line (4.39% of total premium volume). In terms of total gross written insurance premium, the top five insurance companies shared about 73.95%, 79,44% and 100% respectively in total, non-life and life insurance activity.

Figure 2. Insurance penetration rates in Western Balkan's countries



Source: Author's calculations

According to the Annual Report of Insurance Supervisory Agency of Bosnia and Herzegovina, banks play the central role in financial intermediation as their assets make up 88,7% of total assets of the financial sector. Insurance and reinsurance companies participate with 5.37% in the total financial sector assets. The insurance business operation was conducted by 16 non-life insurance companies, 10 composite insurance companies and one reinsurance company. In 2019, gross written premium in Bosnia and Herzegovina were about USD 437 million, increased by 7,01% comparing to 2018. The insurance sector is dominated by non-life insurance sector which accounts about 79,23% of the total insurance business. During 2019, the non-life insurance sector recorded an increase of 6,12% in comparison to 2018 and the life insurance sector recorded an increase of 10,55% when compared to 2018. Companies with majority foreign capital, participated with 56,43% in the gross written premium. The most significant share in the total gross written premiums was written by the "Motor vehicle" insurance class with 49,73%, followed by life insurance (20.77%). The market share of the five largest companies was 41.43%, 44.72% and 87.29% respectively in total, non-life and life insurance markets.

According to the National Bank of Kosovo, the value of financial system assets amounted to EUR 7.26 billion, corresponding to an annual growth of 14.9 percent. The banking sector assets shares 65.6% of the total financial system assets, followed by pension sector with a share of 27.2%. Insurance is the fourth largest financial institution with a share of 2,7% in financial system's total assets. At the end of 2019, insurance penetration rate and density rate were respectively 1.4% and Eur 54.8. Insurance activity was performed by 11 non-life insurance companies and two life insurance companies. Non-life insurance activity represents 91.0% of the insurance market assets and the share of assets managed by foreign-owned insurance companies was 50.1 percent. The top five insurance companies collected 54.7% of the total gross written premium. Due to the lack of the data on Kosovo insurance market for the whole period taken into consideration for the model, Kosovo data are not included in the model statistics.

According to the Montenegro Insurance Agency at the end of 2019, of the total financial sector balance-sheet, the banks shared the highest part of 92.3%. In terms of importance, insurance companies accounted for 4.7% of total assets of the financial sector. During 2019, the insurance activity was performed by five non-life insurance companies and four life insurance companies. Total premium volume in 2019 was Eur 94.73 million, increased by 9.1% in respect to 2018. Non-life insurance sector accounts about 81.92% of gross written

premiums in total insurance activity. In term of gross written premiums, motor vehicle liability insurance accounts about 40.13% of the total insurance, followed by life insurance (16.23%) and accident insurance (12.09%). The top five insurance undertakings shared 82.42% of the total premium insurance market, while for both non-life and life insurance activity the share was 100%.

The banking system in North Macedonia shared the highest part (70.8%) of the total financial system assets, followed by the fully funded pension funds (17.8%). Insurance sector was the third largest segment in the financial system (with a share of 3.5% in the financial system's total assets), but they do not lead much with their absolute growth, which is relatively similar to that registered in the open-end investment funds. During 2019, eleven insurance companies operated in non-life insurance and five companies operated in life insurance segment. The foreign capital in insurance market constituted about 79.51% of the insurance market. In 2019, gross written premium (about USD 193 million) increased by 6.61% compared to 2018. Non-life insurance premiums share 82.70% of the total gross written premiums. Non-life sector is increased by 5.99%, while life sector is increased by 9.69%. Motor third-party liability insurance constitute the dominant insurance with 43.25% of total gross written premium, followed by life insurance (17.30%) and property insurance (16.75%). The top five insurance undertakings share 47.8%, 57.99% and 100% of the gross written premium respectively in total, non-life and life insurance segment.

According to the National bank of Serbia, at end of 2019, the bank sector reported the highest share in the financial system assets (90.1%), followed by (re)insurance undertakings (6.6%) ranking the first among the non-banking financial institutions. In 2019, total gross written premiums were about USD 1,024 million, which is an increase of 7.5% in nominal and 5.5% in real terms in respect to 2018. The insurance sector comprised six undertakings in non-life insurance, four in life insurance, six in both life and non-life insurance and four in reinsurance. The insurance premiums account 2.0% of the GDP of Serbia. Measured by the 2019 premium per capita of USD 147, Serbia was the 65th in the world. The non-life insurance accounted for 76.7% of the total insurance premiums. At end of 2019, foreign-owned insurance undertakings shared 89.5% of the life insurance premium and 63.6% of the non-life insurance premium. Motor third party liability occupied 32.9% of the total insurance premiums, followed by life insurance (23.3%) and property insurance (18.7%). The top five insurance undertakings share 77.8% 80.1% and 83.3% of the premium respectively in total, non-life and life insurance market.

The Western Balkan countries financial system features the characteristics of bank-based system. The banking sector reported the highest share in the financial system assets and contribute the most to its absolute economic growth. The insurance sector shares a maximum of 6.6% (in Serbia) which is a small share given the importance of the insurance sector as an institutional investor. The insurance sector is oriented toward the non-life insurance market and motor third party liability constitutes the most significant insurance type. However in terms of growth, the insurance market in Western Balkan's countries has made good progress.

3. Introduction

The insurance companies are intermediaries whose primary function is to allow households and business to transfer the pure risks by paying a price called "premium" under which the insurance company promises to reimburse the insured in case of an insured's accidental loss. According to Outreville (1998), the influence of the insurance industry on the macroeconomic activity can be manifested by: (i) its role in providing security and indemnification; and (ii) its role as an institutional investor. Insurance companies foster a more efficient capital allocation. They are a potential institutional investor in financial markets, because a great deal of the premium volume is invested in local and international capital markets. The insurance industry contributes to the formation of national income by creating value added. Das et al. (2003) specifies the following ways in which insurance services contribute to economic development: by promoting financial stability; by mobilizing and channeling the savings; by relieving the pressure on the government budget; by supporting trade, commerce and entrepreneurial activity; by lowering the total risk faced by the economy; and by improving individuals' quality of life and increasing social stability.

Due to the significance the insurance industry has on economic development, many researchers have investigated the casual relationship between insurance market and economic growth. According to Patrick (1966) there are two, possibly coexisting, relationships between the financial sector and economic growth. The first is the case where the financial sector has a supply-leading relationship with growth, which means that the financial services induce the economic growth. The second is a demand-following relationship, which means that due to economy growth, the demand for financial services can induce the development of financial institutions. Many studies have concluded that developing countries have supply-leading casual relationships of development (Jung 1986, Dean 1986) and have considered locally incorporated insurance institutions or state-owned monopolies an essential element of economic development (Outreville 1996).

Table 1 lists in chronologic order, a number of empirical studies which have explored the supply-leading pattern of relationship between insurance and economic development. The results of their research works have been diverse due to the several factors taken into consideration such as the development level of the studied country/region, the statistical model used to explore the relationship, and the indicators used to measure the economic development and the insurance industry as well. Also, a part of the studies has taken in consideration other variables, besides the insurance market, such as financial development, interest rate, inflation rate, trade, foreign direct investments etc., whose interaction may influence the results.

Table 1. Literature review summary

Research's Author	Country/Region	Period	Effect of insurance on economic growth
Ward and Zubberg (2000)	nine OECD countries	1961-1996	The relationship holds only for some countries.
Sawadogo, (2001)	86 developing countries	1996 - 2011	Greater effect of life insurance in low and middle-income countries than in upper- middle income countries.
Webb et al., (2002)	55 developed and developing countries,	1980-1996	Life insurance penetration indicators are robustly predictive of increased economic growth, but these measures are not significant in the presence of interaction among bank and insurance.
Curak et al., (2009)	10 transition EU countries	1992 - 2007	Life and non-life insurance, as well as, total insurance sector development positively and significantly affects economic growth.
Kugler et al., (2005)	UK	1996-2003 1971-2003	For most of variables and for at least at 5% level of significance, co integration tests confirmed long run relationship between development in insurance market size and economic growth.
Haiss et al. (2008)	29 European countries	1992 - 2005	Positive impact of life insurance on GDP growth in the EU-15 countries. Short term connection of non-life insurance and GDP in emerging countries.
Arena, M. (2008)	55 countries	1976 – 2004 Penetration	Both life and non-life insurance have a positive and significant effect on economic growth. In case of life insurance, high-income countries drive the results. Non-life insurance has a larger effect in high-income countries than in developing ones.
Njegomir V. et al., (2010)	Ex-yugoslavia region	2004 - 2008	A positive effect of insurance on economic growth.
Han, L. et al., (2010)	77 developed and developing countries	1994 - 2005.	Insurance density is positively correlated with economic growth- greater effect in the developing countries than in developed ones.
Omoke P. (2011)	Nigeria	1970 - 2008	No positive and significant impact of insurance on economic growth
Ege at al. (2011)	29 developed countries	1999 - 2008	Positive relationship between insurance and economic growth
Kalaja et al., (2017)	Albania	2006-2015	Both life and non-life insurance penetration have positive effect on GDP per capita. Non-

Research's Author	Country/Region	Period	Effect of insurance on economic growth
			life insurance penetration has larger impact on GDP than life insurance penetration.
Kjojevski et al., (2012)	Macedonia	1995 - 2010	Non-life insurance and total insurance penetration positively and significantly affects economic growth. Life insurance negatively affect economic growth.
Akinlo et al., (2014)	Sub-Saharan Africa	1986 - 2011	Positive and significance impact on economic growth.
Cristea et al., (2014)	Romania	1997 - 2012	Greater influence of the life insurance (measured by density and penetration index) than that of the non-life insurance on GDP.
Concha et al, (2014)	Eleven Latin American countries	1980 - 2009	Positive relationship between insurance and economic growth. This relationship is statistically significant when insurance density is considered as the measure of insurance.
Jahromi (2014)	Iran	1981 - 2011	Unidirectional causal relationship from the insurance penetration ratio to the gross domestic product (GDP)
Yildirim I., (2015)	Turkey	2006 - 2014	Positive relationship is determined between economic development and insurance sector.
Alhassan, A.L. (2016),	Eight African countries	1990 - 2010	Uni-directional causality from insurance penetration to economic growth except for Morocco where there is evidence of a bi-directional causality.
Olayungbo, D.O. et al., (2016)	Eight African countries	1970 - 2013.	Non-uniform results.
Ouedraogo, I. et al. (2016)	86 developing countries	1996 - 2011	Positive effect of life insurance on economic growth, but the effect depends on the structural characteristics of countries.
Padhram et al., (2017)	19 Eurozone countries	1980 - 2014.	Non-uniform results
Din at al., (2017)	USA, UK, China, India, Malaysia and Pakistan	2006 - 2015	Significance of insurance market depends on the proxy used for insurance and the role of non-life insurance is more significant for developing countries as compared to developed countries.
Peleckienė et al., (2019)	European Union countries	2004 - 2015	Non-uniform results.
Kukaj et al., (2019)	Western Balkan	2007 - 2017	Both life and non-life insurance have positive effect in GDP growth.
Balcilar et al., (2020)	11 African countries	1995 - 2016	Total, life and non-life insurance penetration has a long-term impact on economic growth. Non-life insurance has larger effect than life insurance.
Bayar, Y., et al., (2021)	14 Central and Eastern European (CEE)	1998 - 2016	Life insurance has no significant effect on economic growth and non-life insurance positively affects economic growth

Based on the results of the previous researches regarding especially the developing countries, we expect a positive and significant effect of insurance market in economic growth of Western Balkan's countries, but we are uncertain about which of the indicators of insurance market would be more significant to the economic development and which of the insurance segments would have the largest impact on economic growth.

4. Data and Methodology

The purpose of this paper is to investigate the supply leading relationship between insurance industry and economic development - if there is any impact of insurance industry in the economic development of five countries of the Western Balkans (Albania, Bosnia and Herzegovina, Montenegro, North Macedonia and Serbia) for the period 2004-2019. The data are of secondary type. The economic development is measured by GDP per capita, which is retrieved from World Bank Development indicators. The data on insurance market are

retrieved from national supervisory entities and Sigma issues published by Swisse Re. They are converted in USD for purpose of comparison.

In order to measure the effect of insurance market in economic development, we used the linear regression analysis which is a basic and commonly used type of predictive analysis. The regression estimates are used to explain the relationship between one dependent variable and one or more independent variables. The overall idea of regression is to answer to the following questions:

- Does a set of predictor variables can be used to predict an outcome (dependent) variable?
- Which variables in particular are significant predictors of the outcome variable, and in what way do they–indicated by the magnitude and sign of the beta estimates–impact the outcome variable?

As we are going to explore the impact of insurance on economy development, the dependent variable is the economic growth measured by GDP per capita and the independent variables are the insurance development indicators for total, non-life and life insurance segments. The aim of this paper is to measure the impact by two types of insurance indicators: insurance density rates and insurance penetration rates. Therefore, we have designed two linear regressions: the first one measures the impact of insurance on the GDP per capita through the density insurance indicators: total insurance density, life insurance density and non-life insurance density; and the second one measures the impact of insurance on the GDP per capita through the insurance penetration indicators: total insurance penetration, life insurance penetration and non-life insurance penetration.

Table 1. Variables Description

Variable Name	Definition of variables
GDP/cap	Economic growth (in USD per capita)
TIDR	Total insurance density rate – total insurance premium volume per capita (in USD per capita)
LIDR	Life insurance density rate – life insurance premium volume per capita (in USD per capita)
NIDR	Non-life insurance density rate – non-life insurance premium volume per capita (in USD per capita)
TIPR	Total insurance penetration rate – total insurance premium volume to GDP ratio (in percentage)
LIPR	Life insurance penetration rate – life insurance premium volume to GDP ratio (in percentage)
NIPR	Non-life insurance penetration rate – non-life insurance premium volume to GDP ratio (in percentage)

5. Model Results

The dependent variable is GDP per capita for both the models, and TIDR, LIDR and NIDR are the independent variables in the first model, and TIPR, LIPR and NIPR are the independent variables in the second model.

5.1. First Model – Insurance Density Rates as independent variables

The first model explores the impact of insurance market on economic development, where insurance market is measured through insurance density indicators. Table 2 shows the descriptive statistics of the variables considered in the model.

Table 2. Descriptive statistics

	Mean	Std. Deviation	N
GDP/cap	5303.353	1217.679	80
TIPR	86.443	40.561	80
LIPR	12.525	9.585	80
NIPR	73.917	32.151	80

As we observe from the Table 2, the life insurance density and the GDP per capita have respectively the lowest and the highest value of the mean and standard deviation among all the variables. First, we checked whether there is a linear relationship between the independent

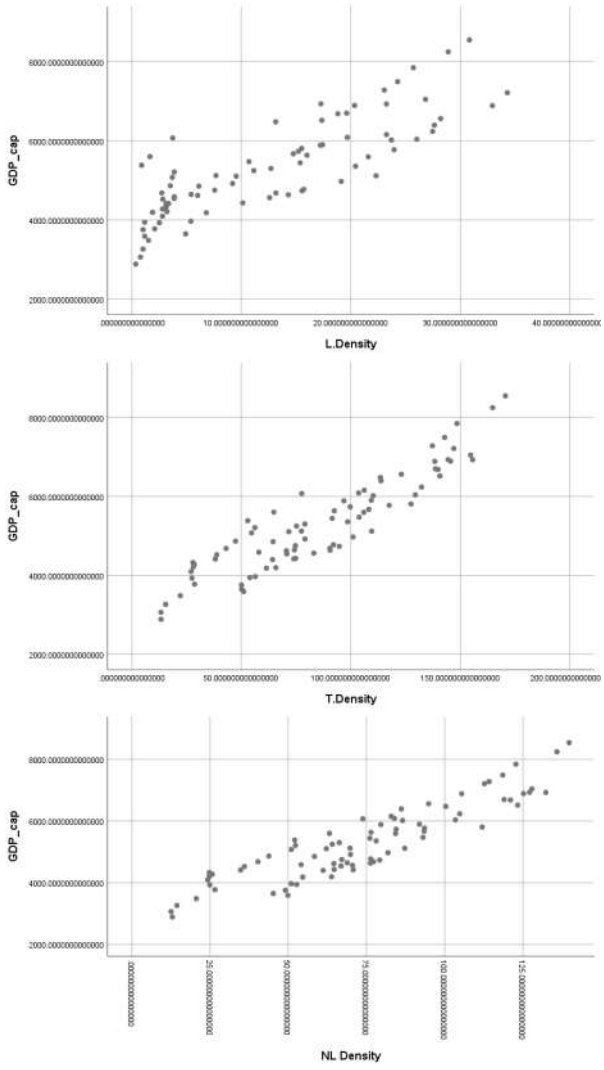
variables and the dependent variable in our multiple linear regression model, by calculating the Pearson Correlation Coefficients, as shown in the Table 3.

Table 3. Correlation coefficients

		GDP/cap	TIDR	LIDR	NIDR
Pearson Correlation	GDP/cap	1.000	.916	.837	.907
	TIDR	.916	1.000	.905	.992
	LIDR	.837	.905	1.000	.843
	NIDR	.907	.992	.843	1.000
Sig. (1-tailed)	GDP/cap	.	.000	.000	.000
	TIDR	.000	.	.000	.000
	LIDR	.000	.000	.	.000
	NIDR	.000	.000	.000	.
N	GDP/cap	80	80	80	80
	TIDR	80	80	80	80
	LIDR	80	80	80	80
	NIDR	80	80	80	80

Based on the Table 3, TIDR, LIDR and NLDR have the Pearson Correlation coefficient approximately +1 with the dependent variable - GDP per capita. As a result, there is a positive relationship between the dependent variable and independent variables. The scatter plots shown in the Figure 3, indicate a good positive linear relationship between all the independent variables with the dependent variable – GDP per capita.

Figure 3. First Model's Scatter Plots



Then we checked for multivariate normality. This can either be done with an 'eyeball' test on the Q-Q-Plots or by using the 1-Sample K-S test to test the null hypothesis that the variable approximates a normal distribution.

Table 4. One-Sample Kolmogorov-Smirnov Test

		GDP/cap	TIDR	LIDR	NIDR
N		80	80	80	80
Normal Parameters[a,b]	Mean	5303.3534	86.4433	12.5255	73.9177
	Std. Deviation	1217.6794	40.5618	9.5853	32.15142
Most Extreme Differences	Absolute	.081	.072	.154	.057
	Positive	.081	.072	.154	.055
	Negative	-.041	-.070	-.102	-.057
Test Statistic		.081	.072	.154	.057
Asymp. Sig. (2-tailed)		.200[c,d]	.200[c,d]	.000[c]	.200[c,d]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

The K-S test, shown in the Table 4, is not significant for all variables, thus we can assume normality. The results of multiple regression analysis are summarized in the Tables 5 and 6.

As the Table 5 indicates, the total insurance density rate is excluded from the linear regression model. It does not mean that this variable is not correlated to the dependent variable GDP per capita, but when this variable is included as an independent variable in the model, it does not have any influence to the dependent variable GDP per capita. Therefore the regression coefficient β in this variable is = 0.

Table 5. One-Sample Kolmogorov-Smirnov Test

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	t	Sig.	Correlations Zero-order	Correlations Partial	Correlations Part
1	(Constant)	2957.245	153.600		19.253	.000			
	LIDR	31.695	10.772	.249	2.942	.004	.837	.318	.134
	NIDR	26.369	3.212	.696	8.211	.000	.907	.683	.374

a. Dependent Variable: GDP/cap

Table 6: Excluded Variables[a]

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	TIDR	.[b]	.	.	.	.000

a. Dependent Variable: GDP/cap
b. Predictors in the Model: (Constant), NIDR, LIDR

Finally, we can write the linear regression as below:

$$GDP = 2957.245 + 31.695*LIDR + 26.369*NIDR$$

The Table 5 contains the p-values and the coefficients of our regression analysis. The coefficients describe the mathematical relationship between each independent variable and the dependent variable. The p-values for the coefficients indicate whether these relationships are statistically significant. If the p-value for a variable is less than the significance level (alpha=0.05), the sample data we have gathered provide enough evidence to reject the null hypothesis for the entire population. If the p-value is greater than the significance level, it indicates that there is insufficient evidence in the sample to conclude that a non-zero correlation exists. Table 5 shows that LIDR variable has a p-value of 0.004 and the NIDR variable has a p-value of 0.000 - both of our independent variables have p-values smaller than 0.05. This means that we can reject the null hypothesis and we conclude that these variables are statistically significant and probably a worthwhile addition to our regression model.

5.1.1. Results Interpretation

The sign of a regression coefficient indicates whether there is a positive or negative correlation between each independent variable and the dependent variable. So, we conclude:

Holding NIDR constant, we observe that there is a positive correlation between the LIDR and the GDP. So, when the life Insurance density increases by one unit, the mean of GDP per capita tends to increase with β = 31.695 units.

Holding LIDR constant, we observe that there is a positive correlation between the NIDR and the GDP. So, when the non-life insurance density increases by 1 unit, the mean of GDP tends to increase with $\beta = 26.369$ units.

As we explained above, the independent variable TDIR is excluded from the model, as such we do not have any regression coefficient nor p-value for this variable.

Conclusion: The life insurance density rate has the highest influence in GDP per capita in Western Balkan Countries, in comparison to non-life insurance density rate, because it has a highest value of the regression coefficient.

At the end, we looked at the determination coefficient which also explains how well the regression model fits the observed data.

Table 7: Model summary statistics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.916[a]	.840	.836	493.5020	.840	201.983	2	77	.000

Predictors: (Constant), NIDR, LIDR[a]
Dependent Variable: GDP per capita[b]

Table 7 shows a determination coefficient $R^2 = 0.84$ and an adjusted $R^2 = 0.836$. This means that approximately 84% of the data fit the regression model. It is considered to be a high coefficient which indicates that our multiple linear regression model fits very good the observed data.

5.2. Second Model – Insurance Density Rates as independent variables

The second model explores the impact of insurance market on economic development, where insurance market is measured through insurance penetration indicators. Table 8 shows the descriptive statistics of the variables considered in the model.

Table 8. Descriptive statistics

	Mean	Std. Deviation	N
GDP/cap	5303.353	1217.679	80
TIPR	1.5946%	0.47484%	80
LIPR	0.2151%	0.13833%	80
NIPR	1.3795%	0.38298%	80

We have followed the same steps as in the first model. Thus, we are briefly presenting the results. The descriptive statistics indicate that the LPR variable has the lowest values of mean and standard deviation from all the variables, while the GDP per capita has the highest values of the mean and standard deviation. We check whether there is a linear relationship between the independent variables and the dependent variable in our multiple linear regression model, by calculating the Pearson Correlation Coefficients.

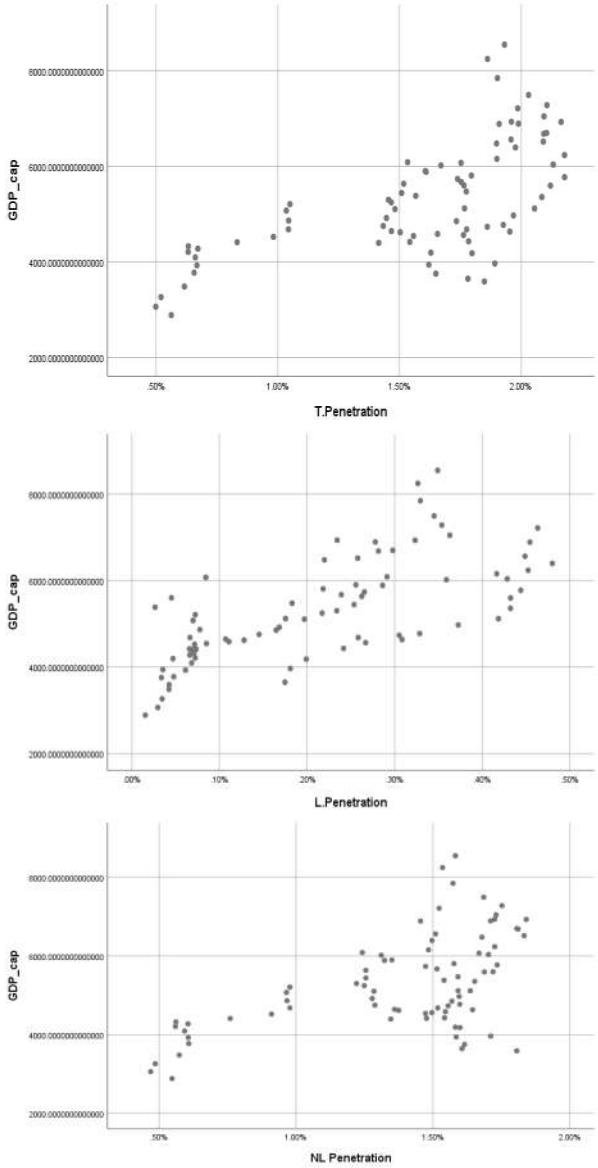
Table 9. Correlation coefficients

		GDP/cap	TIPR	LIPR	NIPR
Pearson Correlation	GDP/cap	1.000	.646	.697	.549
	TIPR	.646	1.000	.745	.971
	LIPR	.697	.745	1.000	.563
	NIPR	.549	.971	.563	1.000
Sig. (1-tailed)	GDP/cap	.	.000	.000	.000
	TIPR	.000	.	.000	.000
	LIPR	.000	.000	.	.000
	NIPR	.000	.000	.000	.
N	GDP/cap	80	80	80	80
	TIPR	80	80	80	80
	LIPR	80	80	80	80
	NIPR	80	80	80	80

From the Table 9, we observe that TIPR, LIPR and NIPR have the Pearson Correlation coefficient approximately +1 with the GDP per capita variable, which serves as the dependent variable in the multiple linear regression model. All the variables have a positive relationship

with the GDP per capita. But in comparison to the density insurance rates, these coefficients are lower, meaning that the penetration insurance variables have a smaller impact to the GDP, comparing to the density insurance variables. The scatter plots in Figure 4 indicate a good, but not as strong as in the first model, positive linear relationship between all the independent variables with the dependent variable GDP per capita.

Figure 4. Second Model's Scatter Plot



Secondly, we checked for multivariate normality. The result is the same as in the first model - since that the K-S test, shown in the Table 10, is not significant for all variables, thus we can assume normality.

Table 10. Correlation coefficients

N		80	80	80	80
Normal Parameters[a,b]	Mean	5303.353	1.5946%	0.2151%	1.3795%
	Std. Deviation	1217.679	0.47484%	0.13833%	0.38298%
Most Extreme Differences	Absolute	.081	.155	.151	.208
	Positive	.081	.110	.151	.114
	Negative	-.041	-.155	-.074	-.208
Test Statistic		.081	.155	.151	.208
Asymp. Sig. (2-tailed)		.200[c,d]	.000[c]	.000[c]	.000[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.
d. This is a lower bound of the true significance.

Also in the second model, as illustrated by the Table 11 and Table 12, TIPR is excluded from the linear regression model. It does not mean that this variable is not correlated to the dependent variable GDP per capita, because we tested that a positive relationship exists between these two variables, but when this variable is included as an independent variable in the model, it does not have any influence to the dependent variable GDP per capita. Thus, the regression coefficient β in this variable is = 0.

Table 11: Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients			Correlations		
		B	Std. Error	Beta	t	Sig.	Zero-order	Partial	Part
1	(Constant)	3222.223	362.870		8.880	.000			
	LIPR	4996.325	839.691	.568	5.950	.000	.697	.561	.469
	NIPR	729.624	303.290	.229	2.406	.019	.549	.264	.190

a. Dependent Variable: GDP/cap

Table 12. Excluded variables

Model		Beta In	t	Sig.	Partial Correlation	Collinearity Statistics Tolerance
1	TIPR	.[b]	.	.	.	.000

a. Dependent Variable: GDP/cap

b. Predictors in the Model: (Constant), LIPR, NIPR

Therefore, the linear regression is written as follows:

$$GDP = 3222.223 + 4996.325*LIPR + 729.624*NIPR$$

The p-values of the coefficients in the Table 11, indicate whether these relationships are statistically significant. We observe that the LIPR has a p-value of 0.000, and the NIPR variable has a p-value of 0.019. As both our independent variables have p-values smaller than 0.05, we can reject the null hypothesis and conclude that these variables are statistically significant and probably a worthwhile addition to our regression model.

5.2.1. Results Interpretation

Holding NIPR constant, we found a positive correlation between the LIPR and the GDP per capita. So, when the life insurance penetration increases by 1 unit, the mean of GDP per capita tends to increase by β = 4996.325 units.

Holding LIPR constant, there is a positive correlation between the NIPR and the GDP per capita. So, when the non-life insurance penetration increases by 1 unit, the mean of GDP per capita tends to increase by β = 729.624 units.

As we explained above, the independent variable TIPR is excluded from the model, as such we do not have any regression coefficient nor p-value for this variable.

Conclusion: The life insurance penetration rate has the highest influence in GDP per capita in Western Balkan Countries, in comparison to non-life insurance penetration rate, because it has a highest value of the regression coefficient.

At the end, we looked at the determination coefficient which also explains how well the regression model fits the observed data.

Table 13. Model summary statistics

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.722[a]	.522	.509	853.1826	.522	41.960	2	77	.000

a. Predictors: (Constant), LIPR, NIPR

b. Dependent Variable: GDP/cap

The Table 13 shows, the value the determination coefficient R2 = 0.522 and an adjusted R2 = 0.509. This means that approximately 50% of the data fit the regression model, which is not considered to be a high coefficient. Therefore, the multiple linear regression model in this case, fits not as good as the previous model, the observed data.

6. Conclusions

Financial institutions play a crucial role in the economic development of a country by mobilizing the savings of population and allocating the resources toward the deficit units. Their role is more evident especially in bank-based financial systems where the funds between the various players in the financial system flow mostly through financial intermediaries. For this reason, this paper is focused on the significance that one of the financial sectors – the insurance market – has on the economic development of some developing countries such as Western Balkan countries.

The banking sector in Western Balkan's countries has the highest share in the financial system assets and contribute the most to its absolute economic growth. The insurance sector is mainly ranked the second or the third, with a huge deference with bank sector in terms of total assets share. The insurance sector is oriented toward the non-life insurance market and motor third party liability constitutes the most part of the insurance policies.

Our regression analysis for the period from 2004 to 2019 concluded that regardless the insurance market in this region is still underdeveloped, it has a positive influence on GDP per capita, when it is measured by insurance density and penetration indicators for life and non-life insurance sectors. These results are partially consistent with previous research (Kalaja et.al., 2017).

When the insurance market is measured by density rates, the impact on GDP per capita is greater then when insurance market is measured by penetration rates. Meanwhile, when the insurance market is measured by total indicators (total insurance density and total insurance penetration), it resulted to be insignificant to GDP per capita.

Finally, as a surprise, the analysis showed that life insurance segment has the largest impact on economic growth, despite the fact that insurance market in Western Balkan's countries is oriented toward non-life insurance market.

The findings of the paper will be useful to insurance operators and authorities in order to stimulate the demand for insurance products, especially for the life insurance ones, which resulted to contribute more on economic growth comparing with non-life insurance products. Taking into consideration that life insurance is still very underdeveloped in respect to the indicators of developed countries, this sector offers a great potential for growth in Western Balkan's countries.

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