

THE EFFECT OF INSURANCE PREMIUM ON ECONOMIC GROWTH IN EUROPEAN UNION COUNTRIES: PANEL DATA ANALYSIS

AVRUPA BİRLİĐİ ÜLKELERİNDE SİGORTA PRİMLERİNİN EKONOMİK BÜYÜMEYE ETKİSİ: PANEL VERİ ANALİZİ

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Abstract

Funds collected as insurance premiums are very important for the development and deepening of the national economies. These premiums paid to insurance companies provide funds for capital markets by creating savings sources. The objective of this study is to investigate how and in what direction the insurance premium volume affects the economic growth of these 25 countries. For this purpose, Johansen Cointegration, Kao cointegration, panel FMOLS, Dumitrescu and Hurlin (2012) Panel Granger Causality methods were used. Cointegration tests show that economic growth and insurance premium volume variables have long-term cointegration relationships. As stated in Panel FMOLS test results, a 1% of increase in insurance premium volumes leads to a rise of 0.113% in economic growth. In accordance with Dumitrescu and Hurlin (2012) panel Granger causality analysis, there is unidirectional causality from insurance volumes towards economic growth.

Keywords: Insurance Premium Volume, Economic Growth, Panel Data Analysis, EU Countries.

Öz

Ülke ekonomilerinin geliřmesi ve finansal açıdan derinleřmesi için sigorta primi olarak toplanan fonlar oldukça önemlidir. Sigorta řirketlerine ödenen bu primler tasarruf kaynađı yaratarak sermaye piyasalarına fon temin ederler. Bu alıřmanın amacı, 25 Avrupa Birliđi ülkesinde sigorta prim hacminin bu ülkelerin ekonomik büyümesini nasıl ve ne yönde etkilediđini arařtırmaktır. Bu amaçla alıřmada Johansen Eřbütünleřme, Kao eřbütünleřme, panel FMOLS, Dumitrescu ve Hurlin (2012) Panel Granger Nedensellik yöntemleri kullanılmıřtır. Eřbütünleřme testleri ekonomik büyüme ve sigorta prim hacmi deđiřkenlerinin uzun dönemde eřbütünleřme iliřkisini barındırdıđını iřaret etmektedir. Panel FMOLS testinin sađladıđı sonuçlara göre ise sigorta prim hacimlerindeki %1 düzeyinde bir artıř, ekonomik büyümede %0.113'lük bir artıřa yol açmaktadır. Dumitrescu ve Hurlin (2012) panel Granger nedensellik analizi sonuçlarına göre ise, sigorta hacimlerinden ekonomik büyümeye dođru tek yönlü nedensellik olduđu tespit edilmiřtir.

Anahtar Kelimeler: Sigorta Prim Hacmi, Ekonomik Büyüme, Panel Veri Analizi, AB Ülkeleri.

1. INTRODUCTION

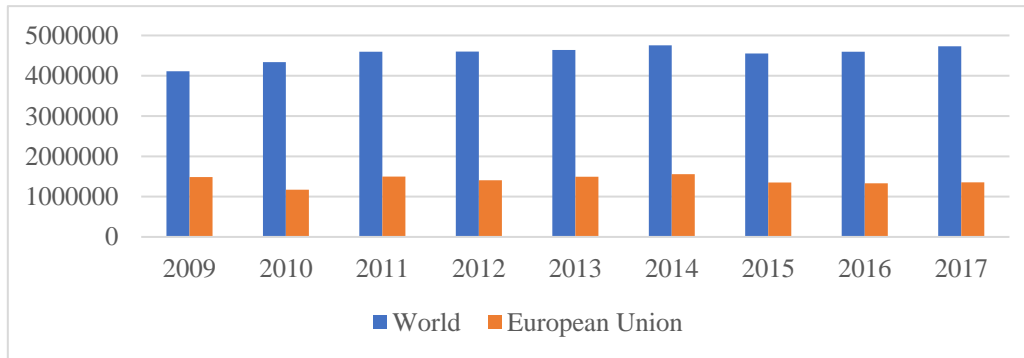
Insurance, as a word, means security which originates from a Latin word ‘sicurta’ meaning assurance. It is a result of the fact that people feel the necessity of security against risks. The case that a community live under the same type of risk threat gather together and withstand the possible damages is defined as insurance. The purpose of insurance is not to prevent the damages possible to occur but to distribute this damage to the members of the group and make the burden of the damage possible to be carried (Güvel and Güvel, 2002: 23).

Insurance is important in order to form a sense of security in individuals and enable solidarity for the sake of the same purpose, to widen the credit facilities, to create resources for investments, to ensure production for the economy of the country, to contribute to international developments, and it is also important for risk management and analysis.

Insurance premium is the fee that an insuree pays. It is an amount of money which is paid to the insurer by the insuree in a lump sum or in installments, and which constitutes the principles of the amounts to be paid by the insurer in the case of the insured risk occurs. The major point for an insurer is to have the insurance premium paid in time. Insurance premium is paid by money. The calculation of the premium is not a legal issue but a technical issue. Premium is a calculation of probabilities. The collection of the premiums is vital for the insurance companies which are profit-oriented enterprises (Özbolet, 2009:93).

Being a significant saving resource, preventing the socio-economic collapse and losses of individuals and institutions, enhancing international economic relationships and trades and being a source of tax are among the economic functions of insurance companies which have significant roles in country and world economy (Kayalı, 2007:103).

Graph 1: Total Insurance Premium Volume in the World and European Union Countries



Source: Turkey Insurance Association, 2018.

Total insurance premium volumes in the world and European Union countries are displayed on the Graph 1 above. When the graph is examined, it is seen that the insurance premium volumes in the EU countries have a more inconsistent structure than the world averages. When the progress of insurance premium volumes in the world is investigated, it is seen that it displays a constant increase from 2009 to 2017, whereas it has a tendency of increase/decrease in the EU countries. Through another perspective, it is quite surprising for the total insurance premium volumes of the EU countries to meet the one fourth of the insurance premium volumes of the world.

In the literature review which was carried out on the subject, evidently there are a narrow number of studies which investigate the effect of insurance premium volume on the countries’ economic growth. It was detected in literature that researchers have turned their steps towards the studies made on insurance sector and economic growth.

In this study, the direction and size of the relationship between insurance premium volume and economic growth in the EU countries between the years 2009-2017 were aimed to be determined in terms of econometrics by utilizing panel data analysis. Although the number of the EU member countries used in the analysis was 28, the data of the three of those countries could not be obtained.

Therefore, 25 EU countries were added in the analysis. 25 EU countries on which were the analysis based consisted of Germany, Austria, Bulgaria, Belgium, Netherlands, Malta, Czech Republic, Slovakia, England, Finland, Sweden, Greece, Ireland, Cyprus, Luxembourg, Poland, Croatia, Portugal, Denmark, Romania, Slovenia, Hungary, Spain, Italy, and France.

2. LITERATURE REVIEW

When the studies which were carried out in the last three years on insurance premiums and their effects on the economy were investigated in literature, the relationship between the volume of insurance premiums, globalization, and the growth in the economy were studied between the years 1984-2019 for 38 countries by Lee, Lee and Chiou (2017). It was found that globalization had positive effects on the growth of the economy in general. It was also found that globalization had a positive effect on low insurance activities while it negatively affected the insurance activities in higher levels.

Hou and Cheng (2017), between the years 1981- 2008 for 31 countries, studied the dynamic effects of the business of banking, stock markets and life insurances on economic growth via GMM method. It was seen that the time interval of the effects resulting from financial activities on growth varied depending on income range and financial growth. As a result, it was found out that the countries of different development levels were supposed to carry out particular financial operations in order to ensure a sustainable growth.

Akpan and Joseph (2017) compared the relationship between the investment portfolios of insurance companies and commercial banks located in Nigeria, and economic growth. The study covered the years between 1996 -2011. They applied multiple linear regression analysis and through that analysis, it was clear that it was necessary for the insurance companies in Nigeria to enhance securities, mortgage and real estate, policy, the investments on other loans and they were supposed to raise deposits in order to provide more practicable contributions to Nigeria's economic growth. In addition, commercial banks in Nigeria should direct their investment efforts to borrowing to make a more realistic contribution to other subsidiaries and economic growth in Nigeria.

Pradhan, Arvin, Bahmani, Bennett and Hall (2017) studied the relationship between insurance and growth observed in 18 mid-income countries between 1980 and 2012 via Granger causality test. They reached the result indicating a long-term relationship between insurance market activities, economic growth, state consumption expenditures and financial depth.

Mohy ul din, Regupathia and Abu-Bakar (2017) studied the effect of insurance sector on the economic growth in the USA, China, England, Malaysia, Pakistan and India via PMG/ARDL method. The study showed that there was a positive and significant relationship in long term between life insurance, non-life insurance, openness, the development of the stock market and economic boost.

Mohy ul din, Abu-Bakar and Regupathi (2017) studied the relationship between the business of insurance and economic growth observed in 20 countries for the period of 2006-2015. They measured insurance activities through three parameters as net written premiums, penetration and density. They found a positive relationship between insurance operations and economic growth.

Pant and Bahadur KC (2017), between the years 2004- 2015, studied the contribution of insurance business to the economic growth of Nepal by utilizing the variables of life insurance premium, non-life insurance premium, employment and investment. They reached out a result showing that insurance business had a positive effect on Nepal's economic growth.

Kaushal and Ghosh (2018) studied the connection between banking and insurance business, and economic growth in India via Granger causality test. They reached out a result showing that there was a bidirectional causality.

Zhao and Cheng (2018) studied the connection between the growth in insurance business and economic development in China between the years 2006- 2015. They applied principal components regression analysis.

Bakar, Balkan and Güler (2018), in their study *The Evaluation of Life Insurance in Middle Income Countries*, used life insurance premium production amounts in order to display the

development of life insurance both in the Republic of South Africa and in Turkey through 3-month series between the years 2006-2016; and utilized Gross Domestic Product in order to define economic growth. It was detected that the premiums paid to life insurances had no effect on economic growth while economic growth affected life insurances. It is obvious that economic growth and life insurances affected each other in South Africa.

Hatemi-J, Lee, Lee and Gupta (2018) investigated the interrelation between insurance operations and economic performance of G7 countries between the years 1980- 2014 by means of asymmetric panel causality test. The results of the study showed that market activities of insurance and economic performance displayed bidirectional causality; however, their tendencies, density and importance were different due to varied market states.

Adetunji, Nwude, Udeh (2018) evaluated the interrelation between economic growth and insurance in Nigeria between 1996-2015 via OLS method. It was found out that insurance business made a positive and significant effect on the economic growth of Nigeria.

Iyodo, Samuel and Inyada (2018) studied the effect of insurance industry performance on economic growth in Nigeria between the years 1988-2014 via regression analysis. The findings of the study revealed that non-life insurance penetration had an affirmative and significant contribution to the Nigeria's economic growth.

Oitsile, Galebotswe and Sekwati (2018) investigated the contribution of insurance penetration to the economic growth in Botswana between 1994-2013. The results of their study indicated that there was a long-term negative interrelation between economic growth and insurance penetration. This fact shows that the last rapid expansion in insurance sector may harm the long-term growth of economy.

Onyebuchi, Nwankwo, Onuka (2018) carried out a study on the influence of the development of insurance sector on economic sustainability and economic growth in Nigeria. They determined whether insurance income had an influence on the economic growth in Nigeria by reviewing the influence of insurance premium on Nigeria's economic growth and detecting the effects of gross insurance demand on the economic growth in Nigeria.

Costache (2018) aimed to define, analyze and evaluate the effects of insurance business on economic growth for three countries by means of the data collected for the period of 1984-2016. A positive relationship between insurance business and the economies of the countries was detected.

Fadun and Shoyemi (2018) reviewed the relationship between the funds of insurance investment and economic growth in Nigeria between the years from 2000 to 2015 via OLS method. Findings showed that there was a strong positive connection between the economic growth of Nigeria and total insurance investment, there was a positive relationship between insurance investment in total and GDP in Nigeria, as well.

Wang and Lee (2018) studied the asymmetrical effects of life insurance on the expenditures on health and economic growth by means of the method of dynamic panel. The results gathered from the study indicated that the asymmetric data of life insurance growth affected the causal connection between the increase in health expenditures and economic growth. It was found out that a low growth in life insurance may promote the expenditures on health and economic growth, therefore, this fact may create a positive feedback effect.

Shahbaz, Olasehinde-Williams and Balcılar (2018) studied the long-term influence of geopolitical risks on insurance premiums. They found out that the effect of geopolitical risks on non-life insurance premium was higher than its effect on life insurance premium. It was detected in their study that real income had a positive influence on premiums of insurance and its effect on the premium of non-life insurance was bigger than the one on the premiums of life insurance.

Gupta, Lahiani, Lee and Lee (2018) investigated the transfer of real outcome and the uncertainty of the policy of the economy to the insurance premiums of the USA economy in an asymmetrical and nonlinear manner between the years 1980-2014. About the uncertainty of the economic policy, the results displayed that premiums in total and the premiums of non-life insurance

increased due to the uncertainty, while the premiums of life insurance decreased. According to these results, it is clear that economic analysis related to insurance business had significant effects on investment decisions, predictions and forming policy.

Sawadogo, Guerineau and Ouedraogo (2018) studied the relationship between the development of life insurance business and economic boost for the sample of 86 developing countries in the period of the years 1996-2011. The influence of life insurance on growth was lower for the countries of SSA and England.

Cavalcante, Sobreiro and Kimura (2018) aimed to analyze the relationship between economic growth and the premium of non-life insurance in Brazil. They reached out a result indicating that there was a positive connection between the growth in economy and insurance premium.

Dash, Pradhan, Maradana, Gaurav, Zaki and Jayakumar (2018) studied the penetration of the insurance market and the economic growth per capita in 19 Eurozone countries between 1980-2014. They applied the test of Granger causality. In the result of the test, they found unidirectional and bidirectional relationship.

Skalska (2018) analyzed the interrelation between the growth of insurance business and economic growth in Czech Republic between the years 2000-2017 through financial time series method. It was found out that there was a positive connection between the development of insurance business and economic growth.

Hussein and Alam (2019) examined the role which the insurance sector takes in the development of Oman economy between the years 2008-2017. They came out with the result that there was a positive connection between the business of insurance and economic development in Oman for that period of time.

Chilokwu, Sotonye, Egor and Akubuike (2019) analyzed the influence of fishery agricultural loans and insurance premiums on the economic development of fishery production sub-sector in Nigeria by means of descriptive statistics, graphics, least squares method, t-test and cointegration test. It was found out that loans and insurance premiums were significant for economic growth.

Chidimma, Nwannebuikwe and Okonkwo (2019), studied the effect of insurance companies and banking business, which are the basics of financial deepening and financial industry, on the economic development of Nigeria between the years 1981-2016 via least squares method. It was found out that insurance sector premiums had no considerable influence on the GDP in Nigeria; however, the loans provided to private banks had significant effects on the economic growth in Nigeria.

Safitri (2019) investigated the significance of life and non-life insurances on the economic development of the Association of Southeast Asian Nations between the years 2000-2005 with fixed effect model. It was found out in the study that the premiums of life and non-life insurance had affirmative and significant effects on economic growth.

Grace and Sjoquist (2019) examined the current tendencies of European and Latvian insurance markets by taking insurance premiums into account. It was found out that the insurance field in Europe and Latvia combined and the insurance products displayed the tendency of developing.

3. ANALYSIS

In the study in which the effects of insurance premium volumes of 25 EU countries on the economic development of these countries were examined, the annual data of the years 2009-2017 were utilized. In the study, GDP variable, which was used in order to represent the economic growth, was handled as dependent variable while SG variable which represents insurance premium volumes was utilized as independent variable. GDP variable used in the study was obtained from World Bank and SG was obtained from Insurance Association of Turkey. All variables were included in the analysis by taking their logarithm. The explanations on the data used are displayed on Table 1.

Table 1: General Information About Data

Variables	Definition	Period	Source
LNGDP	GDP per person (US \$ 2010 constant)	2009-2017	World Bank
LNSG	Total Premium volume (in millions of USD)	2009-2017	Turkey Insurance Association

The econometric model to be estimated in the study is as follows:

$$LNGDP_{it} = \alpha_0 + \alpha_1 LNSG_{t_{it}} + u_{it} \quad (1)$$

4. FINDINGS

4.1. Unit Root Test Results

If the existence of unit root in variables is detected, spurious regression problem comes out also in data analysis. Therefore, it is quite important to examine whether the series which form the model in the process of prediction carry unit root, in terms of the reliability of the predictions.

Table 2 displays the panel unit root test results of each series forming model (1) which include constant term. The values in parentheses indicate the probability value of the related test statistics.

Table 2: Im, Peseran, Shin Unit Root Tests

Variables	Level		First order difference	
	Constant	Constant + Trend	Constant	Constant + Trend
LNGDP	3.999 (1.000)	0.1306 (0.552)	-1.7625** (0.039)	-7.9690*** (0.000)
LNSG	-0.2724 (0.392)	-0.5600 (0.2877)	-4.5054*** (0.000)	-0624** (0.026)

Note: *, **, *** shows rejection of the null hypothesis of no-cointegration at 1%, 5% and %10 significance levels

According to the empiric findings obtained from Table 2, it is seen that both variables are constant series in first differences.

4.2. The Results of Panel Cointegration Test

The existence of long-term relation between variables had been determined with cointegration analyzes. As a result of panel unit root tests, cointegration analysis that based on assumption of that all series are integrated from first degree has been applied to analyze the relation between series by using Johansen Fisher Panel Cointegration test.

Table 3: Lag Length Criteria Test Results

Lag Length	LogL	LR	FPE	AIC	SC	HQ
0	-389.6722	NA	1.805798	6.266756	6.312009	6.285140
1	380.5163	1503.408	8.56e-06	-5.992261	-5.856502	-5.937109
2	414.4766	65.20387	5.30e-06	-6.471626	-6.245361	-6.379707
3	428.1795	25.87109	4.54e-06	-6.626873	-6.310102	-6.498185
4	437.9381	18.11189*	4.14e-06*	-6.719010*	-6.311732*	-6.553554*

Johansen cointegration test is sensitive to lag length. So, lag length of models had been defined with “lag length criteria”. While making this finding, it is important that criterion defines the minimum value. Therefore, it had been decided that lag length is 4. The reason for choosing this length is that criteria which defines the minimum value among all information criteria (Akaike AIC, Schwarz SC and Hannan-Quinn HQ) is Akaike information criteria as seen from Table 3.

After unit root trial was carried out in panel series which were used in the study, Kao cointegration test and Johansen Fisher Cointegration test were applied.

Table 4: Panel Cointegration Test Results

Kao Cointegration Test Result				
	t- statistics		Possibility	
ADF	-3.2938		0.000***	
Residual Variance	0.0011			
HAC Variance	0.0024			
Johansen Fisher Panel Cointegration Test				
Null Hypothesis	Fisher Statistics Created from Trace Test	Possibility	Fisher's Statistics Created from Maximum Eigenvalue Test	Possibility
None	361.4	0.000***	331.0	0.000***
At most 1	130.1	0.000***	130.1	0.000***

Note: *, **, *** shows rejection of the null hypothesis of no-cointegration at 1%, 5% and 10% significance levels

According to Kao and Johansen Panel Cointegration test that searches the long-term connection between insurance premium volumes and economic growth, H_1 hypothesis (there is cointegration between series) had been accepted while H_0 hypothesis (there is not cointegration between series) is rejected.

Table 5: Results of Predicted Model (Method: Panel OLS)

Variables	FMOLS	
	Long-term coefficient	Probability value
LNSG	0.1133 (0.0555)	0.0430***

Note: *, **, *** indicates rejection of the null hypothesis of no-cointegration at 1%, 5% and 10% levels of significance

After cointegration relation was found between variables, FMOLS (Full Modified Ordinary Least Square) method had been used to estimate unbiased coefficients of this relationship.

When Panel FMOLS test results are evaluated on Panel base, the sign of insurance premium levels is positive and statistically significant at the level of 5%, as expected. Therefore, 1% increase in insurance premium levels in long term results in with an increase of 0.113% growth in economy on Panel base.

4.3. Panel Causality Test Results

Causality relation between economic growth and insurance premium volume had been examined by the help of Dumitrescu-Hurlin panel causality test.

Table 6: Dumitrescu and Hurlin (2012) Panel Causality Test Results

Null Hypothesis	W-Statistic	Z-bar Statistic	Probability	Decision
LNSG is not the cause of LNGDP.	3.977	2.4522	0.0142**	LNSG \Rightarrow LNGDP
LNGDP is not the cause of LNSG.	2.044	0.4041	0.6861	LNGDP \nRightarrow LNSG

Note: ** indicates 5% significance level, respectively

According to the results obtained from Table 6, there is one-way causality from insurance premium volumes to economic development.

5. CONCLUSION

Insurance business is important because it creates funding sources created by finance markets of countries. The funds collected in the insurance companies for the purpose of protecting individuals and institutions against future risks both provide assurance for the compensation of the losses of individuals and institutions and constitute the base of the economy by transferring these funds into financial systems. Insurance sector in developed countries has a great role in their financial systems. The premiums collected in the insurance sector in economically strong countries meet a significant share of the fund needs of economy. Since the premiums collected from all insurance types constitute long term funds, these funds will contribute to investments.

The objective of this study is to investigate how and in which direction insurance premium volumes effect the economic growth of 25 European Union countries. For this purpose, the methods of Johenson Cointegration, Kao cointegration, panel FMOLS, Dumitrescu and Hurlin (2012) Panel Granger Causality were utilized. Cointegration tests display that there is cointegrated interrelation between economic boost and insurance premium volume variables. According to Panel FMOLS test result, 1% increase in insurance premium volumes leads to an increase of 0.113 in economic growth. Furthermore, according to the results of Dumitrescu and Hurlin (2012) panel Granger Causality analysis, it was determined that there is a unidirectional causality from insurance premium volumes towards economic growth.

The most important point that distinguishes this study from other studies is that this study reviewed the relationship between the volumes of insurance premium and economic growth while the other studies handled the relation between insurance business and economic growth. It was detected in the study that the increase in insurance premium volume enhanced economic growth. At this point, the primary thing that developing countries are supposed to do is to enhance the insurance awareness. The community is supposed to be accustomed to insurance concept through compulsory insurances. The state is supposed to provide support on this issue in order to make insurance sector active in financial markets. The price policies applied about premiums in the sector should be reviewed.

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