

## **ORIGINAL ARTICLE**

# **AN EMPIRICAL INVESTIGATION OF THE RELATIONSHIP BETWEEN THE INSURANCE INDUSTRY AND THE ECONOMIC GROWTH IN TURKEY**

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### **Abstract**

Insurance provides risk management by providing compensation for potential losses of people. The insurance sector, which is an important part of the financial sector, can have a positive impact on economic growth. This effect is mainly due to the reliability and stability of the insurance, the private savings, and the resource-increasing feature of the financial sector. In recent years, it has been given importance to investigate the relationship between insurance and economic growth. In Turkey, which has a significant potential in terms of economic growth, there is a limited study on the relationship between insurance and growth, since the insurance activities have just started to widen. Accordingly, the aim of this study is to fill in this gap and explore this relation between the insurance sector and economic growth for Turkey. For this purpose, by applying annual data between 1983-2020, the relationship between insurance premiums, penetration rate and economic growth in Turkey is analyzed by Pesaran et al. (2001) ARDL method. The Bound test results show that there is a long-term relationship among the variables. According to the ARDL result, while a significant relationship was measured between the total insurance premium and economic growth in the long run, no significant relationship was found between the penetration rate and economic growth.

### **Keywords**

Insurance sector, Economic growth, Turkish economy.

### **JEL Classification**

G22, G52, O40.

### **Authors Notes:**

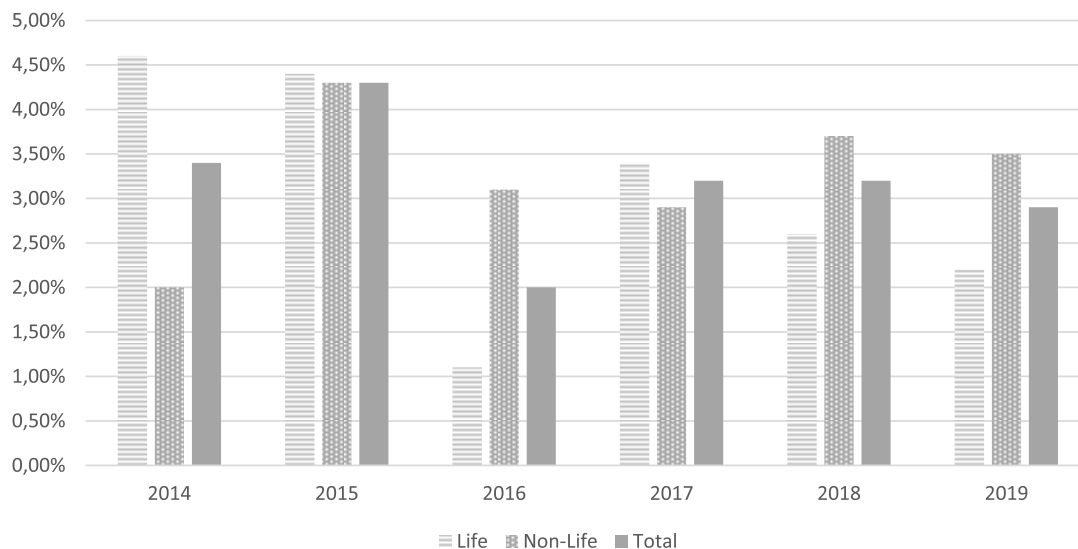
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## 1. INTRODUCTION

Insurance activities create a sphere of effect in various ways in maintaining and sustaining economic development. The primary field of effect emerges with the reduction of economic losses in risky assets. Insurance services provide economic stability by compensating the losses which may be caused by the events which bear a risk factor. Therefore, insurance systems play an essential role in providing protection for the country's wealth (Hussein and Alam, 2019:356). Efficient utilization of the sources is of great significance in terms of economic sustainability. The second is, the insurance sector has the potential of transferring accumulated sources from various sectors and contributing to economic growth (Musurmanovich, 2020:512). Prevalence of insurance activities has a positive effect on economic growth by increasing the amount of savings. The increase in savings creates a source providing potential for investments. The third positive effect is that the increase in economic efficiency results in a significant increase in employment. When these effects are taken into consideration, it becomes obvious that the insurance sector is one of the supplementary elements of the real economy. For this reason, insurance activities are becoming more widespread. The share of the insurance sector varies according to economic conditions (Figure1). More premium production is made during expansion periods when economic conditions are good. On the other hand, negative economic development creates a disadvantage for the insurance sector.

**Figure 1**

*Direct premium production real increase (World, %)*



**Source:** KPMG, 2021:4.

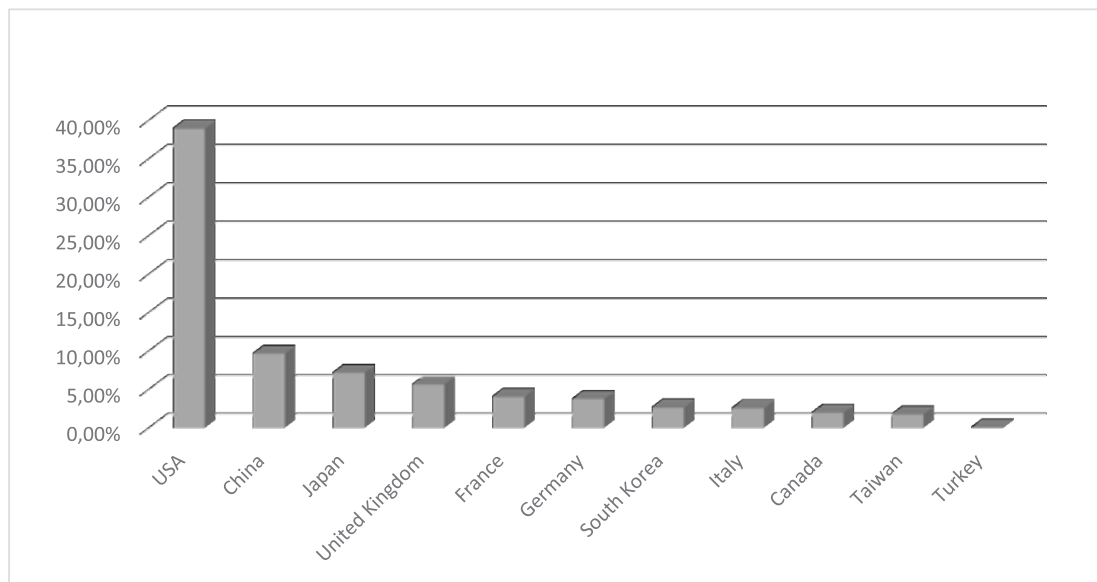
As of the end of 2019, the total premium production is 6.3 trillion USD. Global premium production grew by 2.9% in real terms in 2019 (KPMG, 2021:4). Trade tensions between the USA and China, the weak performance of the Eurozone and uncertainties regarding Brexit have led to the relatively slow growth of the global economy. In addition, due to macroeconomic imbalances in developing countries, decreased investments due to tight credit policies in China, monetary normalization in developed countries and declining global demand, world growth in 2019 was at the weakest level observed after the 2008 global financial crisis (TSB, 2020a:10). The negative impact of the sectors from the Covid-19 epidemic caused a serious contraction in policy production. The technological breakthrough process of the sector has turned into a necessity with the effect of the epidemic. While struggling with

the negativities that occur, companies have made an effort to keep up with the increasing competition and changing customer preferences (KPMG, 2021:4). The technology-oriented development of the insurance sector will become widespread in the coming years.

International insurance markets have a high degree of heterogeneity because of the diversity of damage making events and the activities that may affect them. Every single insurance market is characterized by the dominance of certain insurance categories such as presence of different insurance and reinsurance intermediaries, norms and special rules, different coverage, and exclusions. In developed countries, the insurance sector is pretty much developed, too. In terms of accumulating total insurance premium, the USA and European countries take the lead (Cristea et. al., 2014:228). On the other hand, the ratio of the accumulated insurance premium in developing countries is rather low (Outreville, 1990:487). When the development of the insurance sector in Turkey is taken into consideration, excluding the obligatory insurance applications, it can be seen that the amount of premium is at a real low level. The slow development of the insurance sector can stem from the lack of insurance awareness, insufficient savings, and cultural factors (Yenisu, 2019:207). This difference is clearly seen in figure 2.

**Figure 2**

*Direct Premium Market Shares, 2019*



**Source:** KPMG, 2021:6.

The United States ranks first among countries in terms of market share. The total market share of the top ten countries in the world is around 80%. Although rising unemployment and falling household incomes in 2020 due to Covid-19 will significantly reduce premiums produced in the life insurance branch, this outlook is not expected to change in the short term. On the basis of countries, Turkey ranks 39th with a market share of 0.2%. The key to the strong long-term potential in the insurance industry; is due to the increase in disposable income levels in developing economies (KPMG, 2021:6). When the potential in economic growth is considered, the significance of insurance activities stands out even further (Kugler and Ofoghi, 2005:1). There is a common consensus that it constitutes an important factor for growth in both management of risk factors and the accumulation of savings. In this study, the relationship between insurance and economic growth in Turkey is evaluated. In the first part, the relationship between insurance and economic growth is studied. In the second and third parts, literature studies and econometric analysis are included.

## 2. THE INSURANCE AND GROWTH CHANNEL

Social and economic life involves risks. Human beings tend to take precautions to avoid losses. However, taking extreme measures to avoid risk will cause significant economic loss too. Especially, the absence of risk transferring institutions such as insurance companies, stock market and banks, will reduce the volume of economic activity. The orthodox perspective of insurance sees insurance activities as an important medium for risk transfer, compensation, and brokerage (Din et. al., 2017:2). In general terms, insurance types are classified as life insurance, non-life insurance and reinsurance. While life insurance stands for long term funds, non-life insurance represents short term funds. On the other hand, reinsurance can be defined as insuring insurance companies for loss (Mall, 2018:85). The insurance sector is an important part of the financial sector which contributes to the growth of national economies. Many economic benefits are achieved by insurance activities. With a well-functioning insurance market, financial stability, increase in trade volume, effective management of risk, utilization of savings and effective allocation of capital are maintained. Furthermore, insurance activities can compensate or complement the social security systems of states (Skipper, 2001). The existence of a well-functioning insurance system is an important element which maintains efficient use of sources. Therefore, the existence of insurance activities will provide a significant advantage in terms of increasing the general welfare level and ensuring its continuity (Din et. al., 2017:2).

The relationship between insurance and the real sector leads us to take a closer look at it. Increases in insurance activities in an economy reduce the probability of uncertainty and volatility. Within the scope of insurance activities, protection is provided against financial losses that may stem from natural disasters, accidents, and criminal activity. Thanks to the indemnity, the activities of purchasing, holding, and selling of products and services increase. Insurance provides coverage against threats arising from the business activities of companies such as debts, equipment failure, shipping risks and more. Besides, different types of insurance provide incentives for the individuals who are hesitant to make investments. In this respect, insurance plays a significant role in reducing the various effects of a crisis which can be experienced by many economies (Haiss and Sümegi, 2008). Insurance system is part of the financial system, and it decreases asymmetric information and thus, moral hazard and adverse selection problems and then, increases efficiency in the financial system.

On the other hand, insurance activities create employment increasing effects directly and indirectly. Insurance activities result in a significant amount of fund accumulation. Utilization of the accumulated funds in the real sector increases the number of investments. Increased investments make the production stronger and increase the labor demand. Similarly, the labor demand of insurance companies results in a direct increase in employment. With the widespread insurance activities, new jobs will be created for a lot of people in the insurance businesses (Orhaner, 2013:44).

## 3. REVIEW OF THE EMPIRICAL LITERATURE

In the literature, there are many studies which evaluate the indicators of economic growth. However, the number of studies which take the relationship between insurance sector and economic growth under scope is so few. Fortunately, the number of such studies is increasing. One of the pioneering studies, which focus on the effects of the insurance sector on economic growth, belongs to Outreville (1990). In his study, Outreville (1990) analyzed insurance premiums, financial and economic growth of 55 developing countries. In this study, Outreville (1990) emphasized the significance of financial development in accordance with empirical outcomes. He stated that the supply sources in the insurance markets of developing countries should be watched carefully. When the share of the total premium is taken into consideration, the economic value of the sector is still insignificant, he says. Another study about the topic belongs to Ward and Zurbruegg (2000). In their study, Ward and Zurbruegg (2000) analyzed the short and long run relationship between economic growth and development of the insurance sector of 9 OECD countries for the years between 1961 and 1996. The results of the

analysis showed that the development of the insurance business contributed to the economic growth of some countries. Results showed that the relationship between these two variables is an indicator of a different factor among countries. In addition, he also stated that country specific factors affect the growth of the insurance market. In another study, Haiss and Sümegi (2008) analyzed the effect of insurance investments and premiums on GDP growth for 29 European countries during the 1992 – 2005 period. Life insurance was proven to have a positive effect on the growth of the EU-15 countries such as Switzerland, Norway and Iceland. The liability insurance was also proven to have a bigger effect with the Middle and East European EU member countries. It emphasized the contribution of the insurance companies to the economy, the expansion of investments, the increase in the market volume and better efficiency of the market can be provided. It was also stated that the insurance sector is important for economic growth as it provides saving and investment channels as well as maintaining risk transfer. Arena (2008) studied the causal relationship between insurance activity (life insurance and non-life insurance) and economic growth in both developed and developing countries. He analyzed 55 countries for a period of 28 years (1976 – 2004). The results showed that life insurance and non-life insurance policies and economic growth have a positive causality relationship. In their study which covers the data of 20 countries for the years 2006 – 2015, Din et. al. (2017) discovered a positive relationship between life insurance and economic growth for developed countries. They determined that the relationship between non-life insurance and growth is significant for developing countries, while there is a significant relationship in developing countries only when insurance density is taken into consideration. They also emphasized that non-life insurance is of significance for developing countries when they are compared to developed countries. Using the annual data of The European Union countries which are affiliated to the European Insurance Federation for the period 2004 – 2015, Peleckienė et. al. (2019) investigated the relationship between insurance and economic growth. The study provided several significant results. One of the results shows that the development of the insurance sector is so strong in countries like England, Denmark, Finland, Ireland, France, and the Netherlands. A positive correlation between insurance use and economic development was discovered for Finland, Luxemburg, Denmark, and Netherlands. On the other hand, negative correlation was discovered with Austria, Belgium, Malta, Estonia, and Slovakia. According to the results of Granger test, while one way causality from GDP to insurance was observed in Luxemburg and Finland, Netherlands, Malta, and Estonia had a one-way causal relationship from insurance to GDP. The test also showed that there was bidirectional causality for Austria while Slovakia had no causality. Bayar et. al. (2021) studied the relationship between insurance sector development and economic growth of 14 middle and east European countries (CEE) for the period 1998 – 2016. The findings are as follows. Neither for the group of countries nor for the individual countries, no positive effect of life insurance could be seen for economic growth. On the other hand, non-life insurance was found to have a positive effect over economic growth. Dumitrescu and Hurlin causality test showed a one-way causality relationship from economic growth to life insurance and non-life insurance.

There are also studies analyzing the relationship between economic growth and the insurance sector for single country cases. Ching et al. (2010) analyzed the relationship between life insurance and economic growth for the period 1997:Q1 – 2008:Q2 in Malaysia. They used the total assets of the life insurance sector as an indicator for life insurance. They found the multiple cointegration relationship among the total assets of the life insurance sector and real GDP. Furthermore, they also showed a causal relationship between real GDP and the total assets of the life insurance sector. Horng et al. (2012) analyzed the relationship between insurance claim, financial development, and economic growth in Taiwan between 1961 and 2006. He found that there is causality from economic growth to insurance demand, from financial development to economic growth in the short run. Hussein and Alam (2019), who studied the role of the insurance sector in the Oman economy with the data of 2008 – 2017, found a positive relationship between growth and the insurance sector. Yenisu (2019) found a negative short term relationship between the insurance premium and economic growth for the period 2010:Q1 – 2018:Q4 in Turkey. In the studies conducted for Turkey, it has been determined that the sectoral

dimension of insurance is generally examined. For this reason, studies that relate insurance sector indicators and economic factors are important. The aim of this study is to contribute by investigating the relationship between the insurance sector and economic growth in Turkey.

#### 4. ECONOMETRICS PRACTICE

This study analyzes the relationship between economic growth and the insurance sector utilizing annual data of the period 1983 – 2020. The limitation of this study is that 27 samples were used due to lack of data availability due to data being only available annually. Jenkins and Quintana-Ascencio (2020) recommend that minimum sample size should be higher than 25, with more variance so that the regression assumptions are met. Nevertheless, we can expect a slight bias in the results of this regression analysis since the generally accepted minimum sample size should be 30. The data was taken from OECD and World Bank databases. In the model, economic growth ( $grw_t$ ) is used as dependent variable, and total insurance premium ( $lins_t$ ) and insurance penetration ( $pen_t$ ) which is the ratio of insurance premiums to GDP, are used as independent variables. The insurance premium variable was included in the analysis after logarithmic transformation. In the model used in the analysis, the work of Okonkwo and Eche (2019) is utilized. The pattern used in the analysis is given in equation 1.

$$grw_t = \beta_0 + \beta_1 lins_t + \beta_2 pen_t + \epsilon_t \quad (1)$$

For the sake of avoiding spurious regression problems in regression analysis, unit root tests should be performed. The stationarity of the series is analyzed through the Augmented Dickey Fuller (ADF) (1981) unit root test. Unit root test results are given in table 1.

**Table 1**  
*ADF Unit Root Test*

	Constant		Constant and trend		No constant and no trend	
	t-statistic	prob.	t-statistic	prob.	t-statistic	prob.
grw	-6.302854***	0.0000	-6.215595***	0.0000	-3.440973***	0.0011
lins	-1.853931	0.3496	-0.967820	0.9364	3.329077	0.9996
pen	-1.195109	0.6663	-2.564855	0.2975	1.418989	0.9586
D (grw)	-10.37493***	0.0000	-10.22386***	0.0000	-10.51720***	0.0000
D (lins)	-5.799669***	0.0000	-6.247547***	0.0000	-4.422054***	0.0001
D (pen)	-6.497423***	0.0000	-6.419107***	0.0000	-5.948755***	0.0000

\*\*\* indicates stationarity at the significance level of 1%

According to the unit root test results, the growth variable is stationary I(0), and insurance premium and penetration variables are unit root I(1). ARDL bound test (Pesaran et. al., 2001) can be applied in case of stationary I(0) and I(1) series with unit root. It determines the existence of a long-term relationship between the variables and the bound test. Bound test results are given in table 2.



**Table 2**  
*Bound Test Results*

k	F-statistic	Critic values at 1% significance level		Critic values at 5% significance level		Critic values at 10% significance level	
		Lower Limit I(0)	Upper Limit I(1)	Lower Limit I(0)	Upper Limit I(1)	Lower Limit I(0)	Upper Limit I(1)
2	13.96059	4.13	5.58	3.1	3.87	2.63	3.35

The F statistic (13.96059), which was calculated according to 1% significance level after the boundary test, is greater than the upper limit value. This finding shows that there is a long-term relationship between economic growth and insurance premiums and insurance penetration at all levels of significance. ARDL (4,1) model was estimated to determine the long and short-term coefficients. ARDL estimation results are given in table 3.

**Table 3**  
*ARDL (4,1) Model*

Short Term Coefficients				
Variable	Coefficient	Std. Error	t-statistic	Probability Value
C	-8.220549	6.578908	-1.249531	0.2208
GRW(-1)	-0.900284***	0.143114	-6.290690	0.0000
LINS(-1)	2.231462	1.537909	1.450972	0.1568
PEN(-1)	-6.904338	5.890019	-1.172210	0.2500
D(LINS)	21.47316***	3.792458	5.662070	0.0000
D(PEN)	-24.93411***	6.363907	-3.918050	0.0005
ECM(-1)	-0.900284***	0.115037	-7826013	0.0000
Long Term Coefficients				
Variable	Coefficient	Std. Error	t-statistic	Probability Value
LINS	2.478621***	1.587754	1.797010	0.0084
PEN	-7.669068	6.104145	-1.256370	0.2184
C	-9.131063	7.079262	-1.289833	0.2066

\*\*\* indicates 1% coefficient is significant respectively

The ECM coefficient (-0.900284), which is the error correction coefficient of the ARDL model given in Table 3, was statistically significant. This coefficient shows how many periods after the short-term deviations will return to the long-term equilibrium. In the pattern, a short-term deviation is expected to return to its former equilibrium after approximately 1.1 periods. The results of the analysis showed that there is a positive and significant relationship between total insurance premiums and economic growth in the long-term. As a result of the relationship between insurance premium and economic growth, Yenisu (2019) supports the result found in his analysis but does not support the result of a negative relationship. In this study, any significant relationship between the insurance penetration variable and growth was not found. The analysis results obtained are similar to the study of Okonkwo and Eche (2019). Diagnostic tests such as the Breusch – Godfrey LM test to check the existence of autocorrelation in the estimated ARDL pattern, the Breusch – Pagan – Godfrey Test to analyze the variable variance problem, the Ramsey reset test for pattern building errors and the Jarque – Bera test to analyze the normal distribution of error terms were used. Table 4 shows that the pattern does

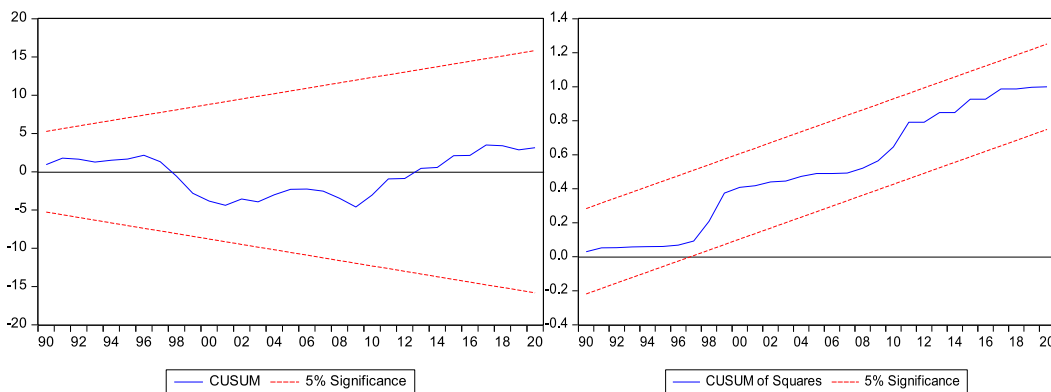
not have autocorrelation (LM), changing variance (BPG) and normality (JB) issues according to the probability values of the diagnostic tests. With the Ramsey reset test, it was found out that there were not any pattern building errors.

**Table 4**  
*Diagnostic Test Results*

Diagnostic Tests	Test Statistics	Probability Value
Breusch-Godfrey LM Test	2.057677	0.1460
Breusch-Pagan-Godfrey (BPG) Test	1.019309	0.4233
Ramsey RESET Test	1.323294	0.1957
Jarque-Bera (JB) Normality Test	1.111970	0.5735

Brown et. al. (1975) recommended the CUSUM and CUSUMQ tests to determine the stability of the short and long-term coefficients in the ARDL model. In the CUSUM test, the graphics of the short-term and long-term coefficients are provided in the confidence distance at the 5% significance level according to the error terms. In the CUSUMQ test, in the other hand, the graphics of the short-term and long-term coefficients are given at the 5% significance level according to the squares of the error terms. CUSUM and CUSUMQ test results showing the stability of the long and short-term coefficients are given in figure 3.

**Figure 3**  
*CUSUM and CUSUMQ Graphics*



According to the results of the CUSUM and CUSUMQ test which are shown in Figure 1, the long-term coefficients do not exceed the 5% confidence distance. This shows that the parameters are stable and there is no structural break. Therefore, the probability of a structural break in the period under consideration is so low, thus parameter stability has been achieved. This result shows that the policies which are thought to be implemented will be efficient.

## 5. CONCLUSION

Insurance activities have an important role in increasing economic efficiency. In addition to risk management and loss compensation, insurance activities have many macroeconomic benefits. Depending on the amount of the increase in savings, it constitutes an important source for increasing investments. The effect of investment increase can be directly seen in economic growth and employment. Insurance activities have a positive contribution to the fast recovery of economic crisis periods. When



all these effects are taken into consideration, insurance can be said to have a complementary role in the real economy, as a part of the financial sector. Therefore, developments in the insurance sector are considered to be important for economic growth. In this study, the relationship between economic growth and the insurance sector in Turkey is analyzed with the data of 1983 – 2020. The results of the boundary test showed that there is a long-term relationship between the variables. ARDL test results showed the existence of a positive significant relationship between total amount of insurance premium and economic growth. Insurance premiums contribute positively to economic growth. However, no significant relationship was found between insurance penetration and economic growth. The fact that the penetration rate variable is insignificant indicates that there is no efficiency in the conversion of the collected premiums into savings. On the other hand, the fact that the penetration rate coefficient is insignificant may be due to the fact that the penetration rate in Turkey is considerably lower than the world average. According to TSB Strategy Report (2020b), in the last five years, the ratio of the insurance sector to GDP has been about 2%, and this ratio has remained low compared to penetration rate in the world (around 7%) and even lower than that of countries with the similar income level of Turkey. Therefore, the share of insurance premiums in GDP remains low. The results reveal that the insurance sector in Turkey is not fully functional yet.

Şikyazar and Meriç (2018) attributed the lack of high concentration in the insurance sector in Turkey to the excess of foreign companies. This situation stems from some sectoral problems such as lack of development of the institutional structure of insurance companies in Turkey, weak insurance awareness and financial insufficiency of the insurance companies. In addition to sectoral problems, structural factors like inflationary trends, low-capacity utilization, insufficient amount of savings and insufficient investment amount also have an impact over the size and efficiency of the insurance sector in Turkey (Güvel and Güvel, 2018:262). However, when the economic growth potential of Turkey is taken into consideration, it can be estimated that the insurance sector will perform more efficiently in the following years. Better efficiency of the sector can be achieved by providing institutional developments and increasing insurance awareness via training. That's how the insurance sector in Turkey will be a complementary part of the real economy. Furthermore, the insurance sector has a crucial role in sustaining economic growth.

In order to maintain the contribution of the insurance sector to economic growth, an increase in the level of personal income, which limits the increase in the penetration rate at the macro level, must be ensured. Taking measures such as regulations in the insurance market, increasing insurance awareness and perception, distinguishing life and non-life insurance and determining premiums according to structural, managerial and risks will also positively affect both the profitability of the sector and the economic growth (TSB, 2020b). Asymmetric methods can be used in future studies investigating the relationship between insurance and economic growth. In addition, separate research can be conducted for life and non-life insurance branches by including the branch specific factors in the model.

### **Declaration of Research and Publication Ethics**

This study which does not require ethics committee approval and/or legal/specific permission complies with the research and publication ethics.

### **Researchers' Contribution Rate Statement**

The authors declare that they have contributed equally to the article.

### **Declaration of Researcher's Conflict of Interest**

There are no potential conflicts of interest in this study.

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