THE EFFECT OF SELECTED MACROECONOMIC INDICATORS ON THE INFORMAL ECONOMY: THE CASE OF THE BALKAN COUNTRIES AND TURKEY

Duygu ÇELİK[1]

Abstract

In this study, using the data between 1990 and 2018, the effect of various macroeconomic indicators on the informal economy was investigated for 9 Balkan countries consisting of Greece, Slovenia, Bulgaria, Albania, Bosnia and Herzegovina, Croatia, Hungary and North Macedonia and Turkey. According to the results of the study, a one-unit increase in national income reduces the informal economy by 5.53 units. A one-unit increase in gross fixed capital formation increases the informal economy by 0.266 units. A one-unit increase in unemployment increases the informal economy by 0.164 units. A one-unit increase in inflation increases the informal economy by 0.007 units. A one-unit increase in taxes on goods and services reduces the informal economy by 1.18 units. There is a positive and significant relationship between income inequality and the informal economy. A one-unit increase in income inequality increases the informal economy by 0.361 units.

Keywords: *Balkan Countries, Informal Economy, Economic Growth*
JEL Classification: *O52, E26, F43*

SEÇİLMİŞ MAKROEKONOMİK GÖSTERGELERİN KAYIT DIŞI EKONOMİ ÜZERİNE ETKİSİ: BALKAN ÜLKELERİ VE TÜRKİYE ÖRNEĞİ

Öz

Bu çalışmada 1990 ile 2018 yılları arasındaki veriler kullanılarak, Türkiye ve Yunanistan, Slovenya, Bulgaristan, Arnavutluk, Bosna Hersek, Hırvatistan, Macaristan ve Kuzey Makedonya'dan oluşan 9 Balkan ülkesi için seçilmiş çeşitli makroekonomik göstergelerin kayıt dışı ekonomi üzerine olan etkisi araştırılmıştır. Çalışmanın sonucuna göre milli gelirdeki bir birimlik artış kayıt dışı ekonomiyi 5.53 birim azaltmaktadır. Gayrisafi sabit sermaye oluşumundaki bir birimlik artış kayıt dışı ekonomiyi 0.266 birim arttırmaktadır. İşsizlikteki bir birimlik artış kayıt dışı ekonomiyi 0.164 birim arttırmaktadır. Enflasyondaki bir birimlik artış kayıt dışı ekonomiyi 0.007 birim arttırmaktadır. Mal ve hizmetlere ilişkin vergilerdeki bir birimlik artış kayıt dışı ekonomiyi 1.18 birim azaltmaktadır. Gelir eşitsizliği ile kayıt dışı ekonomi arasında pozitif yönde anlamlı bir ilişki bulunmaktadır. Gelir eşitsizliğindeki bir birimlik artış kayıt dışı ekonomiyi 0.361 birim arttırmaktadır.

Anahtar Kelimeler: *Balkan Ülkeleri, Kayıt Dışı Ekonomi, Ekonomik Büyüme*
JEL Sınıflandırması: *O52, E26, F43*

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1. Introduction

One of the main macroeconomic goals of all developed and developing countries in the world is to grow, develop and increase their welfare level. Towards this goal, countries are engaged in various economic activities. Increasing the national income is one of the important issues on the way to this goal. However, while countries are engaged in various economic activities in order to increase their national income and further their welfare levels, informality in the economy can become one of the main problems. Although the problem of the informal economy is a significant economic issue, there has not been enough work on it and it has not been adequately examined. Economic actions that are experienced in the economy and that are not recorded cause the problem of the informal economy and may also lead to other important macroeconomic problems.

In the study, using the informal economy data between 1990 and 2018, various research were conducted on 8 Balkan countries consisting of Greece, Slovenia, Bulgaria, Albania, Bosnia and Herzegovina, Croatia, Hungary, North Macedonia, and in addition to Turkey. The reason for not including other Balkan countries in the study is the limitations in accessing the data. In addition to the dependent variable, the informal economy variable, various macroeconomic indicators were added to the study as independent variables and the effects of these indicators on the informal economy were investigated. The variables added to the study and showing the macroeconomic perspective are economic growth, gross fixed capital formation, population growth, unemployment, inflation, taxation and income distribution inequality. Based on these data, research has been done on the Balkan countries. The aim of the study is to test the informal economy problem, which is seen as a significant economic problem all over the world, on the Balkan countries as a contribution to the literature. In addition, it is thought that the selected independent variables and the period range will make an important contribution to the literature. To complete this study, panel data analysis was carried out on the Balkan countries. These analyzes were made with the help of STATA16 program.

2. Literature Review

Elgin and Oztunalı (2014) examined the relationship between the informal economy and economic development for 141 countries between 1984 and 2009. As a result of their studies, they found a strong relationship between the quality of institutions, economic development and the informal economy. In countries with low quality institutions, when national income increases, the size of the informal economy also increases. In countries with high institutional quality, the increase in national income reduces the informal economy.

Khuong (2021) using data from 1973 to 2017, examined the relationship between the informal economy and economic growth in Pakistan. According to the results of the study, there is an informal economy of 56% of GDP in Pakistan. In addition, there is a significant bidirectional relationship between the variables.

Vulletin (2008) investigated the dimensions of the informal economy in 32 Latin American and Caribbean countries in the early 2000s. According to the results of the study, it has been seen that a strict tax system and regulatory environment, high inflation and the dominance of the agricultural sector in the economy are the main factors determining the informal economy. In addition, as the size of the informal economy increases, unionization, contribution to social security programs and enrollment in education decrease.

Erkuş and Karagöz (2009) investigated the informal economy and tax loss in Turkey using the data between 1970 and 2005. According to the results of the study, the informal economy and tax loss are progressing in a fluctuating manner. In addition, it has been determined that the ratio to the registered economy is between 80% and 35%.

Güler and Toparlak (2018) used the data between 2001 and 2016 in their studies and compared Turkey and EU countries on the informal economy. According to the results of the study, the

informal economy, which was around 60% in 2001, decreased to 27% in 2016. It has been determined that the informal economy average of European Union countries decreased from 22.6 percent to 18.3 percent between 2003 and 2015. The size of the informal economy in Turkey is higher than in the European Union countries.

Massoud (2017) investigated the relationship between the informal economy and inflation in Egypt, using data from 1980 to 2015. According to the results of the study, there is a negative relationship between the informal economy and inflation. In addition, there is a relationship between the informal economy and other macroeconomic variables such as unemployment and economic growth.

Asfuroglu and Elgin (2016) investigated the relationship between informal economy and inflation in their studies. He conducted his study using data from 1950 to 2010 on 161 countries. According to the results of the study, inflation negatively affects long-term economic growth. If the informal economy is also significant in these countries, there may be a stronger interaction.

Saraç and Başar (2014) investigated the effects of the informal economy in the crisis period in European countries by using the data between 1999 and 2007 in their studies. At the end of the study, it was revealed that there is a significant relationship between the informal economy and borrowing.

Islas-Camargo and Cortez (2019) examined the relationship between the informal economy, unemployment, and total output in Mexico, using data from 1993 to 2015. According to the results of the study, there is an asymmetrical relationship between the cyclic components. Informal employment affects unemployment rates.

Fugazza and Fiess (2010) investigated the relationship between free trade and the informal economy for 32 countries using data from 1990 to 2004. According to the results of the study, as trade freedom increases, informal output increases and informal employment decreases.

In his study, Saraç (2017) examined the relationship between the informal economy and unemployment using the data between 2000 and 2011 in Turkey. According to the results of the study, it has been determined that there is a causal relationship between the informal economy and unemployment.

Sandalcı and Sandalcı (2017) examined the relationship between tax morale and the informal economy in 21 OECD countries. As a result of their studies, it has been observed that the informal economy is at relatively lower levels in countries with high tax morale.

In their studies, Zengin and Tütüncü (2016) tried to predict the relationship between the informal economy and tax revenues in Turkey using data between 2006 and 2015. According to the results of the study, the ratio of the informal economy to GDP in Turkey has been determined as 9%. In addition, there is a negative cointegration relationship between tax revenue and the informal economy.

Elgin (2012) examined the relationship between the informal economy and taxes by applying panel data analysis for 152 countries and Turkey. He used data from 1950 to 2009 in his study. According to the results of the study, contrary to the general belief, it has been determined that high taxes cause a lower informal economy and low taxes cause a larger informal economy. In Turkey, however, no significant positive relationship was found between taxes and the informal economy. There is a negative correlation.

3. Method

In this study, the effects of selected macroeconomic indicators on the informal economy are examined. In this part of the study, the variables, data and explanations of the panel data analysis on 8 Balkan countries and Turkey are included. The analysis of the study was made using the STATA16 program.

3.1. Countries Included in the Study

In the study, 8 countries in the Balkans and expressed as Balkan countries and Turkey are included. These Balkan countries are Greece, Slovenia, Bulgaria, Albania, Bosnia and Herzegovina, Croatia, Hungary, North Macedonia and Turkey.

There are 9 countries in total, including Turkey. The relationship between the informal economy and various macroeconomic indicators in these countries has been analyzed. Macroeconomic indicators included in the analysis are informal economy, economic growth, gross fixed capital formation, population growth, unemployment, inflation, taxation and income distribution inequality.

The relationship between the informal economy and these indicators has been investigated. The data of the study was obtained from the database of the World Bank.

3.2. Variables in the Model and Definitions of Variables

The dependent and independent variables in the study, as well as the definitions and explanations of these variables are given in Table 1.

Table 1: **Variables in the Model, Their Explanations and Definitions[1]**

Informal Economy	(% of official GDP)	INFECO	*''Dynamic general equilibrium model based (DGE) estimates of informal output''*
Economic Growth	(constant 2015 US$)	GDP	*'' GDP at purchaser's prices is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products.''*
Gross Fixed Capital Formation	(% of GDP)	CAP	*''Gross fixed capital formation (formerly gross domestic fixed investment) includes land improvements (fences, ditches, drains, and so on); plant, machinery, and equipment purchases; and the construction of roads, railways, and the like, including schools, offices, hospitals, private residential dwellings, and commercial and industrial buildings.''*
Population growth	(annual %)	POP	*'' Annual population growth rate for year t is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage.''*
Unemployment	total (% of total labor force)	UNEMP	*'' Unemployment refers to the share of the labor force that is without work but available for and seeking employment.''*
Inflation	consumer prices (annual %)	INF	*'' Inflation as measured by the consumer price index reflects the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals, such as yearly..''*
Tax on Goods and Services	(current LCU)	TAX	*'' Taxes on goods and services include general sales and turnover or value added taxes, selective excises on goods, selective taxes on services, taxes on the use of goods or property, taxes on extraction and production of minerals, and profits of fiscal monopolies.''*
Income inequality [2]	(World Bank estimate)	*GINI*	*'' Gini index measures the extent to which the distribution of income (or, in some cases, consumption expenditure) among individuals or households within an economy deviates from a perfectly equal distribution.''*

4. Results

In the study, the effects of selected macroeconomic indicators on the informal economy in Turkey and 8 Balkan countries consisting of Greece, Slovenia, Bulgaria, Albania, Bosnia and Herzegovina, Croatia, Hungary and North Macedonia were examined. In the study, the data of the countries between 1990 and 2018 were used. Analyzes were performed using the STATA16 program.

4.1. Model

The model created for the country group included in the analysis is expressed in equation 1.

$$INFECO_{it} = \alpha_0 + \beta_1 GDP_{it} + \beta_2 CAP_{it} + \beta_3 POP_{it} + \beta_2 UNEMP_{it} + \beta_2 INF_{it} + \beta_2 TAX_{it} + \beta_2 GINI_{it}\ \mu_i + \lambda_t + \varepsilon_i \quad (1)$$

i= 1…9

t=1990-2018

Variables included in the analysis are shown as the informal economy (INFECO), economic growth (GDP), fixed capital formation (CAP), population growth (POP), unemployment (UNEMP), inflation (INF), tax on goods and services (TAX) and income inequality (GINI). While the number of countries in the model is 9, the time dimension of the model is between 1990 and 2018.

4.2. Cross-Section Dependence and Homogeneity Tests

The tests performed to test the correlation between the class for the variables and the homogeneity of the variables are given in Table 2. The cross-section dependence test was performed using the Peasaran CD test. The homogeneity of the variables was tested with the Swamy S test. In panel data analysis, if the unit root relationship cannot be determined according to the result of the correlation test between class, it is necessary to turn to first generation estimator tests.

Table 2: **Cross-Section Dependence Correlation and Homogeneity Test**

Cross-Section Dependence	Peasaran CD Test	INFECO - p-value: 0.000 GDP - p-value: 0.000 CAP - p-value: 0.000 POP - p-value: 0.036 UNEMP - p-value: 0.002 INF - p-value: 0.000 TAX - p-value: 0.000 GINI - p-value: 0.000
Homogeneity Tests	Swamy S Test	Chi2:3797.22 (Prob=0.0000)

If a unit root relationship is detected, it is more appropriate to use second generation estimator tests. Homogeneity tests, on the other hand, indicate which of the tests called the first and the second group within these generations would be more appropriate. According to the results of the cross-section dependence test in Table 2, the variables contain unit root at 95% confidence level. In this case, it is more appropriate to use second generation panel unit root analysis tests.

According to the result of the homogeneity test, the parameters are not homogeneous. It varies from unit to unit. So, the parameters are heterogeneous. In this case, heterogeneous estimator tests should be preferred.

4.3. Stationary (Unit Root) Tests

Since the correlation between class was determined in the previous cross-section dependence test in the study, the Multivariate Augmented Dickey Fuller (MADF) panel unit root test was preferred in unit root analysis. This is because the MADF test is a test that pays attention to the correlation between residues. Table 4 shows the results of the MADF test.

Table 3: **Multivariate Augmented Dickey Fuller (MADF) Test**

Variables	Lags	MADF	Approx 5% CV
INFECO		271.844	
GDP		66.764	
POP		278.918	
UNEMP	1	36.497	28.150
INF		659.873	
TAX		129.046	
GINI		95.563	
dCAP		282.720	28.894

According to the results of the MADF test in Table 4, the MADF value is greater than the Approx 5% CV value for all variables. Accordingly, the series are stationary at the 95% confidence level. While the variables other than CAP were stationary at the level, the CAP variable became stationary when the first difference was taken.

4.4. F, LM and LR Tests

F, LM and LR tests are among the tests that help to select an estimator in panel data analysis. These tests indicate whether the model contains unit and time effects. In other words, it is tested whether the data differ from unit to unit and/or whether the data differ from time to time (Yerdelen Tatoğlu, 2020).

Table 4: **F, LM ve LR Tests**

	Unit Impact	Time Effect
F test statistic	35.66	5.20
	(Prob=0.0000)	(Prob=0.000)
LM test statistic	94.86	0.00
	(Prob=0.0000)	(Prob=1.0000)
LR test statistic	140.28	46.98
	(Prob=0.0000)	(Prob=0.000)

According to the results of the tests that help to choose an estimator in Table 5, it is seen that the model includes unit effects in all of the F, LM and LR tests. When the time effects are examined, it is understood that the model does not have time effects only according to the LM test, but also includes time effects according to the F and LR tests. Accordingly, it can be said that the model has both unit effects and time effects.

4.5. Robust Hausman Test

Model selection is significant when model estimation is made in panel data analysis. In other words, Hausman tests are required in order to choose between the random effects model and the fixed effects model. Table 6 shows the results of the Robust Hausman Test.

Table 5: **Robust Hausman Test**

	Robust Hausman Test
rH test statistic	1.43
	(Prob=0.9846)

According to the result of the Robust Hausman test in Table 6, it seems more appropriate to use a random effects model in model estimation.

### 4.6. Multiple Linear Connection and Normal Distribution Tests

In the study, it was first tried to determine whether there was a multicollinearity problem with a priori indicators, and then the variance inflation factor was also examined in order to reach a

clearer result. First of all, it was tried to determine whether it is a predictor of multicollinearity with the least squares estimator.

Table 6: **Multiple Linear Connection and Normal Distribution Tests**

	Multiple Linear Connection
Least squares estimator	R2=0.5238, Prob: 0.000
Variance inflation factor (VIF)	Mean VIF=1.58
	Normal Distribution
Jarque Bera	Chi2=2.8e-04

Figure 1: **Normal Distribution Graph**
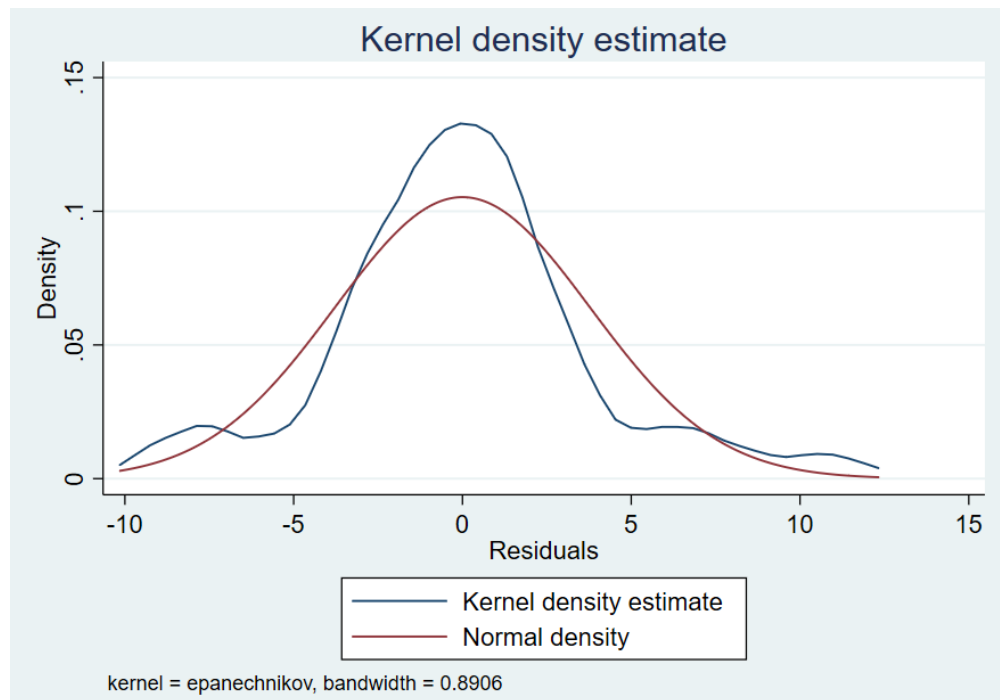
kernel = epanechnikov, bandwidth = 0.8906

Afterwards, the results were supported with the variance inflation factor (VIF). In addition, Jarque Bera test was applied to test the normal distribution. According to the results in Table 7, it is seen that there is no multicollinearity problem in the least squares estimator according to the a priori indicators. F test is significant and R2 value is high. However, when the VIF value is between 0 and 5, it is stated that there is no multicollinearity. Since this result is 1.58 in Table 7, it has been confirmed that there is no multicollinearity according to this result. According to the Jarque Bera test, the error terms are normally distributed.

In Figure 1, the normal distribution of the error terms is shown graphically. The normal distribution based on the Jarque-Bera test can also be seen in Figure 1.

4.7. Autocorrelation and Heteroskedacity Tests

Before proceeding to the model estimation, autocorrelation, heteroscedasticity and cross-section dependence tests are performed to check whether there are deviations from the basic assumptions.

Table 8 includes autocorrelation and heteroscedasticity tests. The cross-section dependence test had been done before.

Table 7: **Autocorrelation and Heteroskedacity Tests**

	Basic Assumption Tests	
Autocorrelation	Durbin- Watson	0.2021
	Baltagi-Wu, LBI	0.3354
Heteroskedacity	Levene, Brown and Forsythe Testi	W0: 49.006897, (Prob=0.0000)
		W50: 46.677263, (Prob=0.0000)
		W10: 49.056077, (Prob=0.0000)

According to the results in Table 8, there are deviations from all three basic assumptions. That is, there is both autocorrelation, heteroscedasticity and Cross-Section Dependence. The results of the cross-section dependence test are given in Table 2. There is also a correlation between class. In this case, the Driscoll-Kraay estimator, which is one of the model estimators that is suitable to be used in the presence of these three deviations, will be used.

4.8. Driscoll-Kraay Model Forecast Results

In the study, using the data between 1990 and 2018 for 8 countries in the Balkans and Turkey, the effect of various macroeconomic indicators on the informal economy was estimated according to the Driscoll-Kraay standard error random effects estimator. Table 9 contains the estimation results.

Table 8: **Driscoll-Kraay Model Forecast Results**

INFECO	Coefficients	t statistic	p > ItI
GDP	-5.53e-12	-2.55	0.017
dlCAP	0.2660523	5.70	0.022
POP	-1.273394	-1.34	0.193
UNEMP	0.164511	6.15	0.000
INF	0.0079895	2.39	0.024
TAX	-1.18e-12	-4.72	0.000
GINI	0.3619098	5.82	0.000
Constant Coefficients	16.80223	11.20	0.000
F statistic	21.81 (Prob>0.0000)		
R2	0.5468		
Number of Observations	243		

According to the estimation results in Table 9;

- The relationship between the informal economy and national income is significant. National income has a negative effect on the informal economy. A one-unit increase in national income reduces the informal economy by 5.53 units.

- The relationship between gross fixed capital formation and the informal economy is significant. Gross fixed capital formation has a positive effect on the informal economy. A one-unit increase in gross fixed capital formation increases the informal economy by 0.266 units.

- No significant relationship was found between population and informal economy.

- There is a significant relationship between the unemployment rate and the informal economy. The effect of unemployment on the informal economy is positive. A one-unit increase in unemployment increases the informal economy by 0.164 units.

- The relationship between inflation and the informal economy is significant. Inflation has a positive effect on the informal economy. A one-unit increase in inflation increases the informal economy by 0.007 units.

- A negative significant relationship was found between taxes on goods and services and the informal economy. A one-unit increase in taxes on goods and services reduces the informal economy by 1.18 units.

- There is a positive and significant relationship between income inequality and the informal economy. A one-unit increase in income inequality increases the informal economy by 0.361 units.

The F test of the model is significant and its R2 has a high explanatory level of 54%. The model created according to the results can be rewritten as in equation 2.

INFECOit=16.80223-5.53GDPit+ 0.266dlCAPit+0.164UNEMPit +0.007INFit 1.18TAXit +

0.361GINIit   (2)

i= 1…9

t=1990-2018

5. Conclusion

Informal economy is one of the ongoing economic problems of countries for years. The main goals of each country are to grow economically, to develop and to increase the level of welfare. However, the unregistered portion of economic activities may make it difficult for countries to achieve these goals and may also cause misconceptions about the extent of economic activities of countries. For this reason, one of the issues that attract the attention of researchers in the field of economics is the problem of the informal economy. Although various studies have been carried out on this subject, the studies are still not sufficient. In addition, the problem of the informal economy, whether it is a developed country or a developing country, is still not one of the problems that has been fully resolved. Therefore, in this study, it is aimed to contribute to the literature from a different perspective, with examples from different countries and periods. In this study, the effects of various macroeconomic indicators on the informal economy were investigated for 8 Balkan countries, including Greece, Slovenia, Bulgaria, Albania, Bosnia and Herzegovina, Croatia, Hungary and North Macedonia and Turkey, using the data between 1990 and 2018. There are 9 countries in total in the study. The selected macroeconomic indicators are economic growth, gross fixed capital formation, population growth, unemployment, inflation, taxation and income inequality. Panel data analysis was performed on these variables.

In the study, firstly, the Peasaran CD Test was used as a cross-section dependence test to determine the unit root relationship for the variables. According to the results of this test, a unit root relationship was determined in the variables. For this reason, the second-generation estimator tests were directed. In addition, the Swamy S test was performed to determine the homogeneity between parameters, and it was seen that the parameters were heterogeneous. Afterwards, the Multivariate Augmented Dickey Fuller (MADF) panel unit root test was preferred in the unit root analysis, since the cross-section dependence was detected in the cross-section dependence test. The reason for this is that the MADF test is a test that pays attention to the correlation between residues. According to the results of this test, it is seen that other variables except the gross fixed capital formation variable are stationary at the level. The gross fixed capital formation variable, on the other hand, became stationary after taking the first difference. Afterwards, F, LM and LR tests were conducted to select the estimator and measure the unit and time effects of the model. It is seen that the model includes unit effects in all of the F, LM and LR tests. When the time effects are examined, it is understood that the model does not have time effects only according to the LM test, but also includes time effects according to the F and LR tests. Accordingly, it can be said that the model has both unit effects and time effects. In addition to these tests, the Robust Hausman test was used for model selection and according to the results of this test, the need to select an estimator according to the random effects model arose. In addition, in the study, it was tried to determine whether there was a multicollinearity problem with a priori

indicators, and then the variance inflation factor was also examined to reach a clearer result. First of all, it was tried to determine whether it is a predictor of multicollinearity with the least squares estimator. Afterwards, the results were supported with the variance inflation factor (VIF). In addition, Jarque Bera test was applied to test the normal distribution. According to the results of these tests, it is seen that there is no multicollinearity problem, and the error terms are normally distributed. Before proceeding with the model estimation, autocorrelation, heteroscedasticity and cross-section dependence tests are performed to check whether there are deviations from the basic assumptions. For this reason, Durbin-Watson Baltagi-Wu, LBI test was performed for autocorrelation. Levene, Brown and Forsythe tests were performed for heteroskedacity. Peasaran CD Test was used for cross-section dependence. According to these results, it was determined that there were deviations from three basic assumptions in the model. In this case, it is necessary to use an estimator that is robust to these deviations. For this reason, the model estimation was made according to the Driscoll-Kraay standard error random effects estimator, which is robust to deviation from the three basic assumptions.

According to the results obtained as a result of the tests carried out in the study, the relationship between the informal economy and national income is significant. National income has a negative effect on the informal economy. A one-unit increase in national income reduces the informal economy by 5.53 units. The relationship between gross fixed capital formation and the informal economy is significant. Gross fixed capital formation has a positive effect on the informal economy. A one-unit increase in gross fixed capital formation increases the informal economy by 0.266 units. No significant relationship was found between the population and the informal economy. There is a significant relationship between the unemployment rate and the informal economy. The effect of unemployment on the informal economy is positive. A one-unit increase in unemployment increases the informal economy by 0.164 units. The relationship between inflation and the informal economy is significant. Inflation has a positive effect on the informal economy. A one-unit increase in inflation increases the informal economy by 0.007 units. A negative significant relationship was found between taxes on goods and services and the informal economy. A one-unit increase in taxes on goods and services reduces the informal economy by 1.18 units. There is a positive and significant relationship between income inequality and the informal economy. A one-unit increase in income inequality increases the informal economy by 0.361 units. The F test of the model is significant and its R2 has a high explanatory level of 54%.

As a result, the negative developments in the selected macroeconomic indicators negatively affect the informal economy in the country group that is the subject of the study. The view that economic policies are a whole and that economic indicators interact with each other is consistent with the findings. The source of a problem in the economy can be more than one macroeconomic indicator. In this context, focusing on a single cause in the solution of economic problems is not enough to solve the problems effectively. For this reason, policy makers must first consider the country's other macroeconomic problems holistically in order to effectively solve the informal economy problem. In addition, effective functioning of institutions is also important. In countries whose institutions do not work effectively, it may be difficult to solve other macroeconomic problems besides the informal economy problem. Based on all these results, effective structural reforms should be applied to institutions in the Balkan countries and Turkey, and it should be aimed to improve macroeconomic indicators by applying monetary and fiscal policies in the light of economics.

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