Üçüncü Sektör Sosyal Ekonomi Dergisi
Third Sector Social Economic Review
58(2) 2023, 1255-1275
doi: 10.15659/3.sektor-sosyal-ekonomi.23.05.2100

Research Article

Corruption, Income Inequality and Economic Growth: The Fragile Five Countries (1995-2019) [1]

Yolsuzluk, Gelir Eşitsizliği ve Ekonomik Büyüme İlişkisi: Kırılgan Beşli Ülke Örneği (1995-2019)

Şemistan SÜLEYMANLI	**Oğuzhan SUNGUR**
Yüksek Lisans Mezunu, Recep Tayyip Erdoğan Üniversitesi	Dr. Öğr. Üyesi, Recep Tayyip Erdoğan Üniversitesi
İktisat Ana Bilim Dalı	İktisat Bölümü
semistan_suleymanli19@erdogan.edu.tr	oguzhan.sungur@erdogan.edu.tr
https://orcid.org/0000-0001-0071-8381	https://orcid.org/0000-0001-6897-4926

Makale Geliş Tarihi	**Makale Kabul Tarihi**
10.02.2023	**30.04.2023**

Abstract

Economic growth is among the priority macro-economic targets for countries. It is known that there are social and economic factors that both affect and are affected by economic growth. Determining the factors affecting economic growth is considered important for countries to follow a stable economic growth and development trend. In this study, the effects of corruption and income inequality, which are thought to affect economic growth, on economic growth were empirically examined in the sample of Fragile Five countries for the period of 1995-2019. Within the scope of the analysis using panel data analysis method, the corruption index was used to represent the corruption variable, the gini coefficient to represent the income inequality, and the real gross national product per capita to represent the economic growth. As the results of this study, it was concluded that the increase in the corruption index negatively affects the economic growth in Indonesia and the increase in income inequality positively affects economic growth in India, Indonesia, and South Africa. While the increase in gross fixed capital formation, the control variable of the research model, positively affects economic growth in Brazil and South Africa; In India, on the other hand, it negatively affects economic growth.

Keywords: *Corruption, Income Inequality, Economic Growth, Fragile Five, Panel Data Analysis*

Öz

Ekonomik büyüme, ülkeler için öncelikli makro-ekonomik hedefler arasında olmakla birlikte hem ekonomik büyümenin etkilediği hem de etkilendiği sosyal ve ekonomik faktörlerin olduğu bilinmektedir. Ekonomik büyümeyi etkileyen faktörlerin belirlenmesi ülkelerin istikrarlı bir ekonomik büyüme ve gelişim trendi izlemesi açısından önemli görülmektedir. Bu çalışmada ekonomik büyümeyi etkilediği düşünülen faktörlerden yolsuzluk ve gelir eşitsizliğinin ekonomik büyüme üzerindeki etkisi 1995-2019 dönemi için Kırılgan Beşli ülkeleri örnekleminde ampirik olarak incelenmesi amaçlanmıştır. Panel veri analiz yönteminin kullanıldığı analiz kapsamında yolsuzluk değişkenini temsilen yolsuzluk endeksi, gelir eşitsizliğini temsilen gini katsayısı, ekonomik büyümeyi temsilen ise kişi başı reel gayrisafi milli hasıla değeri kullanılmıştır. Çalışmanın sonucunda yolsuzluk endeksindeki artışın Endonezya'da ekonomik büyümeyi olumsuz; gelir eşitsizliğinde meydana gelen artışın ise Hindistan, Endonezya ve Güney Afrika'da ekonomik büyümeyi olumlu yönde etkilediği sonucuna ulaşılmıştır. Araştırma modelinin

[1] This scientific study is derived from the master's thesis defended by first author at Recep Tayyip Erdogan University, Department of Economics.

Önerilen Atıf /Suggested Citation
Süleymanlı, Ş & Sungur, O., 2023 Corruption, Income Inequality and Economic Growth: The Fragile Five Countries (1995-2019), *Üçüncü Sektör Sosyal Ekonomi Dergisi,* 58(2), 1255-1275

kontrol değişkeni brüt sabit sermaye oluşumundaki artış ise Brezilya ve Güney Afrika'da ekonomik büyümeyi olumlu yönde etkilerken; Hindistan'da ise ekonomik büyümeyi olumsuz yönde etkilemektedir.

Anahtar Kelimeler: *Yolsuzluk, Gelir Eşitsizliği, Ekonomik Büyüme, Kırılgan Beşli, Panel Veri Analizi*

1. Introduction

Whether the state should be present in the economic system has been among the leading issues discussed in the field of economic thought for a long time. Should the state be an actor in the economic system, or should it play a regulatory and supervisory role? Of course, different schools of economic thought, putting forward ideas about why the state should be present or should not be present in the economic system, have reasonable grounds for their perspectives. However, this discussion has continued over the phenomenon of corruption, regarded as a political disease, especially after World War II, and international economic organizations have also been involved in the process. The UN, OECD, and WTO actively fight against corruption, which is mentioned as a concept *"undermining the institutions and values of democracy, ethical values and justice and jeopardizing sustainable development and the rule of law"* in the United Nations Anti-Corruption Convention, and it is aimed to alleviate the social and economic problems caused by corruption (Ryan, 2000, p.332).

As in the case of corruption, another important issue that the world sensitively deals with is income inequality and the poverty caused by this situation. The World Inequality Report (2022) states that the average adult earned 16,700 euros per year in 2021 and the same adult had a value of 72,900 euros. According to the data for 2021, while the richest 10% of the world had 52% of the global income, the poorest 50% of the world's population earned only 8.5% of the global income. In a world where the equal and fair distribution of income does not have the same meaning in economic life, whether the inequality of income distribution or a more equal distribution supports economic growth is still a matter of debate among today's economists, as it used to be among classical and socialist economists.

This study, which aims to investigate the relationship between corruption, income inequality, and economic growth in the sample of the Fragile Five countries for the period between 1995 and 2019, consists of the theory, literature, method, empirical results, and conclusion sections.

2. Theory

Corruption is not a concept that can be defined clearly since it is a phenomenon contrary to legal regulations and emerges in various forms hidden in socio-economic life. The concept of corruption, known as *corruption* in English, can be defined in its simplest form as using public power and authority outside the public interest (Gedikli, 2011, p.170). With this form, it is understood that corruption has more qualities of a public phenomenon. In one of the first studies on the phenomenon of corruption in the literature, Becker (1968) explained the reason for the emergence of corruption through the "Crime and Punishment Model." According to the Crime and Punishment Model, the tendency of individuals to engage in corruption activities is related to the benefit and cost, in other words, the gain and punishment, which they will obtain as a result of this action. If the individual thinks that this situation will not be detected as a result of the corruption act which he will perform or that he will acquire high financial gains in return for enduring a small penalty even if it is detected, he commits the corruption act; otherwise, he does not commit this act (Yılmaz and Güvel, 2009, p. 169).

Although the existence of corruption in socio-economic life dates back to earlier centuries, the causes of corruption, determined as a result of observations, were evaluated abstractly from a moral philosophy point of view, particularly until the 20th century. The quantitative expression of economic events with statistical values in the scientific world of the 20th century has also made empirical studies in this field widespread, and the causes of economic events have started to be discussed more clearly. When the causes of corruption are researched, the fact that the state, in other words, the public power, takes a significant place in the economic system is shown among the first reasons for corruption (Özkal Sayan and Kışlalı, 2004, p.35). The emergence of rent-seeking opportunities in countries with numerous economic regulations but low economic freedoms is considered among the main reasons for corruption (Meriç, 2004, p.72). Especially in developing countries where the weight of the public sector is high in the economic system, the low wage levels of public employees are regarded as an important factor leading public employees to corruption (Tanzi, 1998, p.18). Treisman (2000), who researched the

reasons for the emergence of corruption in societies through socio-cultural reasons, revealed that the probability of corruption was lower in states of law governed by democracy, where there was a high level of education and freedom of thought and press, compared to other countries. Empirical studies on other causes of corruption determined that high inflation and volatility in inflation rates (Braun and Di Tella, 2004; Miguelez, 2017), economic isolation (Campbell and Saha, 2013), income inequality (Dong and Torgler, 2011; Paldam, 2002), asymmetric information (Yıldırım, 2019), unplanned urbanization and high population growth rate (Hamidov, 2016), and low female employment rate in the public sector (Treisman, 2007) caused corruption.

The economic reports prepared by the International Monetary Fund (IMF), the United Nations Development Program (UNDP), and the World Bank (WB) emphasize that corruption adversely affects economic growth and development, especially through the investment channel (Rabnawaz, 2015, p.106). Corruption emerges in the process of performing public services, especially at the stages of the license, tender, and permit procedures. At this stage, the corruption activity, which is mostly realized as bribery, creates additional costs for the contractor company and creates uncertainties about the investment. It is impossible to detect and punish this phenomenon in the corruption processes of senior executives who take active positions in public administration, and thus, the public resources of the country are exploited (Davoodi and Tanzi, 1998, p.47). Since it is unclear when and how the corruption activity will occur, the existence of corruption also creates the problem of asymmetric information in the private sector, disrupts the functioning of the free-market economy and adversely affects the fair competition process. As a result of market uncertainty, it weakens the operational efficiency of enterprises and increases the risks and costs of doing business (Topkaya, 2014, p.98). The possible consequences of corruption in public and private sector investment activities constitute the expectation that corruption will adversely affect economic growth.

Income inequality is usually expressed as the situation in which the income obtained as a result of production in a country in a certain economic period is not distributed equally to individuals who have an effect on the production process (Topuz, 2017, p.4). The phenomenon of income inequality, which was not felt much in the feudal system and before and therefore was not subject to economic thought, has become an economic issue felt and discussed in socio-economic life with the commercial capitalism. Compared to the phenomenon of corruption, there are important non-financial reasons for financial income inequality, which can be felt more easily and calculated quantitatively.

Education and human capital factors are among the most important causes of income inequality. While production was mostly in the agricultural sector before the commercial capitalism, the fact that the production method was similar and society had a similar education level did not reveal the problem of income inequality. However, as trade gained importance over time, the distinction between qualified and unqualified individuals in society became clearer. While more qualified people dealing with trade earned more, the problem of income distribution arose between these people and farmers who continued to use primitive farming methods. In the following centuries, the shift of production intensity from the agricultural sector to the industrial and service sectors increased income distribution inequality (Becker, 1962, p.18). Technological development was the factor effective in this transition process. The increase in the demand for a more qualified workforce at the production stage with technological developments and the low flexibility of substituting the qualified workforce with different production factors (Haveman, 1977, p.103) have resulted in the widening of the income gap between the skilled and unskilled workforce. Whereas the substitution of the capital production factor for the labor production factor with developing technology over time has reduced the income distribution inequality among the labor force, the income distribution inequality has begun to be experienced between capital owners and labor production factors.

Production must first be realized to generate an income that can be distributed. The existence of physical capital is a prerequisite for the production process. Owning the physical capital by individuals in society can be explained by the effect of income in the short run and the effect of private property and wealth in the long run. Becker and Tomes (1979, p.37) argued that individuals with a lot of wealth had lower average and marginal consumption tendencies compared to individuals with little wealth. In case the low consumption tendency combined with the wealth effect directs to investment, the fact that entrepreneurs and individuals with capital gain more income as a result of the production process

compared to the labor production factor will also reveal inequality in income distribution (Tomes, 1981, p.930).

A different level of interregional development is another factor causing the inequality of income distribution. Nowadays, more than 200 countries differ from each other in terms of their level of development. According to the World Bank's data for 2020, while the GDP per capita in Afghanistan, Burundi, Chad, Somalia, and Yemen is below the level of 1,000 USD, the GDP level per capita in the USA, Denmark, Sweden, Switzerland, and Norway located in different geographical regions is above 50,000 USD. Undoubtedly, this polarization in income distribution can be explained to a large extent by the effect of education and human capital and wealth, which has previously been expressed. However, the inference that geography is not destiny but the region we live in is destiny seems more realistic based on the idea that 'poor countries are poor because they are poor.' Thus, differences in development that arise due to geographical (Elmas, 2004, p.54; Kulaksız, 2008, p.23), historical (Tekeli, 2007, p.8), cultural (Gündüz, 2006, p.35) reasons in regions with participation in labor force may result in income distribution inequality in different countries in the world or different geographical regions in the same country.

Apart from education and human capital, wealth effect and regional development differences, corruption in public and private sectors (Gupta, Davoodi and Terme, 2002), unemployment (Güder, 2019), inflation (Emek, 2020), and globalization (Wade, 2004) are indicated among the causes of income inequality.

3. Literature

Empirical studies investigating the relationship between corruption and economic growth and the relationship between income inequality and economic growth are given under two sub-headings in the literature section of the study.

3.1. Selected Empirical Literature on Corruption and Economic Growth

The history of empirical studies in economics goes back to the period when economic issues could be expressed with quantitative values, which corresponds to the last quarter of the 20th century. However, the phenomenon of corruption is a socio-economic problem that is not easy to detect and express with quantitative values. Hence, the historical background of empirical studies researching the impact of corruption on economic indicators is short, and the number of studies in this field is limited.

Mo (2001) conducted one of the first studies examining the relationship between corruption and economic growth in the empirical literature. Mo made quantitative estimates on determining the importance of transmission channels in the relationship between corruption and economic growth. In the study, the panel data set covering the years between 1970 and 1985 for 54 countries was used in the estimates made through the ordinary least squares method. In the study, the Corruption Perception Index published by Transparency International was used for the corruption index. According to the study results, it was found that a 1% increase in the corruption index decreased economic growth by 0.72%. This result demonstrates that a decrease in corruption adversely affects economic growth.

Akçay (2002) researched the impact of corruption on economic growth in a sample of 54 developed and developing countries for the period between 1960 and 1995. In the study using the Ordinary Least Squares (OLS) method, the model's dependent variable is GDP per capita, and the independent variable is the corruption index published by the International Country Risk Guide (ICRG). The study results show that corruption has a statistically significant negative effect on economic growth.

Swaleheen and Stansel (2007) empirically examined the relationship between corruption and economic growth in a sample of 60 countries by including the effect of economic freedom in the model for the period between 1995 and 2004. The results of the study using the Arellano and Bond (1991) method show that an increase in corruption in countries with a low level of economic freedom reduces economic growth, while corruption supports economic growth in countries with high economic growth.

Ju Huang (2012) examined the relationship between corruption and economic growth for the period between 1995 and 2010 in a sample of 10 Asian countries. The results of the study using the Panel Vector Error Correction Model (PVECM) demonstrate that an increase in corruption positively affects economic growth. This result of the study has been interpreted as the fact that corruption simplifies the

bureaucratic functioning in the public sector for countries constituting the sample, while decreases in bureaucracy and transaction costs positively affect economic growth.

Safuoğlu, Kızılkaya, and Ay (2017) tested the panel cointegration relationship between corruption and economic growth in a sample of newly industrialized countries for the period between 2001 and 2014. The GDP value representing the economic growth indicator used in the analysis was obtained from the World Bank's statistical database, whereas the index used to represent the corruption variable was obtained from the International Country Risk Guide (ICRG) report. According to the study results, a statistically significant relationship was detected between corruption and economic growth, and it was empirically proven that decreases in corruption increased economic growth.

Eren and Künü (2018) tested the impact of corruption on economic growth in the sample of E7 using the Common Correlated Effects (CCE) Model for the period between 2002 and 2016. In the study, the value of GDP per capita obtained from the World Bank database was used as the dependent variable, while the perceived corruption index data provided by Transparency International were used as the independent variable. The study results show that an increase in the perceived corruption index positively affects economic growth in the samples from Brazil and China, and it adversely affects economic growth in the samples from India and Russia.

Corruption is regarded as a socio-economic problem, and studies that empirically test the impact of corruption on economic growth have revealed both positive and negative effects of corruption on economic growth. Whereas the positive effect of corruption on economic growth by easing bureaucratic obstacles, particularly in the public sector, is called *"Grease the Wheels"* in the literature, the expected negative effect of corruption on economic growth is known as the *"Sand the Wheels"* (Yarıkan, 2019, p.64).

3.2. Selected Empirical Literature on the Relationship Between Income Inequality and Economic Growth

Income inequality is regarded as an economic problem creating discontent among the low and middle-income segments of society, especially after the commercial capitalism, when the countries' economies entered a rapid growth trend. Although the impact of income inequality on economic growth and crises has been discussed among classical and socialist economists, an absolute view on the economic consequences of income inequality has not been reached. Hence, the relationship between income inequality and economic growth has continued to be tested with econometric methods with the increase of empirical studies in economics.

Based on the question, *"Does income inequality adversely affect economic growth?"*, Persson and Tabellini (1991) investigated the relationship between income inequality and economic growth in a sample of 9 developed countries (Germany, USA, Austria, Denmark, Finland, Netherlands, England, Sweden, and Norway) for the period between 1830 and 1850 and studied the same research question in a similar study in the sample of 56 developing countries for the period between 1970 and 1985. The study's method was the Ordinary Least Squares method. The dependent variable in the research model was the annual average growth rate of GDP per capita, and the independent variable was the annual Gini coefficient of the countries. Statistical data sets utilized in the established model were acquired from the U.S. Department of Commerce, the World Bank, Lindert and Williamson (1985), and the United Nations database. The study results demonstrated that economic growth was adversely affected by income inequality. The study suggested that tax policies providing equality in income distribution and promoting economic growth should be implemented within the economic policies implemented by the countries.

Alesina and Rodrik (1994) researched the relationship between income inequality and economic growth in a sample of 70 countries for the period between 1960 and 1985 using the Ordinary Least Squares method. The value of GDP per capita was used as a dependent variable in the study's model, and primary school enrollment rate, Gini coefficient, Gini land distribution inequality coefficient, and democracy dummy variable were employed as independent variables. To test the relationship between the income inequality and economic growth variables, all data were obtained from the database provided by Heston and Summers (1988) and Barro and Wolf (1989), except for the Gini coefficients of the countries in question. The study findings indicate a statistically significant negative relationship between income

inequality and economic growth. It was revealed that inequalities in income and land factors in the 70 countries observed within the scope of the study adversely affected economic growth.

Birdsall, Ross, and Sabot (1995) analyzed how economic growth could occur in East Asian countries with relatively low-income inequality for the period between 1965 and 1987. The source of inspiration for that study was the fact that 9 Asian countries named HPAES (high-performance Asian economies) achieved faster economic growth than industrialized countries after 1960. The study used the Least Squares Method. The Gini coefficient, the rate of participation in education, and public expenditures constituted the independent variables of the study. The study findings showed that income inequality in East Asian countries positively affected economic growth, whereas expenditures on education reduced income inequality.

Li and Zou (1998) researched relationship between income inequality and economic growth in a sample 46 countries for the period between 1947 and 1994 using Ordinary Least Squares method. Income inequality, lagged GDP level, urbanization rate, population growth rate, financial development (M2/GDP), and trade openness data utilized within the scope of the model were acquired from Deininger and Squire (1996) and the World Bank's databases. The study results demonstrated that income inequality positively affected economic growth through the savings channel for the examined period and sample group.

Wahiba and Weriemmi (2014) studied the relationship between income inequality and economic growth in the sample from Tunisia for the period between 1984 and 2011 and performed the Granger causality test. In the model of the study, the Gini coefficient was used to represent income inequality, and the annual GDP growth rate was used to represent economic growth. The statistical data sets included in the model in the study were provided by the National Social Security Fund and the World Bank's database. The study findings demonstrated that while trade openness, financial development, and human capital positively affected economic growth, income inequality had a negative effect on economic growth.

Akpolat, Ceyhan, and Peçe (2016) tested the relationship between income inequality and economic growth in the sample from Turkey for the period between 1977 and 2013 through the Johansen (1998) cointegration test and Granger causality analysis. The value of real GDP per capita, representing economic growth, and the Gini coefficient, representing income inequality, were employed in the study's model. The Granger causality test revealed a causality relationship from income inequality to economic growth. As a result of the analysis conducted with the help of the Dynamic Least Squares (DOLS) and Canonical Cointegration Regression (CCR) tests, it was concluded that income inequality adversely affected economic growth.

This study, aiming to empirically test the relationship between corruption, income inequality, and economic growth in the sample of Fragile Five countries for the period between 1995 and 2019, is expected to contribute to the current literature in terms of the selected country sample, the period examined, and the empirical method employed.

4. Method

Information about the model and data set and the econometric method used will be provided in the method section of the study.

4.1. Model and Data Set

The relationship between corruption, income inequality, and economic growth will be estimated in the sample of the Fragile Five countries for the period of 1995-2019 through the balanced panel data analysis. Data accessibility for the corruption index was decisive for the research period of the study. The regression model established in line with the purpose of the study is presented below:

$$lrgdp_{it} = \alpha_{it} + \beta_1\, lcpi_{it} + \beta_2\, gini_{it} + \beta_3 lgfc_{it} + \varepsilon_{it} \quad [1]$$

In this model equation, i=1,2 …, 5 and t= 1,2, …, 25. In the model equation, the variable *lkbrgb* denotes the logarithmic value of the real gross domestic product per capita, *lcpi* refers to the logarithmic value of the corruption index, *gini* represents the income inequality coefficient, and *lgcf* denotes the logarithmic value of the gross fixed capital formation, the control variable of the model. Among the variables used as annual values, the value of real gross domestic product per capita (rgdp) was obtained

from the World Bank database in USD for the base year 2015, the corruption index (cpi) was obtained from the Transparency International database, the income inequality coefficient (gini) was obtained from the World Income Inequality (WID) database, and the gross fixed capital formation (gcf) was also obtained from the World Bank database. While an increase in the value of the real gross domestic product per capita, the dependent variable of the model, represents economic growth; the fact that the value of the corruption index, which takes values between 0 and 100, approaches 100 means that the phenomenon of perceived corruption decreases; and the fact that the income inequality coefficient with values between 0 and 1, approaches 1 means an increase in income inequality in the relevant country. The gross fixed capital formation, the control variable of the model, shows changes in physical assets in a country in a certain economic period.

4.2. Econometric Method

The cross-sectional dependence test, homogeneity test, stationarity test, cointegration test, and long-term coefficient estimation will be conducted respectively in the panel data analysis process of the study.

4.2.1. Cross-Sectional Dependence Test

In panel data analysis, regression estimates are made for more than one sample, considering the time dimension. Cross-sectional independence means that any shock occurring in a sample within the sample group will not impact the other samples in the sample group (Keskin and Aksoy, 2019, p.4). Furthermore, the globalization process of world economies increases the possibility of a shock emerging in economic developments to impact the economic indicators of other countries in the global economic system, and the problem of cross-sectional dependence arises. To increase the scientific validity and reliability of the results in the panel data analysis process, the cross-sectional dependence test is accepted as an important pre-test.

The Breusch-Pagan LM and Pesaran scaled LM tests were conducted to test cross-sectional dependence in the panel data analysis process of this study.

Breusch-Pagan LM Test

The Breusch-Pagan (1980) LM test is among the first statistically reliable tests used to test cross-sectional dependence. Both the cross-section dimension (N) and the time dimension (T) are taken into account in the Breusch-Pagan LM test. To apply the Breusch-Pagan LM test, the time dimension must be larger than the cross-section dimension (T>N). The test prediction equation model of the Breusch-Pagan LM test is presented below:

$$LM = T \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \hat{p}_{ij}^{\,2} \qquad [2]$$

In this test, hypothesis H_0 assumes that there is no correlation between cross-sectional units, and the chi-square at $\frac{N(N-1)}{2}$ degrees of freedom display an asymptotic distribution when T → ∞ and N is constant. In equation model [2], $\hat{p}_{ij}^{\,2}: i, j$ refers to the correlation coefficient of the error term and is calculated as shown in the equation below (Pesaran, 2004, p.4).

$$\hat{p}_{ij} = \hat{p}_{ji} = \frac{\sum_{t-1}^{T} \hat{v}_{it} \hat{v}_{jt}}{\left(\sum_{t=1}^{T} e_{it}^2\right)^{1/2} \left(\sum_{t=1}^{T} e_{jt}^2\right)^{1/2}} \qquad [3]$$

The value e_{it} in equation 3 is estimated using equation 4 below.

$$e_{it} = y_{it} - \hat{\alpha}_i - \hat{\beta}_i' x_{it} \qquad [4]$$

In the equation, $\widehat{\boldsymbol{\alpha}}_{\boldsymbol{i}}$ and $\widehat{\boldsymbol{\beta}}_{\boldsymbol{i}}'$ are estimates of $\boldsymbol{\alpha}_{\boldsymbol{i}}$ and $\boldsymbol{\beta}_{\boldsymbol{i}}$ using an intersection for each i separately and the least squares regression of $\boldsymbol{y}_{\boldsymbol{it}}$ **on** $\boldsymbol{x}_{\boldsymbol{it}}$. The LM test is more generally applicable and does not require a specific ordering of cross-sectional units. However, it is only valid for cases where N is relatively small, and T is large enough. The following hypotheses were developed for the Breusch and Pagan LM test:

H_0: There is no cross-sectional dependence, H_0: cov (u_{it}, u_{jt}) = 0,

H_1: There is cross-sectional dependence.

Pesaran Scaled LM Test

The Pesaran (2004) scaled LM test is one of the modern tests used to test cross-sectional dependence in the panel data analysis process. The Pesaran scaled LM test has been developed as an alternative test to eliminate the deficiency of the Breusch-Pagan LM test in cases where the cross-section dimension is large in comparison with the time dimension. The Pesaran scaled LM test can be used in both homogeneous and heterogeneous panel data sets.

The Pesaran scaled LM test equation model is shown in equation 5 below.

$$CD_{LM} = \sqrt{\frac{1}{N(N-1)}} \sum_{i=}^{N-1} \sum_{j=i+1}^{N} \left(T\hat{p}_{ij}^{\,2} - 1 \right) \quad [5]$$

In the Pesaran scaled LM test, it is assumed that there is no cross-sectional dependence between the units when T $\rightarrow\infty$ and N $\rightarrow\infty$. Nevertheless, when N > T, the results of the test display significant deviations, and the results may be erroneous with an increase in N. The main reason for this is that $\left(\hat{\boldsymbol{p}}_{\boldsymbol{ij}} - \mathbf{1}\right)$ cannot move toward zero for a finite T and the wrong centering of the LM statistic with large N is emphasized, which leads to size distortions (Pesaran, 2004, p.7). The hypotheses developed for the Pesaran scaled LM (CD_{LM}) test were defined as follows:

H_0: There is no cross-sectional dependence,

H_1: There is cross-sectional dependence.

In interpreting the Breusch-Pagan LM and Pesaran scaled LM test statistics, the probability values being significant at the 10% level means that hypothesis H_0 will be rejected and hypothesis H_1 will be accepted. The acceptance of hypothesis H_1 is evaluated as the presence of cross-sectional dependence between the error terms of the samples in the cross-section dimension.

4.2.2. Homogeneity Test

The homogeneity test is regarded as another important pre-test in the panel data analysis process. Like the cross-sectional dependence test, the homogeneity test results are also a decision criterion in determining the correct cointegration test in the panel data analysis process. The first statistically reliable homogeneity test studies started with Swamy (1970) and were developed by Pesaran-Yamagata (2008). The homogeneity test is employed to test the homogeneity or heterogeneity of the constant and slope parameters according to the samples in the sample group.

The delta homogeneity test developed by Pesaran and Yamagata (2008) is modeled as in the test prediction equations 6 and 7 below for large and small samples.

For a large sample: $\tilde{\Delta} = \sqrt{N}\left(\frac{N^{-1}\check{S}-k}{\sqrt{2k}}\right) \sim \chi_k^2$ [6]

For a small sample: $\hat{\Delta}_{adj} = \sqrt{N}\left(\frac{N^{-1}\check{S}-k}{2k}\right) \sim N(0,1)$ [7]

N in the equations in the model represents the cross-section size, S denotes Swamy's test statistics, k represents the independent variables, and (T, k) shows the standard error. The hypotheses of the delta homogeneity test developed by Pesaran were defined in the following way:

H_0: If $\beta_i = \beta$, the slope coefficient is homogenous,

H_1: If $\beta_i \neq \beta$, the slope coefficient is not homogenous.

The fact that the probability values of the calculated homogeneity test statistics are significant at the 10% level means that hypothesis H_0 is accepted, and the slope coefficient is homogeneous. This result demonstrates that panel statistics can be used instead of group statistics in interpreting the relationship between the series.

4.2.3. CIPS Unit Root Test

The cross-sectionally IPS [Im, Pesaran, Shin] (CIPS) unit root test was preferred at the stationary test stage of the panel data analysis process. The CIPS unit root test takes place among the second-generation unit root tests that take into account the cross-sectional dependence and heterogeneity of the variables. The CADF model was developed by Pesaran (2007) based on equation 8 below.

$$\Delta y_{it} = \alpha_i + \rho_i^* y_{i,t-1} + d_0 \bar{y}_{t-1} + d_1 \bar{y}_t + \varepsilon_{it} \quad [8]$$

In this model equation, $\bar{y}_t$ refers to the average of all cross-sections at time t. The fact that the lagged value of $\bar{y}_t$, showing the average of the cross-sections, is included in the unit root statistics allows cross-sectional dependence to be taken into account in the analysis. The extended CADF equation of this test statistic is displayed in model 9 below.

$$\Delta y_{it} = \alpha_i + \rho_i^* y_{i,t-1} + d_0 \bar{y}_{t-1} + \sum_{j=0}^{p} d_{j+1} \Delta \bar{y}_{t-j} + \sum_{k=1}^{p} c_k \Delta \bar{y}_{i,t-k} \quad [9]$$

Pesaran (2007) suggested that after estimating the CADF regression model for each cross-sectional unit, the CIPS test statistic could be calculated as in equation models 10 and 11 below by taking the averages of the t statistics.

$$CIPS(N,T) = t - bar = \frac{1}{N} \sum_{i=1}^{N} t_i(N,T) \quad [10]$$

$$CIPS = N^{-1} \sum_{i=1}^{N} CADF_i \quad [11]$$

The hypotheses of the CIPS unit root test statistics developed over the CADF test statistics were defined as follows:

H_0: If $\beta_i = 0$, the series is not stationary,

H_1: If $\beta_i < 0$, the series is stationary.

4.2.4. Westerlund and Edgerton LM Cointegration Test

The cross-sectional dependence test, homogeneity test, and stationarity test are pre-tests in the panel data analysis process. The results of these tests are a determining factor in identifying the cointegration test suitable for the model. It was decided to apply the Westerlund and Edgerton (2007) LM cointegration test in the panel data analysis process of this study. The Westerlund and Edgerton LM cointegration test based on McCoskey and Kao's (1998) Lagrange multiplier test is among the modern cointegration tests employed in the panel data analysis process in which there is cross-sectional dependence, the slope parameters of the variables are heterogeneous, and the variables are stationary at the same level (1st difference).

The Westerlund and Edgerton LM cointegration test statistic was developed on model 12 below.

$$y_{it} = \alpha_i + x_{it}' \beta_i + z_{it} \quad [12]$$

In equation 12, t=1, … T and i=1, … N index the time series dimension and cross-sectional units, respectively. The vector x_{it} in the equation has a dimension K and contains regressors assumed to be pure random walk processes. z_{it}, which symbolizes the error term, is shown in equation 13.

$$\boldsymbol{z_{it} = \mu_{it} + v_{it} \; ile \; v_{it} = \sum_{j=1}^{t} \eta_{ij}} \quad [13]$$

In equation 13, n_{ij} refers to a process with zero mean and independent of its variance and identically distributed $\boldsymbol{(\eta_{it}) = \sigma_i^2}$.

The vector $\boldsymbol{w_{it} = (u_{it}, \Delta x_{it}')'}$ is a linear process. Here, w_{it} is shown as in equation 14 below.

$$\boldsymbol{w_{it} = \sum_{j=0}^{\infty} \alpha_{ij} e_{it} - j} \quad [14]$$

In equation 14, e_{it} is the mean zero errors independent and identical across t, and parameters α_{ij} are assumed to satisfy the usual summability conditions. Since α_{ij} varies according to i in the equation, this

model can be used in case of a completely heterogeneous serial correlation structure. Moreover, to accommodate cross-sectional dependence in the equation, the stacked time series vector $\boldsymbol{e_t} = (\boldsymbol{e'_{1t}}, \dots, \boldsymbol{e'_{Nt}})'$ was allowed to be the positive definite covariance matrix $\boldsymbol{var}(\boldsymbol{e_t}) = \boldsymbol{\Omega}$. Thus, Westerlund and Edgerton's (2007: 186) LM cointegration test is shown in a final form in equation 15 below.

$$\boldsymbol{LM_N^+} = \frac{\boldsymbol{1}}{\boldsymbol{2T}} \sum_{\boldsymbol{i=1}}^{\boldsymbol{N}} \sum_{\boldsymbol{t=1}}^{\boldsymbol{T}} \boldsymbol{W_i^{-2}} \boldsymbol{S_{i,t}^2} \quad [15]$$

In equation 15, $\boldsymbol{S_{i,t}^2}$ denotes the partial sums of the error terms, $\boldsymbol{W_i^{-2}}$ refers to the long-term variances of the error terms.

The hypotheses of the LM cointegration test developed by Westerlund and Edgerton (2007) are defined in the following way:

H_{0i}: σ_i^2=0 there is a cointegration relationship between the series,

H_{1i}: σ_i^2>0 there is no cointegration relationship between the series.

4.2.5. Augmented Mean Group Effect (AMG) Long-Term Coefficient Estimation

In the panel data analysis process, after the presence of a long-term relationship between the variables is determined by cointegration tests, the next step is to estimate the long-term effect coefficient of the independent variables on the dependent variable. The Augmented Mean Group Effect (AMG) long-term coefficient estimation will be employed at this test stage. The model specification of the AMG long-term coefficient estimation is presented in model 16 below.

$$\boldsymbol{y_{it}} = \boldsymbol{\acute{\beta}_i x_{it}} + \boldsymbol{u_{it}} \;\; ; \;\; \boldsymbol{u_{it}} = \boldsymbol{\alpha_i} + \boldsymbol{\acute{\lambda}_i f_t} + \boldsymbol{\varepsilon_{it}} \quad [16]$$

x_{it} in equation set 16 is a vector of observable covariates. Additionally, it expresses a combination of group-specific fixed effects α_i and country-specific factor loadings $\boldsymbol{\lambda_i}$ with a set of common factors f_t.

$$\boldsymbol{x_{mit}} = \boldsymbol{\pi_{mi}} + \boldsymbol{\acute{\delta}_{mi} g_{mt}} + \boldsymbol{p_{1mi} f_{1mt}} + \dots + \boldsymbol{p_{nmi} f_{nmt}} + \boldsymbol{v_{mit}} \quad [17]$$

In equation 17, m = 1, 2, 3, …, k and $f_{mt} \subset f_t$.

$$\boldsymbol{f_t} = \boldsymbol{\acute{\varrho} f_{t-1}} + \boldsymbol{\varepsilon_t} \;\; \boldsymbol{and} \;\; \boldsymbol{g_t} = \boldsymbol{\acute{k} g_{t-1}} + \boldsymbol{\epsilon_t} \quad [18]$$

Modeled as linear functions of the unobserved common factors f_t and g_t with country-specific factor loadings, respectively, in the set of equations 18, k shows an empirical representation of observable regressors. Hence, the model setup reveals cross-sectional dependence in observables and non-observables.

The AMG coefficient estimation method is an estimation method explaining cross-sectional dependence by including a common dynamic effect in the regressions established in cross-country analyses. In this respect, the AMG method is extracted from the year dummy coefficients of a pooled regression in first differences and denotes the levels-equivalent mean evolvement of unobserved common factors across all countries. Provided that unobserved common factors constitute a part of the country-specific cointegration relationship, the augmented country regression model covers the cointegration relationship allowed to differ among countries (Eberhardt and Bond, 2009, p.2-3).

5. Empirical Results

The cross-sectional dependence test, homogeneity test, unit root test, cointegration test, and long-term coefficient estimation process steps, respectively, were followed in the panel data analysis process of this study, testing the relationship between corruption, income inequality, and economic growth in the sample of the Fragile Five countries for the period between 1995 and 2019. Gauss and Stata package programs were used in the panel data analysis process.

5.1. Cross-Sectional Dependence Test Results

In the panel data analysis process of the study, it was preferred to use the Breusch-Pagan LM and Pesaran scaled LM tests for the cross-sectional dependence test, considering the cross-section and time dimension of the sample set.

Table 1. Cross-Sectional Dependence Test Results

Variables	Cross-Sectional Dependence Test Statistics and Probability Values	
	Breusch-Pagan LM Test	Pesaran CD_{LM} Test
lkbrgb	63.161***	11.887***
lcpi	43.601***	7.513***
Gini	20.644***	2.380***
lgcf	16.921***	1.548*
For the model	39.017***	6.488***

Explanation: The symbols ***, **, and * in the model indicate the significance levels at 1%, 5%, and 10%, respectively.

Hypothesis H_0 of the cross-sectional dependence tests in the table as asserted that there was no cross-sectional dependence. According to the cross-sectional dependence test statistics and probability values shown in the table, it is determined that there is cross-sectional dependence at the 10% significance level between the variables of the model and for the model's equation. The fact that the problem of cross-sectional dependence is identified for the series created over the data for each country in the study's sample group means that a shock that occurs in any sample in the cross-section of the panel can also affect other samples.

5.2. Homogeneity Test Results

The $\tilde{\Delta}$ and $\tilde{\Delta}_{adj}$ tests developed by Pesaran and Yamagata (2008) were used to examine the homogenous or heterogenous structures of the slope coefficients of the cross-sectional units forming the panel. Homogeneity tests are employed to reveal whether the countries in the sample are similar to each other.

Table 2. Homogeneity Test Results

Delta Test	Homogeneity Test Statistics and Probability Values	
	$\hat{\Delta}$ Test	$\hat{\Delta}_{adj}$ Test
Model	10.035***	11.166***

Explanation: The symbols ***, **, and * in the model indicate the significance levels at 1%, 5%, and 10%, respectively.

The fact that the delta test statistical values in the table are significant at the 1% level means that the slope parameters in the model have a heterogeneous structure for the country samples in the cross-section of the panel. According to these results, it is understood that the slope parameters to be calculated can be statistically reliably interpreted for the relevant countries in the sample.

5.3. Unit Root Test Results

The results of the cross-sectional dependence test in the panel data analysis process of the study indicated cross-sectional dependence between the model's variables. Therefore, the panel data analysis process will continue with the CIPS test, one of the second-generation panel unit root tests. The CIPS statistic, developed by Pesaran (2007), is calculated by averaging the CADF test statistic. The fact that the CIPS test statistic is greater than the table critical values in absolute values means that hypothesis H_0 is rejected, and the series is stationary at the relevant level.

Table 3. Unit Root Test Results

Variables	CIPS Unit Root Test Statistical Results for the Fixed Effects Model	
	Test Statistics and Probability Values for Condition I(0)	Test Statistics and Probability Values for Condition I (1)
lkbrgb	-0.988	-3.821***
lcpi	-2.040	-4.231***
gini	-1.158	-3.860***
lgcf	-1.937	-4.617***

Explanation: The table critical values take the values of [-2.51; -2.25, and -2.12], respectively, for the significance levels at 1%, 5%, and 10%. The symbols ***, **, and * in the table indicate the significance levels at 1%, 5%, and 10%.

According to the CIPS test statistical results in the table, it is observed that the dependent variable of the model lrgdp and the independent variables, lcpi, gini, and lgcf, are not stationary at the level and all variables become stationary after taking the first difference.

5.4. Cointegration Test Results

It was found that all the variables within the scope of the model were stationary after taking the first difference. In light of this result, the panel data analysis process will be continued with the LM panel cointegration test developed by Westerlund and Edgerton (2007). In interpreting the results of the Westerlund and Edgerton (2007) LM panel cointegration test, if there is a problem of cross-sectional dependence between the variables, the bootstrap probability value is taken into account; if there is no cross-sectional dependence problem between the variables, the asymptotic probability value is taken into account.

Table 4. Cointegration Test Results

Westerlund and Edgerton LM Test	Cointegration Test Statistics and Probability Values		
	Statistical Value	Asymptotic Probability Value	Bootstrap Probability Value
	0.510	0.997	0.305

Explanation: The symbols ***, **, and * in the table indicate the significance levels at 1%, 5%, and 10%, respectively. Bootstrap probability values were obtained from a 10,000 repeated distribution.

According to the results of the cross-sectional dependence test of the panel data analysis process in the study, it was determined that there was cross-sectional dependence between the model's variables and for the overall model. Hence, when interpreting the cointegration results, the bootstrap probability value must be interpreted. Considering the bootstrap probability value of the Westerlund and Edgerton LM test in the table, it is revealed that hypothesis H_0, suggesting the presence of a cointegration relationship between the dependent and independent variables, cannot be rejected at the 10% significance level and there is a long-term cointegration relationship between the dependent variable and the independent variables.

5.5. Long-Term Coefficient Estimation Results

This study aims to research the impacts of corruption and income inequality on economic growth in the sample of Brazil, India, Indonesia, South Africa, and Turkey, known as the Fragile Five, for the period between 1995 and 2019. To this end, panel data analysis was conducted in accordance with the research subject, and the effect of the independent variables on the dependent variable was examined by the Augmented Mean Group Effect (AMG) test developed by Eberhardt and Bond (2009).

Table 5. Long-Term Coefficient Estimation Results

Sample and Panel	AMG Long-Term Coefficient Estimation and Probability Values			
	Fixed	lcpi	gini	Lgcf
Brazil	7.72***	-0.06	0.72	0.27***
India	6.72***	-0.04	2.56**	-0.42***
Indonesia	6.96***	-0.62*	2.48*	0.33
South Africa	7.37***	-0.129	0.90***	0.32***
Turkey	6.47***	-0.05	1.73	0.40

Explanation: The symbols ***, **, and * in the table indicate the significance levels at 1%, 5%, and 10%, respectively.

According to the AMG long-term coefficient estimation results, it is seen that the independent lcpi variable (corruption index) has a statistically significant effect on the dependent variable only in the Indonesian sample. 1% increase in the lcpi variable impacts the dependent variable negatively by 0.62%. Since increases in the corruption index, which takes a value between 1 and 100, are interpreted as decreases in corruption, it is concluded that the increase in the corruption index in the Indonesian sample, in other words, the decrease in corruption, impacts economic growth negatively.

Changes in the Gini coefficient, the indicator of income inequality within the scope of the model, have a statistically significant effect on the dependent variable, the economic growth indicator, in the samples from India, Indonesia, and South Africa. 1-unit increase in the Gini coefficient, i.e., an increase in income inequality, positively affects economic growth by 2.56% in India, 2.48% in the Indonesian sample, and 0.90% in the South African sample.

1% increase in lgcf positively affects economic growth by 0.27% in the Brazilian sample and by 0.32% in the South African sample, while it negatively affects economic growth by 0.42% in the Indian sample.

6. Conclusion and Evaluation

Corruption and income inequality, which occur in different ways according to the economic, social, and cultural structures of countries, represent two important arguments that seem to be related to production, consumption, and, ultimately, economic growth, particularly in developing countries. Although corruption is considered to have an adverse effect on economic growth at first, a positive causality relationship between corruption and economic growth can be empirically determined in developing countries with intense bureaucracy. Especially in the transition period from the feudal system to mass industrial production, an absolute consensus has not been reached on the point that income inequality, which has started to make itself felt in the economic system, is an important economic problem.

It has become a ritual that developing countries or groups of countries whose economies seem to be more problematic are preferred as samples in research on economic growth due to the fact that the free-market economy functions more flawlessly in developed countries than in developing countries. Therefore, the group of the countries, known as the Fragile Five, which are constantly confronted with crises at certain stages and have more economic fragility because their economies cannot be stabilized, constitute the sample group of this study. In the present study, which empirically investigated the relationship between corruption, income inequality, and economic growth for the period between 1995 and 2019, the following results were reached:

- The decrease in corruption (the increase in the corruption index) adversely affects economic growth in Indonesia.
- The increase in income inequality positively affects economic growth in India, Indonesia, and South Africa.

- The increase in gross fixed capital formation, the control variable of the model, positively affects economic growth in Brazil and South Africa, while it adversely affects economic growth in India.

Despite the end of Suhorta's strong authoritarian regime under the control of the army in 1998, patrimonialism in public administration and the problems related to this management approach could not be solved in Indonesia. The first of these problems is the habit of corruption, which is frequently seen in public administration. The result of this study, which was determined between corruption and economic growth in the Indonesian sample, overlaps with the findings of Mo (2000), Ju Huang (2002), Swaleheeen and Stansel (2007), and Eren and Künü (2018) in the literature. The result of this study and studies mentioned in the literature support the *"Grease the Wheels"* statement, suggesting that corruption contributes to economic growth, particularly through investments in the public sector. As developing countries, India, Indonesia, and South Africa need physical capital for economic growth. As the Classical Theory of Distribution explains, the higher marginal saving tendencies of individuals with higher incomes have an effect that increases investments and accelerates economic growth. In this study, the result that income inequality positively affects economic growth is like the results obtained in the studies of Birdsall, Ross and Sabost (1995) and Li and Zou (1998) in the literature.

Considering the adverse effects of corruption in economic, social, and cultural life, allowing corruption to promote economic growth will bring about many socioeconomic problems. Hence, eliminating bureaucratic obstacles in economic functioning and ensuring transparency in the economy will have a more permanent and stable effect on economic growth. The difference in the quality of the labor force for labor markets is remarkable in the samples of countries where income inequality supports economic growth. The inadequacy and ineffectiveness of the education system are regarded as important factors among the reasons for this situation. Especially in developing countries, it is recommended that education should be spread across the countries, attaching importance to vocational training that provides workers with qualifications and implementing economic policies to reduce unemployment.

REFERENCES

Akçay, S. (2002). Yolsuzluk ve Ekonomik Büyüme: Ülkelerarası Bir Çalışma. *Ankara Üniversitesi SBF Dergisi,* 57(1), 1-13.

Akpolat, A., Ceyhan, M. S., ve Peçe, M. A. (2016). Türkiye'de Gelir Dağılımının Ekonomik Büyümeye Etkisi Üzerine Ekonometrik Bir Analiz. *Uluslararası Kültürel ve Sosyal Araştırmalar Dergisi,* 2(1), 135-148.

Aktan, C., ve Vural, İ. Y. (2002). Başlıca Fonksiyonel Gelir Dağılımı Teorileri ve Bölüşüm Adaleti. Coşkun Can Aktan (ed.), *Yoksullukla Mücadele Stratejileri* içinde (s.1-22). Ankara: Hak-İş Konfederasyonu Yayınları.

Aktaş, E. E. (2019*). Gelir Eşitsizliği ve Ekonomik Büyüme İlişkisi: Ampirik Bir İnceleme.* (Doktora Tezi) Hacettepe Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

Alesina, A., & Rodrik , D. (1994). Distributive Politics and Economic Growth. *The Quarterly Journal of Economics,* 109(2), 465-490. https://doi.org/10.2307/2118470

Becker, G. S. (1962). Investiment In Human Capital: A Theoretical Analysis. *Journal of Political Economy*, 70(5), 9-49. https://doi.org/10.1086/258724

Becker, G. S. (1968). Crime and Punishment: An Economic Approach. *Journal of Political Economy,* 76(2), 169-217. Access Address: https://www.jstor.org/stable/1830482

Becker, G., & Tomes , N. (1979). An Equilibrium Theory of the Distribution of Income and Intergenerational Mobility. *Journal Of Political Economy,* 87(6), 1153-1154. Access Address: https://www.jstor.org/stable/1833328

Birdsall, N., Ross, D., & Sabot, R. (1995). Inequality and Growth Reconsidered: Lessons from East Asia. *The World Bank Economic Review,* 9(3), 477-508. https://doi.org/10.1093/wber/9.3.477

Braun, M. & Di Tella R. (2004). Inflation, Inflation Variability, and Corruption. *Economics and Politics*, 16(1), 77-100. https://doi.org/10.1111/j.1468-0343.2004.00132.x

Breusch, T.S. & Pagan, A.R. (1980). The Lagrange Multiplier Test and Its Applications to Model Specification Tests in Econometrics. *Review of Economic Studies,* 47(1), 239-253. https://doi.org/10.2307/2297111

Campbell, N. & Saha S. (2013). Corruption, Democracy, and Asia-Pacific Countries. *Journal of the Asia Pacific Economy*. 18(2), 290-303. https://doi.org/10.1080/13547860.2013.778156

Davoodi, H., & Tanzi, V. (1998). Corruption, Public Investment, and Growth, *IMF Working Paper* 97/139. 1-23. https://doi.org/10.5089/9781451929515.001

Dong, B. & Torgler, B. (2011). Democracy, Property Rights, Income Equality and Corruption. *Nota di Lavoro*, 1-23. http://dx.doi.org/10.2139/ssrn.1756816

Eberhardt, M., & Bond, S. (2009). Cross-section Dependence in Nonstationary Panel Models: A Novel Estimator. *MPRA,* 33(11), 1-26. Access Address: https://mpra.ub.uni-muenchen.de/17692/

Elmas, G. (2004). Cumhuriyet'in İlanından Günümüze Bölgesel Politikalar. *Ekonomik Yaklaşım Dergisi*, 15(50), 115-136.

Emek, Ö. F. (2020). *Enflasyonun Gelir Eşitsizliği Üzerindeki Etkisinin Panel Veri Analizi ile İncelenmesi.* (Doktora Tezi). İstanbul Üniversitesi Sosyal Bilimler Enstitüsü, İstanbul.

Eren, M., ve Künü, S. (2018). Yolsuzluk ve Ekonomik Büyüme İlişkisi: E7 Ülkeleri İçin Bir Uygulama. *Iğdır International Conference On Multidisciplinary Studies,* 6(7), 1470-1476.

Galor, O. (2011). Inequality, Human Capital Formation and the Process of Development. *National Bureau of Economic Research Working Paper*, No: 17058. https://doi.org/10.3386/w17058

Galor, O., & Zeira, J. (1993). Income, Distribution and Macroeconomics, *JSTOR.* 60(1), 35-52. https://doi.org/10.2307/2297811

Gedikli, A. (2011). Kamu Hizmetlerinin Yönetimi Sürecinde Yolsuzluğun Derinleştirdiği Ekonomik Büyüme ve Yoksulluk Sorunu Üzerine Bir Uygulama. *Öneri.* 9(36), 169-188.

Gupta, S., Davoodi, H., & Terme, R. (2002). Does Corruption Affect Income Inequality and Poverty? *Economics of Governance*, 3(1), 23-45. https://doi.org/10.1007/s101010100039

Güder, F. (2019). *Makroekonomik Faktörlerin Gelir Dağılımı Üzerine Etkisi: Panel Veri Analizi.* (Doktora Tezi). Çanakkale On Sekiz Mart Üniversitesi Sosyal Bilimler Enstitüsü, Çanakkale.

Gündüz, A. (2006). *Bölgesel Kalkınma Politikası*. Bursa: Ekin Kitabevi.

Haveman, R. H. (1977). Tinbergen's Income Distirıibution: Analysis and Policies. *The Journal Of Human Resources*, 12(1), 103-114. https://doi.org/10.2307/145601

Hamidov, R. (2016). *Türk Kamu Yönetiminde Yolsuzlukla Mücadele Sürecinde Örgütlenme.* (Yüksek Lisans Tezi). Selçuk Üniversitesi Sosyal Bilimler Enstitüsü, Konya.

Ju Huang, C. (2012). Corruption, Economic Growth, and Income Inequality: Evidence from Ten Countries in Asia. *World Academy of Science, Engineering, and Technology,* 6(6), 1141-1145. https://doi.org/10.5281/zenodo.1332584

Keskin, H. İ., ve Aksoy, E. (2019). OECD ve Gelişmekte Olan Ülkelerde Gelir Artışı ve İşgücüne Katılım Arasındaki İlişki: Panel Eşbütünleşme Analizi. *Üçüncü Sektör Sosyal Ekonomi Dergisi*, 54(1), 1-20.

Kulaksız, Y. (2008*). Türkiye'de Bölgesel Gelişmişlik Farkları, İstihdam ve Kurum Hizmetlerinin Çeşitlendirilmesi.* T. C. Çalışma ve Sosyal Güvenlik Bakanlığı Türkiye İş Kurumu Genel Müdürlüğü Uzmanlık Tezi, Ankara.

Li, H., & Zou, H. (1998). Income Inequality is Not Harmful for Growth: Theory and Evidence. *Review of Development Economics*, 2(3), 318-334. https://doi.org/10.1111/1467-9361.00045

McCoskey, S. & Kao, C. (1998). A Residual-Based of the Null Hypothesis of Cointegration in Panel Data, *Econometrics Reviews*, 17, 57-84. https://doi.org/10.1080/07474939808800403

Meriç, M. (2004). Yolsuzluk Nedenleri ve Önlemeye Yönelik Çalışmalar. *Muğla Üniversitesi Sosyal Bilimler Enstitüsü Dergisi* (12), 72-85.

Miguelez, J. L. (2017). Corruption, Inflation and Income Distribution in Transition Economies: The Balkan Religion. (Master Thesis). University of Macedonia.

Mo, P. (2001). Corruption and Economic Growth. *Journal of Comparative Economics*, 29(1), 66-79. https://doi.org/10.1006/jcec.2000.1703

Özkal Sayan, İ., ve Kışlalı, M. (2004). Yolsuzluk Üzerine Ekonometrik Bir Çalışma. *Amme İdaresi Dergisi*, 37(2), 31-50.

Öztürk, D. D. (2010). Klasik ve Neoklasik İktisatta Gelir Bölüşümü. *Çalışma ve Toplum*, 1(24), 59-90.

Paldam, M. (2002). The Cross-Country Pattern of Corruption: Economics, Culture and The Seesaw Dynamics. *European Journal of Political Economy*, 18(2),215-240. https://doi.org/10.1016/S0176-2680(02)00078-2

Persson, T., & Tabellini, G. (1991). Is Inegualty Harmful For Growth? Theory and Evidence. *National Bureau Of Economic Research*, 1-37. https://doi.org/10.3386/w3599

Pesaran, M. (2004). General Diagnostic Tests for Cross Section Dependence in Panels. (IZA Discussion Paper No. 1240). *Institute for the Study of Labor* (IZA). https://doi.org/10.17863/CAM.5113

Peseran, M. H. (2007). A Simple Panel Unit Root Test in The Presence Of Cross-Section Dependence. *Journal Of Applied Econometrics*, 22, 265-312. https://doi.org/10.1002/jae.951

Pesaran, M. H. & Yamagata T. (2008), Testing Slope Homogeneity in Large Panel. *Journal of Econometrics*. 142(1), 50-93. https://doi.org/10.1016/j.jeconom.2007.05.010

Rabnawaz, A. (2015). Corruption, Inequality and Economic Growth. *Developing Country Studies.* 5(15), 106-111. Access Address: https://ssrn.com/abstract=2796339

Ryan, L. V. (2000). Combating Corruption: The 21st Century Ethical Challenge, Business Ethics, *Globalization and the Ethics Business*, 10(1), 331-338. https://doi.org/10.2307/3857717

Safuoğlu, E., Kızılkaya, D., & Ay, P. (2017). Yolsuzluk ve Ekonomik Büyüme Arasındaki İlişki: Yeni Sanayileşmiş Ülkeler için Panel Veri Analizi. *International Conferance On Eurasian Economies.* 476-483.

Süleymanlı, Şemistan (2022). Yolsuzluk, Gelir Eşitsizliği ve Ekonomik Büyüme İlişkisi: Kırılgan Beşli Ülkeleri Örneği. Unpublished Master Thesis. Recep Tayyip Erdogan Üniversitesi Lisansüstü Eğitim Enstitüsü.

Swaleheen, M., & Stansel, D. (2007). Economic Fredoom, Corruptıon and Growth. *Cato Journal*, 27(3), 343-358. Access Address:

https://ciaotest.cc.columbia.edu/journals/cato/v27i3/f_0001657_869.pdf

Swamy, P. (1970). Efficient Inference in a Random Coefficient Regression Model. *Econometrica*, 38(2), 311-323. https://doi.org/10.2307/1913012

Tanzi, V. (1998). Corruption Around the World: Causes, Consequences, Scope, and Cures. *IMF Staff Papers*, 45(4), 559-594. https://doi.org/10.2307/3867585

Tekeli, İ. (2007). Yerelleşme ve Yolsuzluk. *TEVAP 3. Yolsuzlukla Mücadele Konferansı,* Ankara

Tomes, N. (1981). The Family, Inheritance, and the Intergenerational Transmission of Inequality. *Journal of Political Economy*, 89(5), 928-958. https://doi.org/10.1086/261014

Topkaya, A. (2014). *Yolsuzluk ve Ekonomik Etkileri*. (Yüksek Lisans Tezi). Gazi Üniversitesi Sosyal Bilimler Enstitüsü, Ankara.

Topuz, S. G. (2017). *Gelir Eşitsizliği ve Ekonomik Büyüme İlişkisi*. (Doktora Tezi). Anadolu Üniversitesi Sosyal Bilimler Enstitüsü, Eskişehir.

Treisman, D. (2000). The Causes of Corruption: A Cross-National Study. *Journal of Public Economics*, 76(3), 399-457. https://doi.org/10.1016/S0047-2727(99)00092-4

Treisman, D. (2007). What Have We Learned About the Causes of Corruption from Ten Years of Cross-National Empirical Research?. *Annual Review of Political Science*, 10, 211-244. http://doi.org/10.1146/annurev.polisci.10.081205.095418

Wade, R. (2004). Is Globalization Reducing Poverty and Inequality? *International Journal of Health Services*, 34(3), 381–414. https://doi.org/10.1016/j.worlddev.2003.10.007

Wahiba, N., & Weriemmi, M. (2014). The Relationship Between Economic Growth and Income Inequality. *International Journal of Economics and Financial Issues*, 4(1), 135-143. Access Address: https://dergipark.org.tr/en/pub/ijefi/issue/31961/351987

Westerlund, J., & Edgerton, D. (2007). A Panel Bootstrap Cointegration Test. *Economics Letters*, 97(3), 185-190. https://doi.org/10.1016/j.econlet.2007.03.003

Yarıkan, İ. (2019). *Yolsuzluğun Ekonomik Büyümeye Etkisi: Karadeniz Ekonomik İşbirliği Örgütü (KEİ) Örneği*. (Yüksek Lisans Tezi). Dumlupınar Üniversitesi Sosyal Bilimler Enstitüsü, Kütahya.

Yıldırım, İ. (2019). Asimetrik Bilgi: Finansal Piyasalardan Sonra Siyaset ve Bürokraside Durumu, Sakıncaları ve Tedbirler. *ABMYO Dergisi*, 14(55), 217-230.

Yılmaz, A. ve Güvel, E. A. (2009). Yolsuzluk Olgusunun Ortaya Çıkmasında Asimetrik Bilginin Rolü: Teorik Bir Bakış Açısı. *Sosyoekonomi Dergisi*, 9(9), 167-189.

Araştırma Makalesi

Corruption, Income Inequality and Economic Growth: The Fragile Five Countries (1995-2019)

Yolsuzluk, Gelir Eşitsizliği ve Ekonomik Büyüme İlişkisi: Kırılgan Beşli Ülke Örneği (1995-2019)

Şemistan SÜLEYMANLI	Oğuzhan SUNGUR
Yüksek Lisans Mezunu, Recep Tayyip Erdoğan Üniversitesi	Dr. Öğr. Üyesi, Recep Tayyip Erdoğan Üniversitesi
İktisat Ana Bilim Dalı	İktisat Bölümü
semistan_suleymanli19@erdogan.edu.tr	oguzhan.sungur@erdogan.edu.tr
https://orcid.org/0000-0001-0071-8381	https://orcid.org/0000-0001-6897-4926

Genişletilmiş Özet

Özellikle iktisadın bir bilim olarak ortaya çıktığı dönem sonrasında devletin ekonomik sistem içerisinde olup / olmaması ve olması gerekiyorsa ekonomik sistem içerisindeki rolünün ne olması gerektiği farklı iktisadi düşünce akımları tarafından tartışılmıştır. II. Dünya Savaşı sonrasında ise bu tartışma yolsuzluk olgusu üzerinden yeni bir boyut kazanmış ve uluslararası iktisadi kuruluşlar da yolsuzluk kavramı ile ilişkili yapmış oldukları tanım ve ileri sürmüş oldukları görüşler ile sürecin bir parçası haline gelmiştir. Birleşmiş Milletlerin yolsuzlukla mücadele sözleşmesinde *"demokrasinin kurum ve değerlerini, etik değerleri ve adaleti zayıflatan, sürdürülebilir kalkınmayı ve hukukun üstünlüğünü tehlikeye sokan"* kavram olarak bahsedilen yolsuzlukla mücadelede bugün gelinen süreçte BM, OECD, WTO etkin bir şekilde mücadele etmekte ve yolsuzluğun neden olduğu toplumsal ve iktisadi sorunların hafifletmesi amaçlanmaktadır (Ryan, 2000:332). Yolsuzlukta olduğu gibi dünyanın hassasiyetle üzerine eğildiği önemli bir diğer konu da gelir eşitsizliği ve bu durumun neden olduğu yoksulluktur. Dünya Eşitsizlik Raporu'na (2022) göre, 2021 yılında dünyanın en zengin yüzde 10'u küresel gelirin yüzde 52'sine sahipken dünya nüfusunun en yoksul yüzde 50'lik kesimi ise küresel gelirin sadece yüzde 8,5'nin sahibi olabilmektedir. İktisadi hayatta gelirin eşit ve adil dağılımının aynı anlamı taşımadığı bir dünyada ekonomik büyümeyi gelir dağılımı eşitsizliğinin mi yoksa daha eşit bir gelir dağılımın mı desteklediği bugünün iktisatçıları arasında tartışılmaya devam edilen sosyo-ekonomik bir konudur.

Kamusal bir nitelik taşıdığı düşünülen yolsuzluk olgusu üzerine literatürde yapılan ilk çalışmalardan bir tanesi Becker'a (1968) aittir. Bu çalışmada, yolsuzluğun ortaya çıkış nedeni "Suç ve Ceza Modeli" üzerinden açıklanmaktadır. Suç ve Ceza Modeli 'ne göre bireyin yolsuzluk faaliyetine yönelmesi bu eylem sonucunda elde edeceği fayda ve maliyet ile ilişkilidir. Birey, gerçekleştireceği yolsuzluk eylemi neticesinde bu durumun tespit edilmeyeceğini ya da tespit edilse bile az bir cezaya katlanma olasılığı karşılığında yüksek maddi kazançlar elde edeceğini düşünmesi yolsuzluğun gerçekleşmesi için uygun bir düşünsel ortam ortaya çıkarmaktadır (Yılmaz ve Güvel, 2009: 169). Yolsuzluğun nedenleri araştırıldığında yolsuzluğu ortaya çıkaran ilk nedenler arasında devletin yani kamu gücünün ekonomik sistem içerisinde fazla yer alması gösterilmektedir (Özkal Sayan ve Kışlalı, 2004:35). Ekonomik düzenlemelerin fazla ama ekonomik özgürlüklerin az olduğu ülkelerde rant kollama fırsatlarının ortaya çıkması yolsuzluğun temel nedenleri arasında kabul edilmektedir (Meriç, 2004: 72). Ekonomik sistem içerisinde kamu kesimi ağırlığının fazla olduğu özellikle gelişmekte olan ülkelerde kamu çalışanlarının ücret düzeylerinin düşük olması kamu çalışanlarını yolsuzluğa sevk eden önemli bir etken olarak görülmektedir (Tanzi, 1998:18). Toplumlarda yolsuzluğun ortaya çıkma nedenlerini sosyo-kültürel nedenler üzerinden araştıran Treisman (2000), eğitim seviyesi yüksek, düşünce ve basın özgürlüğünün bulunduğu demokrasi ile yönetilen hukuk devletlerinde yolsuzluğun ortaya çıkma olasılığının diğer ülkelere kıyasla daha düşük olduğunu tespit etmiştir. Yolsuzluğun diğer nedenleri üzerine yapılan ampirik çalışmalarda ise yüksek enflasyon ve enflasyon oranlarındaki oynaklığın (Braun ve Di Tella,

2004; Miguelez, 2017), ekonomik dışa kapalılığın (Tavares, 2004; Campbell ve Saha, 2013), gelir eşitsizliğinin (Dong ve Torgler, 2011; Paldam, 2002) asimetrik bilginin (Yıldırım, 2019), çarpık kentleşme ve nüfus artış hızı yüksekliğinin (Hamidov, 2016), kamu kesiminde düşük kadın istihdam oranının (Treisman, 2007) yolsuzluğa neden olduğu tespit edilmiştir.

Gelir eşitsizliği, genellikle bir ülkede belirli bir iktisadi dönemde üretim sonucunda elde edilen gelirin üretim sürecinde etkisi olan bireylere eşit dağılmama durumu olarak ifade edilmektedir (Topuz, 2017:4). Feodal sistem ve öncesinde çok fazla hissedilmeyen ve bu yüzden de iktisadi düşünceye konu edilmeyen gelir eşitsizliği olgusu, ticari kapitalizmin yaşanmaya başladığı 16. yüzyıl ve sonrasında Sanayi Devrimi ile sosyo-ekonomik hayatta hissedilen ve tartışılan iktisadi bir konu haline gelmiştir. İlerleyen yüzyıllarda ise üretim yoğunluğunun tarım sektöründen sanayi ve hizmetler sektörüne yönelmesi gelir dağılımı eşitsizliğini artmıştır (Becker, 1962:18). Bu geçiş sürecinde etkili olan faktör teknolojik gelişme olmuştur. Teknolojik gelişme ile üretim aşamasında daha nitelikli işgücüne talebin artması ve nitelikli işgücünün farklı üretim faktörleri ile ikame edilebilme esnekliğinin düşük olması (Haveman, 1977: 103) nitelikli ve niteliksiz işgücü arasındaki gelir farkının açılması sonucunu ortaya çıkarmıştır. Zaman içerisinde gelişen teknoloji ile sermaye üretim faktörünün emek üretim faktörü yerine ikame edilebilme durumunun gerçekleşmesi işgücü arasındaki gelir dağılımı eşitsizliğini azaltırken bu seferde gelir dağılımı eşitsizliği sermaye sahipleri ve emek üretim faktörleri arasında yaşanmaya başlamıştır. Bölgelerarası gelişmişlik seviyesinin farklı olması gelir dağılımı eşitsizliğini ortaya çıkaran bir diğer faktördür. Günümüzde 200'ü aşkın ülke gelişmişlik seviyesi açısından birbirinden farklılık göstermektedir. Dünya Bankası 2020 verilerine göre Afganistan, Burundi, Chad, Somali, Yemen'de kişi başı GDP seviyesi 1.000 Amerikan doları seviyesinin altındayken farklı coğrafik bölgelerde yer alan A.B.D., Danimarka, İsveç, İsviçre ve Norveç'te kişi başı GDP seviyesi 50.000 Amerikan dolarının üzerindedir. Gelir dağılımındaki bu kutuplaşma şüphesiz eğitim, beşerî sermaye ve servet etkisi ile önemli ölçüde açıklanabilir. Ama 'fakir ülkeler fakir oldukları için fakirdir' düşüncesinden hareket edilirse coğrafya kader değil, yaşanılan bölge kaderdir çıkarımı daha gerçekçi durmaktadır. Böylelikle işgücüne katılım gösterilen bölgelerde coğrafik (Elmas, 2004: 54; Kulaksız, 2008:23), tarihsel (Tekeli, 2007:8), kültürel (Gündüz, 2006:35) vb. nedenlerle ortaya çıkan gelişmişlik farklılıkları (Hirschman, 1958:41) dünyada farklı ülke ya da aynı ülkede farklı coğrafik bölgelerde gelir dağılımında eşitsizliği ortaya çıkarabilecek bir sonuca neden olabilmektedir. Eğitim ve beşerî sermaye, servet etkisi ve bölgesel gelişmişlik farklılıkları dışında, kamu ve özel kesimde ortaya çıkacak yolsuzluklar (Gupta, Davoodi ve Terme, 2002), işsizlik (Güder, 2019), enflasyon (Emek, 2020), ve küreselleşme (Wade, 2004) gelir dağılımı eşitsizliğinin nedenleri arasında gösterilmektedir.

İktisat biliminde ampirik çalışmaların geçmişi iktisadi konuların nicel değerlerle ifade edilebildiği döneme kadar uzanmaktadır ki bu dönem özellikle 20. yüzyılın son çeyreğine denk gelmektedir. Çalışmanın araştırma konusunu oluşturan faktörlerden yolsuzluk olgusu, hem tespit edilmesi hem de nicel değerlerle ifade edilmesi çok kolay olmayan sosyo-ekonomik bir sorun olması nedeniyle de bu alanda yapılan ampirik araştırmaların sayısı son derece sınırlıdır. Gelir eşitsizliğinin sosyo-ekonomik hayattaki rolü ise iktisadi düşünce alanında klasik ve sosyalistler arasında düşünce farklılığına neden olan en önemli konular arasında yer almaktadır. Yolsuzluğun ekonomik büyüme üzerindeki etkisini araştıran ilk çalışmalardan bir tanesi Mo'ya (2001) aittir. Bu çalışmada yolsuzluğun ekonomik büyüme üzerinde pozitif bir etkiye sahip olduğu tespit edilmiştir. Bu araştırma alanında yapılan diğer çalışmalarda ise Akçay (2002) yolsuzluğun ekonomik büyüme üzerinde negatif, Ju Huang (2012) yolsuzluğun ekonomik büyüme üzerinde pozitif, Swaleheen ve Stansel (2007) ile Eren ve Künü (2018) ise farklı ülke örneklemlerinde yolsuzluğun ekonomik büyümeyi hem olumlu hem de olumsuz olarak etkileyebileceği sonuçlarına ulaşmışlardır. Teorik olarak yolsuzluk, sosyo-ekonomik bir sorun olarak görülmekle birlikte ampirik araştırmaların sonuçları yolsuzluğun ekonomik büyüme üzerinde tartışmasız mutlak bir etkiye sahip olmadığını göstermektedir. Bu çalışmalar ışığında yolsuzluğun özellikle kamu kesiminde bürokratik engelleri hafifleterek ekonomik büyüme üzerinde yaratmış olduğu pozitif etki literatürde *"Yardım Eden El"* olarak isimlendirilirken; yolsuzluğun ekonomik büyüme üzerindeki beklenen negatif etkisi ise *"Tekerlekteki Kum Etkisi"* olarak açıklanmaktadır (Yarıkan, 2019:64). Gelir eşitsizliğinin ekonomik büyüme üzerindeki etkisini araştıran ampirik çalışmalarda ise Persson ve Tabellini (1991), Alesina ve Rodrik (1994), Wahiba ve Weriemmi (2014) ile Akpolat, Ceyhan ve Peçe (2016) gelir eşitsizliğinin ekonomik büyümeyi negatif yönde etkilediğini tespit ederken; Birdsall, Ross ve Sabot (1995) ile Li ve Zou (1998) gelir eşitsizliğinin ekonomik büyümeyi pozitif yönde

etkilediği sonucuna ulaşmışlardır. Gelir eşitsizliği ve ekonomik büyüme arasındaki ilişkiyi ampirik olarak test eden bu çalışmalarda klasik ve sosyalist yaklaşımın geçerliliği açısından net bir sonuca varılamadığını ortaya çıkarmıştır.

Bu çalışmada yolsuzluk, gelir eşitsizliği ve ekonomik büyüme arasındaki ilişki Kırılgan Beşli ülke örnekleminde 1995-2019 dönemi için ampirik olarak test edilmiştir. Çalışmanın araştırma modeli aşağıdaki gibidir:

$$lkbrgb_{it} = \alpha_{it} + \beta_1\ lcpi_{it} + \beta_2\ gini_{it} + \beta_3 lgfc_{it} + \varepsilon_{it}$$

Araştırmanın model denkleminde *lkbrgb* değişkeni kişi başı reel gayrisafi milli hasıla değerinin logaritmik değerini, *lcpi* yolsuzluk endeksinin logaritmik değerini, *gini* gelir eşitsizlik katsayısını, *lgcf* ise modelin kontrol değişkeni olan brüt sabit sermaye oluşumunun logaritmik değerini simgelemektedir. Yıllık değer olarak kullanılan değişkenlerden kişi başı reel gayrisafi milli hasıla değeri (kbrgb) 2015 baz yılı ABD doları cinsinden Dünya Bankası veri tabanından, yolsuzluk endeksi (cpi) Uluslararası Şeffaflık Örgütü veri tabanından, gelir eşitsizliği katsayısı (gini) Dünya Gelir Eşitsizliği (WID) veri tabanından ve brüt sabit sermaye oluşumu (gcf) yine Dünya Bankası veri tabanından temin edilmiştir.

Araştırma modelinde bağımsız değişkenlerin bağımlı değişken üzerindeki etki parametresinin tahmininde panel veri analizi tercih edilmiştir. Bu tercihte model kapsamındaki değişkenlerin veri temin dönemi belirleyici olmuştur. Panel veri analizi sürecinde Gauss ve Stata paket programları kullanılarak sırasıyla yatay kesit bağımlılık testi, homojenlik testi, birim kök testi, eş bütünleşme testi ve uzun dönem katsayı tahmin aşamaları takip edilmiştir. Yatay kesit bağımlılık testi için örneklem setinin yatay kesit ve zaman boyutu göz önüne alınarak Breusch-Pagan LM ve Pesaran Scaled LM testleri kullanılmış ve modelin değişkenleri arasında ve modelin denklemi için yüzde 10 anlamlılık düzeyinde yatay kesit bağımlılığının var olduğu tespit edilmiştir. Homojenlik testi için Pesaran ve Yamagata (2008) tarafından geliştirilmiş olan $\tilde{\Delta}$ ve $\tilde{\Delta}_{adj}$ testleri kullanılmış ve delta test istatistik değerlerinin yüzde 1 seviyesinde anlamlı olduğu bulgusuna ulaşılmıştır. Bu bulgu modeldeki eğim parametrelerinin panelin yatay kesitinde yer alan ülke örneklemleri için heterojen bir yapıya sahip olduğu anlamına gelmektedir. Birim kök testi için Pesaran (2007) tarafından geliştirilen CIPS istatistiği kullanılmış ve modelin bağımlı değişkeni lkbrgb ve bağımsız değişkenler; lcpi, gini ve lgcf değişkenlerinin seviyesinde durağan olmadığı ve bütün değişkenlerin birinci farkı alındıktan sonra durağanlaştığı sonucuna ulaşılmıştır. Araştırmanın eş bütünleşme test aşamasına Westerlund ve Edgerton (2007) tarafından geliştirilen LM panel eş bütünleşme testi ile devam edilmiş ve bu testin bootstrap olasılık değeri dikkate alındığında bağımlı ve bağımsız değişkenler arasında eş bütünleşme ilişkisinin varlığını ileri süren H_0 hipotezinin yüzde 10 anlamlılık seviyesinde reddedilemediği ve bağımlı değişken ile bağımsız değişkenler arasında uzun dönemli bir eş bütünleşme ilişkisinin var olduğu sonucuna ulaşılmıştır. Araştırmanın uzun dönem katsayı tahmini için ise Eberhardt ve Bond (2009) tarafından geliştirilen Arttırılmış Ortalama Grup Etkisi (AMG) testi ile bağımsız değişkenlerin bağımlı değişken üzerindeki etkisi incelenmiş ve aşağıdaki sonuçlara ulaşılmıştır:

- Yolsuzlukta meydana gelen azalma (yolsuzluk endeksinde meydana gelen artış) Endonezya'da ekonomik büyümeyi olumsuz yönde etkilemektedir.
- Gelir eşitsizliğinde meydana gelen artış Hindistan, Endonezya ve Güney Afrika'da ekonomik büyümeyi olumlu yönde etkilemektedir.
- Modelin kontrol değişkeni brüt sabit sermaye oluşumundaki artış Brezilya ve Güney Afrika'da ekonomik büyümeyi olumlu yönde etkilerken Hindistan'da ekonomik büyümeyi olumsuz yönde etkilemektedir.

Analiz sonucunda ulaşılan bulgular literatürdeki benzer çalışmalar ile değerlendirilecek olursa; bu çalışmada yolsuzluktaki azalmanın ekonomik büyümeyi olumsuz yönde etkilediği sonucu Mo (2001) ve Ju Huang'ın (2002) çalışmaları; Swaleheeen ve Stansel (2007)'in ekonomik büyümenin yüksek olduğu ülke örneklemleri ile Eren ve Künü (2018)'nün Hindistan ve Rusya örneklemleri için bulmuş olduğu sonuçlarla örtüşmektedir. Bu çalışma ve literatürdeki bahsedilen çalışmalarda ulaşılan sonuçlar yolsuzluğun özellikle kamu kesiminde yapılan yatırımlarla ekonomik büyümeye katkı sağladığını ileri süren "Yadım Eden El" açıklamasını desteklemektedir. Gelir eşitsizliğinin ekonomik büyümeyi olumlu yönde etkilediği sonucu ise yine literatürdeki Birdsall, Ross ve Sabost (1995) ile Li ve Zou'nun (1998)

çalışmalarında ulaşılan sonuçlarla benzerlik göstermektedir. Gelir eşitsizliğinin ekonomik büyüme üzerindeki olumlu etkisi iktisadi düşünceler tarihi alanında "Klasik Yaklaşımı" desteklemektedir.

Yolsuzluğun ekonomik, sosyal ve kültürel hayatta yarattığı olumsuz etkileri göz önüne alındığında ekonomik büyümeyi teşvik etmesi için yolsuzluğa imkân tanınması birçok sosyo-ekonomik sorunu beraberinde getirecektir. Bu nedenle ekonomik işleyişte bürokratik engellerin ortadan kaldırılarak ekonomide şeffaflığın sağlanması ekonomik büyüme üzerinde daha kalıcı ve istikrarlı bir etki ortaya çıkaracaktır. Gelir eşitsizliğinin ekonomik büyümeyi desteklediği ülke örneklemlerinde ise işgücü piyasaları için emek işgücünün nitelik farkı dikkat çekici olmaktadır. Bu durumun ortaya çıkma nedenleri arasında ise eğitim sisteminin yetersizliği ve etkinsizliği önemli bir faktör olarak görülmektedir. Özellikle gelişmekte olan ülkelerde eğitimin genele yayılarak işçilere nitelik kazandırıcı mesleki eğitimlere önem verilmesi ve işsizliği azaltıcı ekonomi politikalarının uygulamaya koyulması tavsiye edilmektedir.