

Relationship between Income Inequality, Poverty and Economic Growth, Comparative Analysis in Eastern and Western Europe with Panel Data

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Abstract: The relationship between income inequality, economic growth and poverty has a very complex structure. Eastern European countries had planned economy and socialist (communist) economy management in the past. The socialist (communist) form of state administration has not been experienced in Western European countries (except for Germany). According to real gross domestic product (real GDP) per capita data, Eastern Europe is poorer than Western Europe. In addition, income inequality is higher in Eastern Europe than in Western Europe. The study aims to show comparatively the relationship between income inequality, poverty and economic growth in Eastern and Western Europe in the period 1995-2016. The study results show that economic growth reduces absolute poverty (\$3.2 poverty line – 2011 PPP) in Eastern and Western Europe. However, while economic growth increases income inequality in Eastern Europe, there is no relationship between these two macroeconomic indicators in Western Europe.

Keywords: economic growth; income inequality; poverty; panel data analysis

JEL Classification: I30; O10; O15

1. Introduction

Income inequality is one of the most interesting issues in the political arena. For the majority, it is important to understand the social cost of income inequality and its impact on the poor, as the quality of their standard of living is related to the income they earn. Increasing income inequality can negatively affect concepts such as health, education and government representation (Baden et al., 2015) Income inequality is one of the indicators that show how the resources in the economy are distributed in the society. In addition, income inequality measures are needed to measure poverty. Poverty is often discussed together with the poverty line. The situation in which individuals do not have the necessary income to survive is defined as absolute poverty. The most important parameter used to measure absolute poverty is the US dollar per day (Keeley, 2015). \$1.90 per day is defined by the World Bank as the extreme poverty line. In 2018, the World Bank established additional poverty lines to explain the changing concept of global poverty. The \$3.20 and \$5.50 per day limits reflect the poverty lines in lower-middle-income and upper-middle-income economies, respectively. The 2020 World Bank Poverty and Shared Prosperity report shows that for the years 1990-2017, the poverty rate, which is the ratio of those living under \$3.20 per day to the

total population, decreased in Europe and the Central Asia region. While the poverty rate (\$3.20 poverty line) in this region was 10.3% in 1990, it decreased to 4.3% in 2018. The poverty rate, which takes into account those who are below \$5.50, decreased from 25.8% in 1990 to 11.9% in 2018 (World Bank, 2020).

The world economy has been growing despite the financial crisis in East Asia in the 1990s. The issue of how much the poor benefit from this growth is a controversial issue. While some of the views point out that the poor do not benefit from the potential benefits of economic growth, according to the opposing views, liberal policies such as monetary and financial stability and free markets increase the income of both the poor and the rest of the society (Dollar & Kraay, 2002). Based on the trickle-down theory of development, neoliberals argue that economic growth will benefit society as a whole. According to those who support this view, government interventions to reduce poverty and ensure income distribution will negatively affect the market, as they will lead to a decrease in economic incentives, increase in inflation and unemployment. In 1980s, neoliberal policies were imposed on the underdeveloped economies, which had slow growth and problems in the balance of payments, in order to benefit from the World Bank and IMF (International Monetary Fund) loans. Grants and low-interest loans of the World Bank and IMF were used as tools in the implementation of neoliberal policies. If trade barriers are removed in developing countries, the demand for low-skilled labor will increase and, as a result, earnings will increase. Neoliberals are of the opinion that trade liberalization will bring the growth rates of countries closer to each other. By the end of the 1970s, some countries began to implement neoliberal policies, but the results on economic growth are rather mixed. Although neoliberals attribute the low growth rates to the lack of reforms, the impact of neoliberalism on the poor is of considerable concern (Johnston, 2005).

Eastern European countries consist of the former Soviet Union and Eastern Bloc countries. In 1989, the Eastern bloc collapsed, and in 1991 the Soviet Union disintegrated and new independent countries were born. Until 1991, Eastern European economies were included in a planned economy in which the state owned the means of production, the state controlled the market instead of a free market economy, and the state decided on production and distribution throughout the country. With the collapse of the Eastern Bloc and the collapse of the Soviet Union, the political propositions of neoliberalism spread all over the world. In this process, the planned economies left their place to the free market economy in the countries that became independent from the Eastern bloc countries and the Soviet Union. At the same time, these countries have experienced a painful transition period in the process of opening up to the outside and the formation of the private sector. While the wages of individuals are closer to each other in planned economies, wages differ according to education and skills in countries that have passed to free market economy. The deterioration of income distribution in Eastern European countries is shown as this process. In addition, with the transition to a free market economy, the state lost its influence on market control. In this case, the power of the state in the redistribution of income weakened.

Western European countries, on the other hand, are countries governed by a free market economy. The socialist (communist) form of state administration has not been experienced in

Western European countries (except for East Germany). GDP per capita and living standards are higher in all Western European countries than in Eastern European countries.

According to Penn World Table 9.1 (Feenstra et al., 2015), in Eastern and Western Europe, real GDP per capita (2011 US\$) increased from 1995 to 2016. It is observed that the growth rates of Eastern Europe are higher than the growth rates of Western Europe. When we examine the poverty data for the same period, it is seen that the ratio of individuals with a daily income below US\$ 3.2 – according to the 2011 PPP (Purchasing power parity) – to the total population has decreased in both regions since 1995 (The World Bank, 2021). Global income inequality has risen sharply since 1980 despite strong growth in China. Income inequality has increased in almost all regions of the world in recent years, but the rate of increase has been different from region to region. In countries with similar levels of development, the level of income inequality differs. The increase in the share of the people with the highest income level of the society in the total income is an indicator of the increase in inequality. From 1980 to the present, the share of 10% of the highest income of societies in total income has increased (Alvaredo et al., 2018). We see that the income-share of the 1% and 10% of the society with the highest income increased in this period. The share of 10% and 1% of the population with the highest income in total income has increased in both Eastern and Western European countries. While this increase was more moderate in Western Europe, a very serious increase was experienced in Eastern Europe. All these indicators reveal the existence of an injustice in the distribution of income in Eastern and Western Europe (WID, 2021).

The reason why Eastern European and Western European countries were chosen in the study is that Eastern and Western Europe not only represents a geographical separation, but also represents economic development and less development. Both regions have different economic management system infrastructures. In addition, it is seen that they are different in terms of income distribution and wealth distribution. The aim of our study is to analyze comparatively how there is a relationship between economic growth, income inequality and poverty in these economies, which had different economic management styles in the past, close to each other in terms of geographical borders but different from each other in terms of per capita income.

1.1. Literature Review

Although economic growth is a powerful mechanism in reducing poverty, there is no rule that economic growth will completely reduce income inequality. While economic growth increases the wealth of the rich, the poor may not gain from this growth in any way (Baden et al., 2015). Regardless of the level of income inequality, economic growth reduces poverty. Although the poverty-reducing effect of economic growth is undeniable, the fact that the effect of economic growth on poverty varies by region, supports the view that growth is not sufficient to reduce poverty. The rate and form of growth and the method by which poverty is measured determine the effect of growth in reducing poverty (Škare & Družeta, 2016).

Dollar and Kraay (2002) defined the 20% of the society with the lowest income as poor. They examined the relationship between the incomes of this group and economic growth in developed and developing countries. The study includes 137 countries and 953 observations

for the time period 1960-2009. According to the results of the study, if the average incomes increase, the incomes of the lowest 20% increase at the same rate. The same is true for vice versa. The incomes of the 20% of the poor with the average income are valid not only in normal economic times, but also in times of crisis. Other results of the study are that policies such as financial discipline, openness in international trade, the rule of law, private property, and low inflation increase the average incomes by improving the income distribution. The study findings show that the poor also benefit from economic growth. Although there is no clarity in the literature about which combination of growth-oriented policies will benefit the poorest of society, the findings of this study show that growth and the policies that support it benefit both the poor and the rest of society (Dollar & Kraay 2002).

Adams (2003) analyzed the effect of economic growth on income inequality and poverty for the time period 1980-1999. The model included 50 low- and middle-income countries with at least two representative household surveys. The study findings show that economic growth is important in reducing poverty in developing countries. Adams (2003) attributes that economic growth reduces poverty and this is because economic growth has no effect on income inequality. These findings show that economic growth does not have a significant effect on income inequality. According to the study, income inequality may increase, decrease or remain constant throughout economic growth (Adams, 2003).

Bourguignon (2004) introduced the concept of the Bourguignon Triangle, which is named after him. This model highlights the relationship between economic growth and distribution in relation to poverty reduction. In this model, importance is given to the interaction between growth, poverty and distribution. According to Bourguignon (2004), a change in poverty is a function of growth, distribution, and change in distribution. The change in income distribution can have a growth and distribution effect. The growth effect is a proportional change or growth in all incomes without changing the relative income distribution. The distribution effect, on the other hand, expresses the change in the relative income distribution, different from the average. Economic growth can change the distribution of income and wealth through many channels. In the development process, economic growth can affect income distribution by changing the allocation of resources by sector, relative prices and factor rewards. If growth policies ignore income distribution, they will not be effective enough to reduce poverty.

Fosu (2010) examined the impact of income inequality on poverty reduction for the East Asia and Pacific region, Europe and Central Asia region, Latin America and Caribbean region, Middle East and North Africa, South Asia region and sub-Saharan Africa region. In the study covering the time period 1980-2004, unbalanced panel data analysis was performed. In the equation where the dependent variable is the poverty rate (the ratio of the number of people living on \$1 per day or \$32.78 per month – according to the 1993 PPP – to the total population), the independent variables are the Gini coefficient (as a percentage) and the average monthly income (1993 PPP). In the study, in which fixed effects and random effects models were used, it was concluded that income distribution plays an important role in poverty reduction, contrary to traditional ideas. According to the results obtained, while an increase in income reduces poverty, an increase in inequality increases poverty. Income

inequality affects poverty in two ways. A high level of income inequality reduces the poverty reduction limit as a result of an increase in income. Another way of influencing is that if income inequality increases, it increases poverty at an increasing rate with the average income level.

Fosu (2011) examined growth, income inequality, and poverty reduction for 123 countries with data in 7 regions around the world, from 1981 to 1990 and from 1990 to 2005. It also included a global sample of 80 countries in the analysis. The results show that at both poverty levels (\$1.25 and \$2.5), an increase in incomes reduces poverty, while a decrease in income increases poverty. Although growth is the main factor in poverty reduction in most countries, it should be noted that income inequality is influential in the behavior of poverty.

Michálek and Výboštok (2019), as a result of their study on 28 EU members for the years 2005-2015, found that economic growth encourages poverty reduction and that the increase in income inequality encourage poverty increase. The results show that economic growth and distribution affect the poverty level in EU countries. It has also been stated that countries with strong economies are better able to cope with poverty and income inequality in times of crisis (Michálek & Výboštok, 2019).

Lechheb et al. (2019) examined the effect of economic growth on poverty and income inequality for the years 1970-2018 for 51 low-income countries. According to the results obtained in this study, in which unbalanced panel analysis was performed, the increase in income inequality causes a decrease in GDP per capita. In the study, it was stated that a 1% increase in the Gini coefficient would cause a 3.8% decrease in GDP per capita. In addition, in the study, it was concluded that there is a negative relationship between the poverty gap and economic development. A 1% increase in real GDP causes a 6.4% decrease in the proportion of people living below the poverty line. The results of the study show that economic growth is effective in reducing poverty in developing countries (Lechheb et al., 2019).

According to the World Bank's (2020) Poverty and Shared Welfare report, job losses have increased significantly due to the pandemic caused by the coronavirus (COVID-19). Thus, on a global scale, the situation of the poor has worsened, while new poor have emerged. According to forecasts for 2020, the pandemic is expected to push 100 million people into extreme poverty. In addition, the poverty-increasing effect of armed conflicts in some regions should be taken into account. The extreme poverty rate has doubled in the Middle East and North Africa from 2015 to 2018, due to the conflicts in Syria and Yemen. The report also examines the impact of climate change on poverty. According to the results, 132 million people may remain poor due to climate change. It is inevitable that pandemics, economic recessions, wars and climate change will have human and economic costs in the future. Global poverty estimates show that the poverty reduction process continues to slow down due to the impact of COVID-19 and it is difficult to reach the target of 3% in extreme poverty for 2030. In addition, conflicts and climate change are also factors that reverse poverty reduction (World Bank, 2020).

2. Methodology

Panel data analysis is the name given to the estimation methods with panel data models, which consist of combining the data collected from different units at a certain time (horizontal

section) and the data (time series) containing the change of variables according to the time unit (Baltagi, 2005).

The general regression equation used in panel data estimations is shown as equation

$$y_{it} = \alpha + \beta X_{it} + u_{it} \quad (1)$$

Depending on the u_{it} error term assumptions, modeling can be done as a one-way and two-way panel data model. Depending on the assumptions on the error term components, estimation can be made in the form of Fixed Effects and Random Effects models (Baltagi, 2005).

The relationship between income inequality, economic growth and poverty was examined for a time period covering the years 1995–2016 by panel data analysis, by establishing two equations for the dependent variable, namely income inequality and poverty. The independent variables in the model are respectively stated as real GDP per capita, unemployment rate, openness rate, years of education and investment rate.

The explanations of the variables used in the model are shown in Table 1.

Table 1. Explanations of variables used in models testing the relationship between income inequality, economic growth and poverty

Variable	Description	Source
GINI _{it}	Gini coefficient before tax and government transfers at i unit and t time	SWIID (The Standardized World Income Inequality Database) (Solt, 2019)
lnRGDPPCP _{it}	Real GDP per capita in i units and t times (2011 USD \$)	Penn World Table 9.1 (Feenstra et al., 2015)
POVERTY _{it}	Ratio of population in households living below the poverty line (3.2 \$ (adjusted for purchasing power parity (2011 PPP)) to total population - Headcount ratio (%)	PovcalNet (The World Bank, 2021)
OPENNES _{it}	Openness rate calculated, by dividing the sum of exports and imports by GDP (calculated at constant national 2011 prices).	Penn World Table 9.1 (Feenstra et al., 2015)
UNEMPLOYMENT _{it}	Ratio of the total number of unemployed to the total labor force in i units and t times (modeled (ILO) estimation)	World Bank (2021)
INVESTMENT _{it}	Ratio of total investment to GDP in i units and t time	World Bank (2021)
EDUCATION _{it}	Average years of education received by persons aged 25 and over at i unit and t time	UNDP (2021)
α_{it}	Constant coefficient	
$\beta_{1it}, \beta_{2it}, \beta_{3it}, \beta_{4it}, \beta_{5it}, \beta_{6it}$	Slope coefficients in i unit and t time	
u_{it}	Error term in i units and t time	

The relationship between income inequality, economic growth and poverty in Eastern and Western Europe for the years 1995–2016 was examined through panel data analysis using the STATA statistical program.

The income inequality regression equation is equation 2.

$$G\dot{I}N\dot{I}_{it} = \alpha + \beta_{1it} * \ln RGDP_{pcit} + \beta_{2it} * POVERTY_{it} + \beta_{3it} * OPENNES_{it} + \beta_{4it} * EDUCATION_{it} + \beta_{5it} * UNEMPLOYMENT_{it} + \beta_{6it} * \dot{I}NVESTMENT_{it} + u_{it} \quad (2)$$

The poverty regression equation is equation 3.

$$POVERTY_{it} = \alpha + \beta_{1it} * \ln RGDP_{pcit} + \beta_{2it} * G\dot{I}N\dot{I}_{it} + \beta_{3it} * OPENNES_{it} + \beta_{4it} * EDUCATION_{it} + \beta_{5it} * UNEMPLOYMENT_{it} + \beta_{6it} * \dot{I}NVESTMENT_{it} + u_{it} \quad (3)$$

Panel data analysis was performed separately for Eastern and Western European countries. Panel data of Eastern and Western European countries are arranged as Panel East and Panel West, respectively. The country groups in which the validity of the regression equations 2 and 3 will be tested are classified as follows.

Panel East: Eastern European countries – Belarus, Bulgaria, Czech Republic, Hungary, Moldova, Poland, Romania, Russia, Slovakia, Ukraine.

Panel West: Western European countries – Austria, Belgium, France, Germany, Luxembourg, Netherlands and Switzerland.

Panel East is designated as Panel East 1 and Panel East 2 where in Panel East 1 income inequality is the dependent variable, in Panel East 2 the poverty rate is the dependent variable. Also, Panel West is designated as Panel West 1 and Panel West 2 where in Panel West 1 income inequality is the dependent variable, in Panel West 2 the poverty rate is the dependent variable. Although all variables are the same in all panels, the dependent variables are different. Two regression equations for each of East and West Europe countries were tested in order to examine the effect of economic growth on income inequality and poverty.

3. Results

The cross-sectional dependence of the variables in the East and West panels was tested with Pesaran CD test. According to the results obtained, there is a cross-sectional dependence in the variables in both panels. For this reason, the second-generation Pesaran CADF unit root test was applied. If a unit root is found in the variables as a result of the Pesaran CADF unit root test, the first difference of the series is taken and the non-stationarity problem is eliminated. Panel East and panel West have variables that contain a unit root. The unit root test was applied again by taking the first-degree differences of these variable series. It was concluded that all series were stationary, except for the education variable in the western panel. While interpreting the education variable in the western panel, the interpretation should be made considering that this variable is non-stationary.

After completing the unit root tests for Panel East and Panel West, unit and time effects on the data in the East and West panels were tested using the F test. According to the results of the F test, the H_0 hypothesis, which states that the unit effects are equal to zero in the East 1 and East 2 panels, is rejected. Therefore, the East 1 and East 2 panels have a unit effect. According to the results of the F test, in which the H_0 hypothesis, which states that the time effects are equal to zero, is tested, the H_0 hypothesis cannot be rejected in the East 1 and East 2 panels. There is no time effect in Panel East 1 and East 2. In the East 1 panel, estimation was made using the fixed effects model and the random effects model. Hausman test was applied

to choose between fixed effects and random effects model. According to the results obtained, the random effects model was found to be more effective, since H_0 , which states that the change in the coefficients is not systematic, cannot be rejected ($\text{Prob} > \chi^2 = 0.0949$). Since the slope coefficients of both models are very close to each other and the time dimension is larger than the unit dimension, the study was continued with the fixed effects model. In addition, the number of $\text{Prob} > \chi^2 = 0.0949$ obtained as a result of the Hausman test supports the fixed effects model at 10% significance level. In the East 2 panel, Hausman test were applied to decide between estimators. In the results obtained, the H_0 hypothesis is rejected at the 5% statistical significance level, so it is seen that the use of the fixed effects model is more appropriate. In panel East 1 and East 2, where we applied the fixed effects model, the basic assumption tests of heteroscedasticity, autocorrelation test and cross-section dependency test were applied. In the fixed effects model, the heteroscedasticity is answered with the Modified Wald test. According to the results obtained, the H_0 hypothesis, which states that there is no variance according to the units, is rejected in both panel East 1 and East 2. Therefore, it is concluded that there is a heteroscedasticity in both panels. The autocorrelation problem in the fixed effects model was tested with Durbin-Watson Test and Baltagi--Wu's LBI Test. The values obtained as a result of the test are less than 2. Therefore, it is concluded that there is an autocorrelation problem for the fixed effects model we applied. Cross-section dependence in the fixed effects model was tested with the Pesaran test, Friedman test, Breusch-Pagan Lagrange Multiplier LM test and Frees test. All test results indicate the presence of cross-section dependence. According to the results of the assumption tests, there is a heteroscedasticity, autocorrelation and cross-section dependence in Panel East 1 and East 2. The Driscoll – Kraay estimator was used to obtain the resistant standard errors in the case of the three problems in the panels (Tatoğlu, 2018; Ün, 2018).

According to the results, there is a unit effect in panel West 1 and West 2. In the West 1 panel, it was determined that there is a time effect. Due to the existence of both unit and time effects, two-way panel data model was used instead of one-way panel data model in panel West 1. According to the Hausman test result, it is more effective to use the two-way fixed effects model in Panel West 1. In the West 2 panel, which has a unit effect but no time effect, a one-way panel data model is used. One-way Hausman test was applied to test which of the fixed effects and random effects model was more suitable. The results show that using the fixed effects model is more effective. Two-way fixed-effects model was used in panel West 1, one-way fixed-effects model was used in panel West 2, heteroscedasticity, autocorrelation and cross-section dependence tests were performed from the basic assumption tests. As a result of the assumption tests, it was found that there was heteroscedasticity, autocorrelation and cross-section dependence in panel West 1 and West 2. In this case, the Driscoll – Kraay estimation method was used for both panels to obtain the resistant standard errors.

The results of the Driscoll Kraay estimator for all panels are given in Table 2.

Table 2. Driscoll-Kraay estimator results for panel East 1, East 2, West 1 and West 2

	East 1	West 1	East 2	West 2
gini	Dependent variable	Dependent variable	2.337162 (0,000 ***)	0.1293377 (0.000 ***)
lnrgdppcp	1.819327 (0.000 ***)	0.4361491 (0.874)	-21.11178 (0.000 ***)	-2.861163 (0.000 ***)
poverty	0.0441662 (0.000 ***)	1.291522 (0.001 ***)	Dependent variable	Dependent variable
opennes	0.0165873 (0.000 ***)	0.0190652 (0.000 ***)	0.0455699 (0.060*)	0.0010827 (0.252)
education	-0.2810328 (0.088 ***)	0.7297898 (0.000 ***)	-3.083401 (0.049**)	0.0023645 (0.949)
unemployment	0.2391554 (0.000 ***)	-0.0820361 (0.055*)	-0.9995604 (0.002 ***)	-0.0100771 (0.456)
investment	0.1405229 (0.000 ***)	-0.2126339 (0.000 ***)	-0.6715547 (0.001 ***)	0.0282703 (0.098*)
Constant	20.58167 (0.000 ***)	36.173293 (0.215)	162.7289 (0.000 ***)	23.95307 (0.000 ***)
Number of obs	220	153	220	153
Number of groups	10	7	10	7
within R-squared	0.3367	0.8948	0.48	0.4556

Notes: ***, ** and * indicate 1%, 5% and 10% statistical significance.

According to the results of panel data analysis covering Eastern European countries, as GDP per capita increases, income inequality increases, but poverty decreases. There is a positive and significant relationship between poverty and income inequality in Eastern Europe. An increase in the openness ratio increases both income inequality and the poverty rate. The education variable has a negative relationship with both the Gini coefficient and poverty. Income inequality and poverty are decreasing in Eastern Europe as the average years of schooling for people over 25 years of age increase. It is among the findings that the poverty-reducing effect of the education variable is greater than the income inequality-reducing effect. The result is that the increase in unemployment rate increases the Gini coefficient and reduces poverty. While the increase in investment increases inequality, it reduces the poverty rate.

The results of panel data analysis covering Western European countries show that GDP per capita does not have a statistically significant effect on income inequality. It is seen that there is a negative relationship between economic growth and poverty rate. As real GDP per capita increases, poverty decreases in Western Europe. It was concluded that there is a positive and statistically significant relationship between poverty and income inequality in Western Europe. The openness ratio has a positive and statistically significant relationship with the Gini coefficient. There is a positive relationship between the education variable, which we found to be non-stationary for Western Europe, and the Gini coefficient. According to the results, an increase in unemployment reduces income inequality. It is seen that there is no statistically significant relationship between poverty and independent variables: openness, education and unemployment rate. Finally, according to the results obtained from the Western Europe panel, an increase in the ratio of investments to GDP has the effect of reducing income inequality and increasing poverty.

4. Discussion

Measuring and analyzing income inequality is a very complex issue. Likewise, its relationship with economic growth has led to different results in different studies. Results may vary according to the variables used to measure income inequality, the variables representing economic growth, the methods applied, the time interval and the country structures.

A positive and statistically significant relationship was found between GDP per capita and income inequality coefficient in Eastern Europe. As per capita income increases, income inequality increases. The results support the results of Baden et al. (2015), Forbes (2000), Rubin and Segal (2015), Abdiođlu (2019), Kiatrungwilaikun and Suriya (2015), Jovanovic (2018). No significant relationship was found between income inequality and economic growth in Western European countries. The results support the results of Adams (2003), Deiningier and Squire (1998), Kuştepli (2006) Makreshanska–Mladenovska and Petrevski (2019), Erkisi and Ceyhan (2020).

Economic growth reduces absolute poverty (\$3.2 poverty line – 2011 PPP) in both Eastern and Western Europe. The poverty-reducing effect of economic growth is much higher in Eastern Europe than in Western Europe. For the Eastern and Western Europe region, the results support the results of Dollar and Kraay (2002), Bourguignon (2004), Adams (2003), Fosu (2010), Fosu (2011), Lechheb et al. (2019), Michálek and Výbořok (2019).

As the ratio of the population to the total population rises in households living below the poverty line (US\$ 3.2 – 2011 PPP), it is seen that income inequality increases in both Eastern European and Western European countries. In addition, the increase in income inequality is a factor that increases poverty in Eastern and Western European countries. The positive relationship between income inequality and poverty parallels the studies of Bourguignon (2004), Fosu (2010), Fosu (2011), Balcı İzgi and Alyu (2018) and Michálek and Výbořok (2019).

Policies implemented in favor of the rich, changing income structure against labor income, extraordinarily high wages of senior executives, insufficient taxation of capital, shrinking of states, tax cuts and incentives applied to the highest income group, marriage of individuals with the same income level, increase in opportunity inequalities are the factors that can cause the income gap between the poor and the rich. Since the increase in income inequality brings social unrest, policy makers should produce new programs to reduce income inequality and poverty.

In the fight against inequality, Stiglitz proposes to limit the excessive earnings of the upper income group, to strengthen the middle-income group by increasing their income, and finally to implement various programs that will help the poor group (Stiglitz, 2016).

Acknowledgments: The results of this study were obtained from the doctoral thesis of Sema Kazazi, a doctoral student at Marmara University Social Sciences Institute.

Conflict of interest: none

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