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Trade Openness, Financial Openness and Income Inequality: Empirical Evidence for MIST Countries

Ticari Açıklık, Finansal Açıklık ve Gelir Eşitsizliği İlişkisi: MIST Ülkeleri için Ampirik Bulgular

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ABSTRACT

Since the 1980s, income inequality has increased significantly in developed and developing countries. The literature has also seen studies that attempt to explain this rising trend in income inequality. Some studies explaining the increase in income inequality in various ways have focused on economic globalization. Questions on how the steps taken towards liberalization in international trade and finance and increasing market integration affect income inequality have been at the center of the discussions in these studies. Uncertainty about the direction and extent of the link between globalization and inequality persists primarily because of the conflicting empirical findings in the literature. This study aims to contribute to the literature by conducting an empirical analysis of MIST countries with data covering 1987-2019. The study's findings, which used panel data analysis to assess the data, showed that while trade and financial openness reduce income inequality for MIST countries over the analyzed period, foreign direct investments do the opposite. The results also showed that the effect of financial openness on income inequality is greater than the effect of trade openness. It is also discovered that the growth rate of income per capita has no statistically significant impact on income inequality.

MAKALE BİLGİSİ

Makale Türü
Araştırma Makalesi

Anahtar Kelimeler
Ticari Açıklık
Gelir Eşitsizliği
Finansal Açıklık
Panel Veri Analizi
Doğrudan Yabancı Yatırımlar

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ÖZ

1980'lerden sonra hem gelişmiş hem de gelişmekte olan ülkelerde gelir eşitsizliği belirgin bir artış göstermiştir. Gelir eşitsizliğindeki bu artışı çeşitli şekillerde açıklayan çalışmalar da bunun üzerine literatürdeki yerini almıştır. Bu çalışma, sorunun ekonomik küreselleşme yönü üzerinde durmakta, uluslararası ticaret ve finans alanlarında serbestleştirme yönünde atılan adımların gelir eşitsizliğini nasıl etkilediğini incelemektedir. Literatürde birbiriyle çelişen bulguların olması nedeniyle küreselleşme ve eşitsizlik arasındaki bağlantının yönü ve boyutu hakkında belirsizlik büyük ölçüde devam etmektedir. Bu çalışma, MIST ülkeleri üzerine 1987-2019 dönemini kapsayan verilerle ampirik analiz yaparak literatüre katkıda bulunmayı amaçlamaktadır. Panel veri analizi yönteminin uygulandığı çalışmanın sonuçları, incelenen dönem içerisinde MIST ülkeleri için ticari ve finansal açıklığın gelir eşitsizliğini azaltan, doğrudan yabancı yatırımların ise gelir eşitsizliğini artıran unsurlar olduğunu göstermiştir. Sonuçlar ayrıca finansal açıklığın gelir eşitsizliği üzerindeki etkisinin ticari açıklığın etkisinden daha büyük olduğunu göstermektedir. Ayrıca kişi başına düşen gelirdeki büyüme oranının gelir eşitsizliği üzerinde istatistiksel olarak anlamlı bir etkisinin olmadığı tespit edilmiştir.

1. Introduction

After the 1980s, income inequality has shown a significant upward trend in both developed and developing countries. Many factors have played a role in this trend in income inequality (Heimberger, 2019: 497, Ullah et al., 2022: 49). Income inequality has been explained by several factors such as education, employment policies, labor market institutions, technological changes,

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wealth inequality and fiscal policies (taxation, transfer expenditures, public expenditures). Economic globalization is one of these factors. The relevance of global trade and financial developments has grown in recent years due to greater globalization, and the issue of how trade and financial openness impacts income inequality has risen to the forefront of discussion. (UNDP, 2013: 71-72).

Today, globalization is supported by policy decisions regarding technological change and integration. Globalization is a multidimensional term that removes national borders and fosters interdependent relationships. It has economic, political, social, and cultural components (Villaverde and Maza, 2011: 952-953; Gygli et al., 2019: 546). The term "*globalization*" as a whole has a considerably broader scope than "economic globalization." Economic globalization is defined as the expansion of global trade and economic integration and includes trade and financial openness (Brady et al., 2005: 922-923).

The effect of trade openness on income inequality is based mainly on the Stolper-Samuelson theorem. Based on the Heckscher-Ohlin model, this theorem predicts that economic globalization will reduce income inequality in developing countries (Stolper and Samuelson, 1941: 58-73). According to the Stolper-Samuelson theorem, liberalization of international trade by removing protective practices in developing countries will increase the demand for unskilled labor, which is relatively abundant in these countries, as trade specialization encourages factor-intensive sectors that are generally abundant. Trade openness would therefore lead to an increase in the real wages of unskilled workers and a reduction in income inequality. The opposite situation is envisaged for developed countries. Here, trade openness will increase income inequality by increasing the real rate of return on the relatively abundant skilled labor factor and decreasing the real rate of return on the relatively scarce unskilled labor factor.

The ability of financial openness to reduce income inequality has received increased attention in the financial aspect of economic globalization. Financial liberalization and the free allocation of global capital flows provide significant macroeconomic benefits for capital-exporting and importing countries. It is believed that productivity and employment will increase more rapidly internationally, thus eliminating poverty in less developed countries (ILO, 2008: 40).

Levine (2005: 920) emphasized that finance has a significant positive impact on the poor and thus reduces income inequality. In this context, financial openness is expected to reduce income inequality by facilitating low-income households' access to capital markets and improving their economic opportunities. This is because the protection of the domestic financial system implies a credit constraint for relatively low-income households. From this perspective, financial openness is expected to help the poor and positively affect their incomes by easing credit constraints that limit them. Accordingly, the attraction of foreign capital to the country makes it possible to consume more than it produces and invest more than it saves, thus stimulating economic growth. Therefore, especially in developing countries, the income of the poor increases and income inequality declines (Beck et al., 2007: 28; Heimberger, 2019: 501).

Financial openness also disciplines governments, improving policymaking and encouraging the implementation of growth-oriented reforms. Low-income households significantly benefit from this improvement in income prospects. Additionally, it is claimed that financial globalization strengthens corporate governance, ensuring efficient capital flows, and enhances the business climate in developing countries by allowing managers to operate to their fullest potential (ILO, 2008: 41).

Foreign direct investments have been a different field of study with Hymer's (1976) stated of the differences between foreign direct investments and other types of financial capital. According to Hymer, the difference in foreign direct investments is due to market imperfections, rather than by

factor endowments or differences in rates of return across borders. Multinational companies often differentiate from domestic firms by employing more skilled workers and using more advanced technologies. Multinational companies can affect the income distribution within a country in two ways: First, capital comes to the country with multinational companies, the total returns to capital decreases and the returns to labor increases. Second, multinational companies pay a wage premium. If they pay a wage premium for skilled workers, this will lead to an increase in the income differential between skilled and unskilled workers (Jensen and Rosas, 2007: 470-471).

This study aims to examine the effects of trade openness and financial openness on income inequality for MIST countries. This study restricted trade and financial openness to the economic dimension of globalization. The introduction discusses globalization briefly and presents theoretical arguments for how trade and financial openness affect income inequality. The literature review is then presented in the second section, and the empirical application for MIST countries utilizing panel data analysis is shown in the third section. Finally, the conclusion section provides an assessment of the results obtained.

2. Literature Review

The predictions of the Stolper-Samuelson theorem have served as a guideline for the hypothesis testing of many studies. Studies have been conducted to test the effect of trade openness on income inequality. Some studies have found that trade openness reduces income inequality in developing countries. Dollar and Kraay (2004) found that economic growth accelerates in developing countries that reduce trade barriers and participate more in international trade and that trade openness reduces inequality between countries and poverty within countries. Faustino and Vali's (2013) results for OECD countries showed that trade openness reduces income inequality. Again, Perera et al. (2014) examined the effects of trade liberalization on poverty and income inequality in Sri Lanka and concluded that income inequality would decrease. Dabla-Norris et al. (2015) found that trade openness reduces income inequality, but the negative relationship between these two variables is insignificant. Bahadır and Dereli (2021) examined the relationship between globalization and income inequality for BRICS-T countries and found that trade globalization does not significantly affect income inequality.

However, the prediction that trade openness will reduce income inequality in developing countries has not been confirmed in all studies. Some studies concluded that trade openness increases income inequality. The findings of Meschi and Vivarelli (2009) for 65 developing countries showed that trade with developed countries worsens the income distribution of developing countries. This finding varies by country, with middle-income countries being the most affected. The increase in income inequality is explained by skill-based technological change, and it is stated that the transfer of skilled technologies from developed countries to developing countries through trade increases the demand and relative wage of skilled labor. Gourdon et al. (2008) also argued that trade openness increases income inequality in developing countries where the share of the less-educated labor force is high. Zakaria and Fida (2016) examined the impact of trade openness on income inequality for China and SAARC (South Asian Association for Regional Cooperation) countries and concluded that free trade policies increase income inequality. According to Agusalim and Pohan (2018), trade openness in Indonesia substantially increases income inequality in the short run, but this negative effect does not persist in the long run.

There are many studies on the relationship between financial openness and income inequality. Many of these studies have found that financial openness increases income inequality. De Haan and Sturm (2017) examined the relationship between financial liberalization, banking crises, and income inequality in a study covering 121 countries. The findings revealed that financial

liberalization promotes income inequality. Jaumotte et al. (2013) concluded that while trade globalization reduces income inequality, financial globalization increases it. Accordingly, the effects of trade and financial globalization on income inequality tend to balance each other. Li and Su (2021) compared the ten years before and after capital account liberalization and found that capital account liberalization increased income inequality in developing countries. Ullah et al. (2022), covering 28 Asian countries, found a significant and continuous relationship between capital account openness and the increase in income inequality. Akbakay and Barak (2020) concluded that financial openness increased income inequality in 13 emerging market economies and stated that this might be due to the fact that foreign direct investment increases the demand for skilled labor. Beji (2019) analyzed the role of institutional development in the relationship between financial openness and income inequality for 21 African countries. The results revealed that while financial openness significantly increases income inequality in countries with low institutional quality, it has no significant effect in countries with relatively high institutional quality.

There are also research that challenge the information suggesting that financial openness worsens income inequality and come to the opposite conclusion. For example, Delis et al. (2014), covering 91 countries, found that liberalization of international capital movements and strengthening privatization laws reduce income inequality. Bumann and Lensink (2016) suggested that financial liberalization will decrease income inequality in countries with a high financial depth because it improves the efficiency of the banking sector and influences borrowing costs.

There are many studies examining the effects of foreign direct investments on income inequality. Some of these studies state that foreign direct investments increase income inequality, while others state that they decrease it. Jensen and Rosas (2007) found that the increase in foreign direct investments in Mexico between 1990 and 2000 reduced income inequality between states. Mihaylova (2015) used data of ten countries in Central and Eastern Europe for the years 1990-2012 to measure the effect of foreign direct investment on income inequality. He concluded that foreign direct investments have the potential to affect income inequality and this effect depends on the level of education and economic development of the host countries. Letsoalo and Ncanywa (2021) found that foreign direct investment strongly affects income inequality in both the short and long run for nine countries in the Southern African Development Community region. While this effect is decreasing income inequality in the short term, it is increasing in the long term. Aman et al. (2021) found that foreign direct investments have a negative relationship with income inequality for 36 Asian countries. Le et al. (2021), in their study on Vietnam, found that foreign direct investments have an increasing effect on income inequality and that there is a non-linear relationship between them.

However, there is also some research that finds no significant relationship between foreign direct investments and income inequality. One of these is Sylwester's (2005) paper on less developed countries covering the years 1970-1989. The other is Bhandari's (2007) study covering the years 1990-2002 and using data from nineteen transitional countries from Eastern Europe and Central Asia. In addition to these, similar results were obtained in Manu's (2021) article for Ghana covering the period 1980-2015. They concluded that foreign direct investments are not have significant effect on income inequality.

When the research examining the relationship between the growth rate in per capita income and income inequality are investigated, it is seen that different results are obtained. Using the data of 94 countries between 1995 and 2011, Topuz and Dağdemir (2016) reached the conclusion that the increase in income per capita increases the income inequality. Dişbudak and Süslü (2009) found that as the income per capita level increased, inequality first decreased and then increased in Turkey for the period 1963-1998. A similar result was obtained by Ak and Altıntaş (2016) for the period 1986-2012. Şengür (2020) determined that the increase in per capita income has an

increasing and then decreasing effect on income inequality with the data of ten countries for the period 1995-2013.

3. Data Set and Methodology

This study aims to contribute to the literature by conducting empirical analysis specifically for MIST countries. It examines the impact of trade and financial openness on income inequality as well as the role of financial openness in the relationship between growth rate and income inequality. The main hypotheses of the study are as follows:

H1: Trade openness has a significant effect on income inequality.

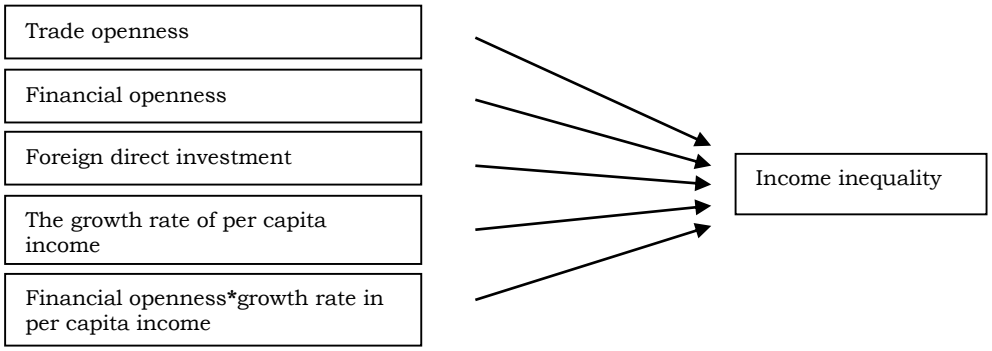
H2: Financial openness has a significant effect on income inequality.

H3: Foreign direct investment has a significant effect on income inequality.

H4: The growth rate of per capita income has a significant effect on income inequality.

H5: Financial openness affects income inequality through the growth rate in per capita income.

Figure 1: Schematic of the Hypotheses



Different results have been obtained in the literature on the relationship between trade openness, financial openness, and growth rate with income inequality. Therefore, it is not specified how the variables in the hypotheses affect income inequality (Figure-1). In order to test these hypotheses, annual data for the MIST countries (Mexico, Indonesia, South Korea, and Turkey), which Jim O'Neill used in 2011 to denote emerging economies with an upward trend, are used. MIST countries could have a major effect on the global economy because of their economic and political circumstances. Especially they are playing important roles in global financial development, exerting significant influences on economic growth throughout the global economy and markets (Bahmani-Oskooee et al., 2014: 3). The study covers the period between 1987 and 2019, the most extensive data set available.

The Gini index, widely used to measure income inequality, is taken as the model's dependent variable. The growth rate of per capita income, trade openness, foreign direct investment, and financial openness are independent variables. In addition, a moderator variable is added to the model to examine the role of financial openness in the relationship between income inequality and the growth rate of per capita income. The moderator variable is obtained by multiplying the financial openness index by the per capita income growth rate. Because the countries (Mexico, Indonesia, South Korea, and Turkey) have very different characters, any control variables are not used in the model. Information on the variables used in the analysis is given in Table 1.

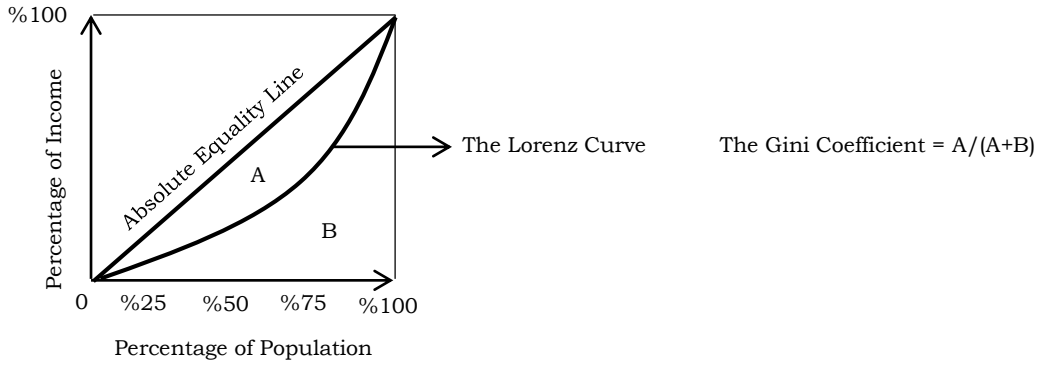
Table 1: Variables and Data Sources Used in the Analysis

Variable	Definition	Source*
gini	The Gini index	Retrieved from the data set calculated by Solt (2020).
gdppc	Per capita income growth rate (annual %)	Retrieved from World Bank.
to	Trade openness index	Calculated by the author(s) with data retrieved from World Bank.
fdi	Foreign direct investment (% GDP)	Calculated by the author(s) with data retrieved from World Bank.
kao	Financial openness index	The index calculated by Chinn and Ito (2006) is used.
kao_gdppc	kao*gdppc (moderator variable)	Calculated by the author(s).

Note: Date of access to sources, 29.06.2022.

The model's dependent variable is the Gini index measured by the Lorenz curve. The Gini index is one of the most widely used methods to measure whether income is equally distributed. It was developed in 1914 by the Italian statistician Corrado Gini. The Gini coefficient is a measurement method that shows how far the Lorenz Curve moves downward from the 45° absolute equality line (Figure 2). As the Lorenz Curve moves away from the absolute equality line, income inequality and, therefore, the Gini coefficient increases. Taking a value between 0 and 1, the Gini coefficient approaches 1 as inequality increases and 0 as inequality decreases. The Gini coefficient is 0 when the Lorenz Curve turns into a 45° line and 1 when it is on the horizontal axis with a 90° angle (Özdemir, 2017: 98-99; Öztürk, 2009: 55-57). The Gini index values used in the analysis are obtained from the Standardized World Income Inequality (SWIID) data calculated by Solt (2020).

Figure 2: The Lorenz Curve and the Gini Index



Source: Dinler, 2016: 308.

The growth rate of per capita income, one of the model's independent variables, is obtained from the World Bank's World Development Indicators (WDI) dataset and refers to the annual percentage growth. By using the Equation (1) formula, trade openness data are retrieved from the World Bank's WDI dataset.

$$\text{Trade Openness} = \left(\frac{\text{Export} + \text{Import}}{\text{GDP}}\right) \times 100 \qquad (1)$$

Financial openness data, another independent variable of the model, is retrieved from the KAOPEN index calculated by Chinn and Ito (2006), which measures the degree of capital account openness of a country. Foreign direct investment data are retrieved from the World Bank's WDI dataset.

The model constructed for the analysis includes both the unit dimension (MIST countries) and the time dimension (1987-2019). For this reason, panel data analysis, which enables analysis that considers both unit and time dimensions, is chosen as the method of the study.

Firstly, the model is constructed as in Equation (2), and it is tested whether there is a unit and/or time effect in the model. If there is a unit and/or time effect, it is determined whether the effect(s) in question are fixed or random.

With i=1,2,3,4 and t=1,2,3...33, the basic model of the study is as follows:

$$gini = \beta_0 + \beta_1\, gdppc + \beta_2\, to + \beta_3 fdi + \beta_4\, kao + \beta_5\, kao\_gdppc + \mu_i + \lambda_t + u_{it} \quad (2)$$

Assumptions are tested by considering whether the model is a classical model or a model with fixed/random effects. Robust estimators are used to re-estimate the model if the assumptions are deviated. The Stata 15.0 package software is used to do all of the analyses for the study utilizing Tatoğlu's (2012) apps.

4. Results

The dataset contains 33 (T) years of data for 4 (N) countries and a total of 132 observations. In the 1987-2019 period, the average Gini index of MIST countries was 40.8, while the average annual growth rate of per capita income was 3.1. Similarly, the average trade openness was 55.6, the average financial openness index was 0.35, and the average ratio of foreign direct investment to national income was 1.96 (Table 2).

Table 2: Descriptive Statistics of Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
gini	132	40.832	6.0346	29.6	49.3
gdppc	132	3.1144	3.8266	-14.351	11.6187
to	132	55.569	15.6441	27.8279	105.566
fdi	132	1.9638	1.3278	-2.7574	5.4023
kao	132	0.3464	1.0536	-1.2262	2.322
kao_gdppc	132	0.7273	5.0891	-14.246	15.2372

The regression model was first constructed for the panel data analysis, and the LR test was performed to measure the presence of unit and/or time effects. According to the test results, it was determined that there is a unit effect in the model (prob=0.000<α=0.05), while there is no time effect (prob=1.000>α=0.05). Robust Hausman test was then performed, and it was found that the unit effect in the model was more consistent with the fixed effects (prob=0.018<α=0.05).

After deciding on the model type (fixed effects model), deviations from the assumptions were examined. First, the VIF test was used to analyze whether there is multicollinearity in the model. Since the mean VIF is (1.58)<5, there is no multicollinearity in the model (Table 3).

The Modified Wald test was conducted for the fixed effects model to analyze whether there is a heteroskedasticity problem. According to the test results, the null hypothesis H0, which states that "*variances of the units are equal*" is rejected (p=0.004<α=0.05). The model has heteroskedasticity, which is another way of saying there is an issue with varying variance. Next, another assumption, the autocorrelation problem, was examined. For this, Baltagi and Wu's (1999) local best invariant (LBI) autocorrelation test was performed; since DW=0.278 and Baltagi-Wu LBI= 0.339 <2, the null hypothesis H0 is rejected, there is autocorrelation in the model. Additionally, Breusch-Pagan (1980) Lagrange Multiplier (LM) test and Friedman's (1937) inter-unit correlation

test were applied separately to check whether there is an inter-unit correlation in the model. According to both test results (prob=0.000<α=0.05), the H0 hypothesis is rejected. This confirms the model's inter-unit correlation's existence (Table 3).

Table 3: Assumption Tests and Results

Assumption	Test Name	Hypothesis	Test Statistics	Probability Value
Multicollinearity	VIF Criteria	If VIF<5, there is no multicollinearity.	Mean VIF: 1.58	-
Heteroskedasticity	Modified Wald Test	H_0: There is no heteroskedasticity (variances of the units are equal).	15.59	0.004
Autocorrelation	Baltagi-Wu LBI Test	H_0: $\rho = 0$	DW: 0.278	-
		(There is no autocorrelation.)	B.Wu: 0.339	
Inter-unit correlation	Breusch Pagan Lagrange Multiplier (LM) Test	H_0: There is no inter-unit correlation.	54.979	0.000
	Friedman Test	H_0: There is no inter-unit correlation.	19.481	0.000

In the final version of the model, robust estimators were applied since there were deviations from the assumption. Driscoll-Kraay (1998) estimator, which considers deviations from all assumptions and eliminates these problems, was used to construct the final model. According to the final model, the significance of the model as a whole was significant with p=0.000<0.05, and the ratio of independent variables explaining the dependent variable (R-sq) was found to be approximately 57% (Table 4).

Table 4: Final Version of the Fixed Effects Model

Dependent Variable: Gini						
Explanatory Variables	**Coef.**	**Drisc/Kraay Std. Err.**	**t**	**P>|t|**	**[95% Conf. Interval]**	
gdppc	-0.0458	0.0313	-1.47	0.152	-0.1095	0.0179
to	-0.0678	0.0174	-3.89	0.000*	-0.1033	-0.0323
fdi	0.3053	0.0949	3.22	0.003*	0.1121	0.4985
kao	-0.73	0.1724	-4.23	0.000*	-1.0811	-0.3789
kao_gdppc	-0.0291	0.0274	-1.06	0.296	-0.085	0.0268
cons	44.4161	0.9866	45.02	0.000*	42.4065	46.4257
Number of Obs.	132					
Max. Lag	3					
F (5, 32)	17.76					
Prob > F	0.000*					
R-sq	0.5654					

Note: *α=0.01 is statistically significant at the level of 0.01.

The final model obtained according to Table 4 is as in Equation (3).

With i=1, 2, 3, 4 and t=1, 2, 3...33

$$gini = 44.42 - 0.07\,to + 0.31\,fdi - 0.73\,kao + \mu_i + u_{it} \quad (3)$$

According to the results of the panel data analysis (Table 4), trade openness, financial openness, and foreign direct investments have a statistically significant effect on the Gini index. However, the growth rate in per capita income does not significantly affect the Gini index. Moreover, the moderator variable included in the model to measure the effect of financial openness on the

growth rate of per capita income also has no significant effect on the Gini index. In this case, while the first three main hypotheses of the study (H1, H2, H3) are confirmed, hypotheses H4 and H5 are not.

The final model (Equation 3) suggests that a one percent change in the trade openness rate will lead to a 0.07 decrease in the Gini index. This shows that trade openness affects income inequality, but this effect is low. A one percent change in the financial openness index will lead to a decrease of 0.73 in the Gini index. In other words, an increase in a country's financial openness will result in more equitable income distribution. This effect of financial openness in reducing income inequality is higher than that of trade openness. A one percent change in foreign direct investments, another independent variable in the model, will lead to an increase of 0.31 in the Gini index. In other words, increasing the share of FDI in national income increases income inequality.

5. Conclusion

Since income inequality is one of the main economic problems, it is frequently the subject of academic studies, and many researches are conducted on the causes of it. Many factors that lead to income inequality are mentioned in the literature. Economic globalization, a result of the liberalization policies implemented in the last 50 years, is among these factors. This study aims to contribute to the literature by assessing the impact of trade and financial openness, which reflect various dimensions of economic globalization, on income inequality and the direction of this impact for the period between 1987 and 2019 for MIST countries. It also explores whether financial openness affects income inequality through the growth rate of per capita income.

For the purpose of this study, panel data analysis was applied using a model in which income inequality is the dependent variable and trade openness, financial openness, and foreign direct investment are independent variables. According to the results of the analysis, both trade and financial openness have a decreasing effect on income inequality. However, it is found that trade openness affects income inequality less than financial openness. In this case, it can be said that the financial dimension of economic globalization has a more significant role in reducing income inequality than the trade dimension. Additionally, the findings show that financial openness does not affect income inequality through the per capita income growth rate. The findings of this study support the Stolper-Samuelson theorem, which suggests that trade openness leads to reducing income inequality, and Levine's (2005: 920) emphasis that finance reduces income inequality. Also, the findings are similar to the findings of Faustino and Vali (2013), Perera et al. (2014) and Dabla-Norris et al. (2015), who examine the impact of trade openness on income inequality, and Delis et al. (2014) and Bumann and Lensink (2016) who examine the impact of financial openness on income inequality.

However, considering this study is limited to the MIST countries and the period between 1987 and 2019, it should not be ignored that the results obtained for different countries and periods may differ. In this context, studies that examine how recent events that limit foreign trade, such as the COVID-19 pandemic and the Russia-Ukraine war, affect income inequality will make an essential contribution to the literature.

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