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ARE ECONOMIC FREEDOMS AN IMPORTANT FACTOR AFFECTING INCOME INEQUALITY? AN EMPIRICAL APPLICATION ON TURKISH ECONOMY

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ABSTRACT

The aim of the study is to examine the relationship between economic freedom and income inequality in Türkiye for the period 1995-2021. For this purpose, ARDL and Granger causality tests were applied. As a result of the analysis, there is a cointegration relationship between economic freedom index, GDP per capita, inflation, trade openness and income inequality. According to the short-run error correction model, both current and lagged values of economic freedom have a negative and significant effect on income inequality. This indicates that short-term increases in economic freedom have a decreasing effect on income inequality. In the long-run analysis, while the economic freedom index is statistically insignificant in the long run, other variables are significant. Moreover, economic freedom and trade openness have a negative effect on income inequality, while GDP per capita and inflation have a positive effect on income inequality. According to the Granger causality result, there is a unidirectional causality relationship from economic freedom to income inequality.

Keywords: *Economic Freedoms, Income Inequality, Türkiye, ARDL.*

JEL Classification: *O15, E02, C10.*

1. INTRODUCTION

In recent years, in both developed and developing economies, the income inequality (IN) gap between rich and poor has been high and continues to grow. When IN is high, it fuels social discontent and poses a threat of social and political unrest (Mdingi and Ho, 2021). The majority of nations worldwide now face a policy conundrum related to IN. This is because a more unequal distribution of income in an economy leads to an excessively low ratio of the income of working people to national income, thus causing the problem of insufficient general demand. A worsening income distribution also leads poorer people to borrow more to meet their basic consumption needs. A credit boom may eventually lead to a financial crisis. Thus, IN has been widely recognized as an important social and economic problem (Lee et al., 2022). Given the importance of this issue, it is imperative that the root causes of inequality are identified and urgently addressed by policymakers (Uzar, 2023). Otherwise, as Alesina and Perotti (1996) argue, high IN increases the likelihood of coups, revolutions, and mass violence. It also adversely affects investment by creating policy uncertainty and threatening property

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rights. Consequently, economic growth is reduced as a result (Mdingi and Ho, 2021). Similarly, According to the IMF (2015), there is a negative correlation between economic growth (EG) and income disparity. Furthermore, because it influences educational and career choices, substantial income disparity can have significant negative social impacts. Moreover, Bampinas et al. (2017) show that IN has a negative impact on consumption in the long run (Karakotsios et al., 2020). IN therefore has an impact on people's well-being and social stability. In this context, IN is an urgent problem in the process of social development (Wang et al., 2023). Therefore, researchers have recently focused on the determinants of IN. In particular, they examine the effects of economic freedom (EF), globalization, trade openness and institutional quality on income inequality. In particular, the impact of EF on IN has attracted the attention of researchers and policy makers.

The concept of EF is a fundamental right of every human being to control their own interests and their own existence (The Heritage Foundation, 2023). It highlights the notion that people should be able to freely pursue their interests and that the state should only intervene in basic social concerns that are outside the purview of individual actors, like justice, protection, the rule of law, and the supply of essential public goods. Furthermore, it affirms the classical liberal notion that people advance societal welfare by following their own interests and asserts that the economy should be founded on the interactions of human actors (supply and demand). As a result, EF emphasises the importance of private property, open domestic and international markets, the rule of law, and the limited role for government (Machado and Fuinhas, 2023). In a society with EF, those who govern the country avoid any restrictions or interventions other than those necessary to ensure that this freedom is preserved. Societies with EF and dynamism have demonstrated their ability to improve the quality of life and their capacity to develop effective solutions to crises (The Heritage Foundation, 2023).

EF is said to have varying effects on income disparity (Carter, 2007; Apergis et al., 2013). First, by eliminating legal restrictions and guaranteeing equitable access to property rights, EF increases the opportunities for earning money. Therefore, it is anticipated that EF will lessen IN. Second, it is believed that EF reduces IN because it promotes liberal policies in terms of taxation, spending, and regulations. Redistribution in favour of higher earners is thus constrained. Lastly, by encouraging EG, EF is thought to have an impact on income distribution. EF is predicted to exacerbate IN in the early phases of EG; however, as the economy reaches high levels of development, IN declines (Karakotsios et al., 2020). There have been conflicting findings from empirical studies on the connection between EF and inequality in income. Different time periods, data sets, or econometric methodologies can all lead to different outcomes.

In this context, the aim of the study is to investigate the effect of Economic Freedom Index (EFI) on income inequality (GINI) in Türkiye. GDP per capita (GDPPC), inflation (INF) and trade openness (TO) variables are used as control variables. Türkiye has experienced serious economic transformations from time to time, starting with the opening up process in the 1980s until today. It is important to

understand how EF and income distribution have been affected during these transformation processes. Türkiye is one of the countries with the most pronounced IN among developing countries. In terms of EF, it generally ranks around the median. However, recent improvements in EF (e.g. ease of doing business, freedom of trade, government intervention) have also attracted attention. Therefore, it is valuable to examine how EF in Türkiye has evolved and how this has affected IN. To examine this effect, the ARDL bounds test approach developed by Peseran, Shin and Smith (2001) and Granger causality analysis were used. The ARDL method is a preferred method of analysis, especially for examining short and long term relationships. ARDL can work on time series with different degrees of integration, without the variables having the same degree of integration. It can also be very efficient, especially when working with small sample groups (Abdibekov et al., 2024; Roy Chowdhury, 2024).

The study's initial section contains comprehensive general information. The literature is presented in the second section. The data, model, and approach are presented in the third section. The analysis's conclusions are shown in the fourth section. The conclusion section then completes the investigation.

2. LITERATURE REVIEW

The impact of EF on income disparity and EG between 1975 and 1985 was examined by Berggren (1999), one of the earliest empirical studies to provide theoretical foundations for the relationship between EF and IN. Berggren contends that it is theoretically unclear how EF and income disparity are related. His empirical findings demonstrate that gradual and sustained improvements in EF reduce income inequality. Scully (2002) finds a negative relationship between the two variables in his study for 26 developed countries in the 1975-1990 period, while Carter (2006) finds a negative relationship between the variables in the short run and a positive relationship in the long run in his panel analysis for 39 high and middle-income countries in the 1980-2000 period. Ashby and Sobel (2008), in their study on the US, find that EF reduces IN. Clark and Lawson (2008) use a sample of 66 countries and find a negative relationship between these two variables. Bergh and Nilsson (2010) find a positive relationship between the two variables as a result of panel data analysis in 78 middle and high-income countries for the period 1970-2005. Bennett and Vedder (2013), in their study on the US, find strong evidence supporting a negative relationship between EF and IN. Apergis et al. (2014), in their study on US states for the period 1981- 2004, find that EF reduces IN in the long run. Apergis and Cooray (2015), in their study for the period 1970-2010 in 58 countries, linear model results show that there is a negative relationship between the two variables, while in the non-linear model this relationship changes depending on the level of EF. Perez-Moreno and Angulo Guerreno (2016) conclude that EF increases IN in their study covering European Union members. Ahmad (2017), in his study covering 115 countries, found a positive relationship between the general EFI and IN. Konu (2017), according to the results of the analysis for OECD member countries, EF have a positive effect on IN. Öztürk Ofluoğlu et

al. (2018) found that increases in the level of EF for MINT countries in the 2000-2012 period reduced IN. Akbakay (2020) found a positive relationship between the two variables in his analysis for G-7 countries in the period 2000-2015. Karakotsios et al. (2020) examined the causal links between EF, taxes, and IN in 58 countries between 1995 and 2016. The results show that income disparity is positively impacted by EF. In Dean and Geloso (2022), the relationship between EF and IN in Canada for the period 1982-2018 is not established directly, but indirectly through income mobility. In short, EF generally increases income mobility. Yılmaz et al. (2022) found an inverted U-shaped relationship between EF and IN according to a panel data analysis with data from 137 countries in the 2000-2018 period. Machado and Fuinhas (2023) used a panel of 102 nations from 2000 to 2018 to investigate the connection between IN and EF (and its subcomponents). The analysis's conclusions demonstrate that EF has a detrimental effect on income disparity. In their study covering 128 developing countries for the period 1990-2017, De Sosya and Vadlamannati (2023) find that although EF increases the GINI coefficient (inequality), its effect is relatively limited. Migheli and Saccone (2023) analyze the relationship between EF and income distribution by analyzing a panel of 70 developing and developed countries for the period 1980-2014. The findings show that EF increases the income shares of the top percentiles while eroding the income of the middle and especially the upper-middle. In addition, the poor do not seem to be affected. Huynh (2024) clarifies how EF, economic progress, and their interplay affect income disparity in 35 Asian economies between 2000 and 2018. The empirical findings demonstrate that, up until a certain point in economic development, EF first raises IN before reducing it. Gültekin (2025) analyzed the impact of EF and its subcomponents on IN through quantile regression for 17 different countries including Türkiye for the period 1995-2020. According to the results, improvement in property rights has an increasing effect on IN for all quantile levels, while financial freedom and investment freedom have a decreasing effect on IN. Increased per capita income and democracy also had a decreasing effect on IN for different quantile groups.

According to the information provided, there are a lot of studies examining the connection between EF and growth in the literature on economics, but not many examining how EF affects income distribution. There appears to be no agreement among the studies examining the connection between EF and income disparity. While some studies contend that greater EF can lessen IN by boosting EG and raising the relative income of low-income groups, other studies find that greater EF will worsen IN and lessen the impact of redistributive measures. As a result, it can be concluded that the literature presents inconclusive and sometimes contradictory evidence on the relationship between economic freedom and income inequality, which constitutes the main focus of this study.

3. DATA, MODEL, AND METHOD

The study's objective is to assess how EFI has affected GINI in Turkiye between 1995 and 2021. Abbreviations, explanations and references of the variables are given in Table 1.

Table 1. Definitions of Variables

Variables	Measurements	Sources
GINI	Gini index	WB
EFI	Economic freedom index	heritage.org
GDPPC	GDP per capita (constant 2015 USD)	WB
INF	Inflation, consumer prices (annual %)	WB
TO	(export+import)/GDP	WB

Note: To obtain more robust results, GINI index, EFI and GDPPC variables have been transformed into their natural logarithmic forms.

Table 2. Descriptive Statistics

	GINI	EFI	GDPPC	INF	TO
Mean	1.6157	1.7804	3.9250	28.2468	50.9084
Median	1.6164	1.7895	3.9230	11.1443	49.3693
Maximum	1.6473	1.8155	4.1287	89.1133	71.0824
Minimum	1.5843	1.7041	3.7560	6.2509	37.6649
Std. Dev.	0.0163	0.0318	0.1175	29.1555	7.2963
Skewness	-0.1384	-0.9845	0.1709	1.1201	0.8251
Kurtosis	2.4433	2.9393	1.6466	2.6135	3.8355
Jarque-Bera	0.4348	4.3661	2.1919	5.8139	3.8492
Probability	0.8045	0.1126	0.3342	0.0546	0.1459
Obs.	27	27	27	27	27

The descriptive statistics presented in Table 2 provide important clues about the distribution of the variables used in the study. The GINI variable exhibits a fairly stable distribution with very close mean and median values and a low standard deviation. Similarly, the EFI variable shows a low variance and is close to a normal distribution. The distribution of GDPPC is symmetric and far from extreme values. On the other hand, the INF variable differs from the other variables with its high mean, large deviation and right-skewed distribution, which can be considered as a statistical reflection of the periodic high inflationary pressures in the Turkish economy. The TO variable, on the other hand, exhibits a relatively balanced distribution and satisfies the assumption of normal distribution to a large extent. Jarque-Bera test results show that GINI, EFI, GDPPC and TO variables meet the assumption of normal distribution to a large extent, while the inflation variable meets this assumption to a limited extent.

In this study, the long-run relationship between EFI, GDPPC, INF, TO and GINI is analyzed using the ARDL test developed by Pesaran et al. (2001). The ARDL approach is chosen because it provides relatively more efficient results when the sample size is small and limited (Pesaran and Shin,

1999; Pesaran et al., 2001). Moreover, this test does not take into account the degree of integration of variables and provides an opportunity to explain the long-run relationship between variables.

The ARDL technique allows the use of variables with different degrees of stationarity by using linear transformation to construct a dynamic error correction model (ECM) (Banerjee et al., 1993). The ARDL test consists of a three-stage structure (Pesaran, Shin and Smith, 2001). First, cointegration between variables is tested using the bounds test method. In this context, an unrestricted error correction model (UECM) is constructed. The UECM, represented by Equation 1, is subjected to the bounds test in this study.

$$\Delta lnGINI = \alpha_0 + \sum_{i=1}^{j} \alpha_{1i}\, \Delta lnGINI_{t-i} + \sum_{i=0}^{k} \alpha_{2i}\, \Delta lnEFI_{t-i} + \sum_{i=0}^{l} \alpha_{2i}\, \Delta lnGDPPC_{t-i} + \sum_{i=0}^{m} \alpha_{2i}\, \Delta INF_{t-i} + \sum_{i=0}^{n} \alpha_{2i}\, \Delta TO_{t-i} + \beta_0 lnGINI_{t-1} + \beta_1 lnEFI_{t-1} + \beta_2 lnGDPPC_{t-1} + \beta_3 INF_{t-1} + \beta_4 TO_{t-1} + \varepsilon_t \quad (1)$$

The coefficient $\alpha_{1\ldots4}$ and $\beta_{1\ldots4}$, the difference operator Δ, the constant α_0 and the random error term ε_t are all represented by the equation. Furthermore, the ideal lag durations chosen by the information criterion are displayed as j,k,l,m,n.

Using the level equations to estimate the long-run coefficients is the second step of the ARDL bounds test. Estimating the short-run model or ECM is the third step. We can construct an ARDL-based ECM equation as follows:

$$\Delta lnGINI = \theta_0 + \sum_{i=1}^{a} \theta_{1i}\, \Delta lnGINI_{t-i} + \sum_{i=0}^{b} \theta_{2i}\, \Delta lnEFI_{t-i} + \sum_{i=0}^{c} \theta_{2i}\, \Delta lnGDPPC_{t-i} + \sum_{i=0}^{d} \theta_{2i}\, \Delta INF_{t-i} + \sum_{i=0}^{e} \theta_{2i}\, \Delta TO_{t-i} + \vartheta ECT_{t-i} + \varepsilon_t \quad (2)$$

In Equation 2; $\theta_{1\ldots4}$ refers to the short-term coefficients, Δ the difference operator, θ_0 the constant term and ε_t the random error term. Additionally, a,b,c,d,e show the optimal lag lengths selected by the information criteria. The speed of adjustment is denoted by the estimated value of the ECT coefficient. In other words, the rate at which short-term deviations revert to long-term equilibrium is indicated by a negative and substantial ECT coefficient.

4. EMPIRICAL RESULTS

In multivariate time series analysis, unit root tests are conducted to examine whether the data are stationary. For the ARDL estimation method, the series should not be stationary at second order (I(2)) or above. To look into unit roots, this study used the Phillips Perron (PP) and augmented Dickey-Fuller (ADF) tests. Table 3 displays the outcomes of the tests.

Table 3. ADF and PP Test Results

	Variables	ADF				PP				
		Level		First Dif.		Level		First Dif.		
		Test ist.	Prob	Test ist.	Prob	Test ist.	Prob	Test ist.	Prob	Result
Constant	**GINI**	-1.2092	0.6547	-6.7431	0.0000	-1.1153	0.6940	-6.5994	0.0000	I(1)
	EFI	-1.5176	0.5090	-5.0152	0.0005	-1.5568	0.4897	-5.0152	0.0005	I(1)
	GDPPC	0.1883	0.9664	-4.4561	0.0018	0.1883	0.9664	-4.4561	0.0018	I(1)
	INF	-2.0223	0.2760	-3.1229	0.0377	-2.4366	0.1421	-3.1503	0.0355	I(1)
	TO	0.9853	0.9949	-4.8391	0.0007	-0.3844	0.8980	-5.0080	0.0005	I(1)
Const+ trend	**GINI**	-1.5053	0.8015	-6.9815	0.0000	-1.3768	0.8438	-6.9405	0.0000	I(1)
	EFI	-2.8011	0.2113	-4.8947	0.0032	-2.092	0.5259	-4.8947	0.0032	I(1)
	GDPPC	-2.7156	0.2391	-4.443	0.0086	-2.2274	0.4559	-4.4346	0.0088	I(1)
	INF	-1.0354	0.9195	-5.6538	0.0006	-0.5888	0.9712	-3.9880	0.0228	I(1)
	TO	-2.3671	0.3865	-6.6604	0.0001	-2.0078	0.5701	-9.9270	0.0000	I(1)

The variables examined in the analysis are stationary at the I(1) level, according to the findings of the unit root tests conducted on the series, as displayed in Table 3. This indicates that none of the variables have order 2 integration (I(2)). This suggests that utilising the ARDL technique for the series is not problematic.

Comparable to unit root testing, the ARDL bounds test uses the AIC to determine the appropriate lag duration. The restricted amount of observations, as proposed by Pesaran and Pesaran (1997), is the reason for this decision. In other words, since the data set contains only 27 observations, a more parsimonious model was selected based on AIC. As a result, the ARDL(1, 2, 1, 3, 2) model, which is the lag structure with the lowest information criterion value according to AIC, was selected. This research leads to the conclusion that the ARDL (1, 2, 1, 3, 2) model is the best option. The ARDL (1, 2, 1, 3, 2) model's estimation results and the outcomes of diagnostic tests performed on the model are displayed in Table 4.

Table 4. ARDL (1, 2, 1, 3, 2) Model Diagnostic Test Results

Normality (JB)	0.366387 (0.83)
B-G Serial Cor. LM	1.404201 (0.30)
Heteroskedasticity (Breusch-Pegan-Godfrey))	0.849204 (0.61)
Ramsey RESET	0.069757 (0.94)
F-stat	14.41299 (0.000)
R2	0.94

The diagnostic test findings shown in Table 4 indicate that the model is free of autocorrelation and variance issues. In addition, the model is normally distributed and there is no model fitting error. In

other words, it can be said that the results obtained from the model are reliable. After the ARDL model was estimated using lag orders (1, 2, 1, 3, 2), a limits test study was performed to see whether a long-term equilibrium relationship exists. To determine the cointegration relationship between variables in the ARDL limits test, the F statistics must be compared with the critical values of the bounds suggested by Pesaran et al. (2001). Furthermore, it is crucial to assess the F statistics using the critical values outlined by Narayan (2005) when the sample size is small. It is appropriate to reject the null hypothesis and declare the existence of cointegration if the F statistic value is higher than the critical value. Conversely, if the value of the F statistic falls below the lower bound, it is not possible to reject the null hypothesis. The observed result indicates the absence of cointegration. However, when the F statistics fall within the predetermined upper and lower bounds, the interpretation of the cointegration relationship becomes ambiguous. The results of the ARDL bounds test are presented in Table 5.

Table 5. ARDL Bounds Test Results

Test stat	Value	Signif.	I(0)	I(1)
			Asymptotic: n=1000	
F-stat	**9.575059**	10%	2.2	3.09
		5%	2.56	3.49
		2.5%	2.88	3.87
		1%	3.29	4.37

The F statistic value (9.575059) is higher than the top critical value of the table, based on the results of the boundaries test conducted under the proper delay value stated in Table 5. This indicates that there is a long-run cointegration relationship between the variables in the model. This result indicates that there is a cointegration relationship between the EF index and other variables and the GINI index in the period in question.

This indicates that there is a stable interaction between the level of income distribution and the determinants in the model in the long run over the analyzed period. Overall, the results suggest that both the level of EF and IN have a long-term and integrated relationship with economic structures. In this context, policymakers should develop holistic strategies to address EF and IN together.

Table 6. Short-Term Error Correction Regression Estimation Results

Variable	Coefficient	Std. Error	t-Stat.	Prob.
D(EFI)	-0.2358	0.0587	-4.0138	0.0025
D(EFI(-1))	-0.1927	0.0622	-3.0966	0.0113
D(GDPPC)	0.1620	0.0507	3.1934	0.0096
D(INF)	0.0012	0.0077	0.1602	0.8759

D(INF(-1))	-0.0798	0.0120	-6.6514	0.0001
D(INF(-2))	-0.0639	0.0117	-5.4358	0.0003
D(TO)	-0.0006	0.0002	-2.7136	0.0218
D(TO(-1))	0.0010	0.0002	3.6675	0.0043
CointEq(-1)*	-1.3815	0.1488	-9.2830	0.0000

The error correction model (ECM) results presented in Table 6 reveal important findings on the relationship between short-run dynamics and long-run equilibrium. Both the difference of the EFI variable in the current period (D(EFI)) and its one-period lagged value (D(EFI(-1))) are statistically significant and have a negative sign. This indicates that short-term increases in EF have a dampening effect on the dependent variable (IN) in the model. In other words, it can be said that short-term improvements in EF play a stabilizing role on IN. The level of per capita income (D(GDPPC)) has a positive and significant coefficient, suggesting that EG has an increasing effect on the related variable in the short run. While the inflation rate (D(INF)) is not significant in the current period, its one and two period lagged values are negative and highly significant. This finding suggests that the effect of inflation is spread over time and that price instabilities in the past periods are still effective. The trade openness (D(TO)) variable also yields significant results in the short run. While its current period value is negative and significant, its one-period lagged value is positive and significant. This suggests that the short-run effects of trade openness are complex and time-dependent, but the net effect is stabilizing after a certain period of time. The error correction term (CointEq(-1)) is negative at -1.3815 and highly statistically significant at 1% significance level. This coefficient indicates that the model quickly adjusts towards a strong long-run equilibrium. This result once again confirms that there is a robust long-run cointegration relationship between the variables in the model.

Furthermore, it is essential to evaluate the long-run coefficients of the ARDL model in order to investigate how the EFI and the control variables affect the GINI index. The outcomes of the long-run coefficient estimation for the ARDL model are shown in Table 7 in order to achieve this goal.

Table 7. Long-term Error Correction Regression Estimation Results

Variable	Coefficient	Std. Error	t-Stat.	Prob.
EFI	-0.0900	0.0648	-1.3889	0.1950
GDPPC	0.3163	0.0332	9.5161	0.0000
INF	0.0581	0.0048	11.915	0.0000
TO	-0.0011	0.0004	-2.8115	0.0184
C	0.5161	0.1261	4.0932	0.0022

According to Table 7, while GDPPC, INF, and TO variables are statistically significant in the long run, the EFI variable, which is the main subject of the study, is not statistically significant. While

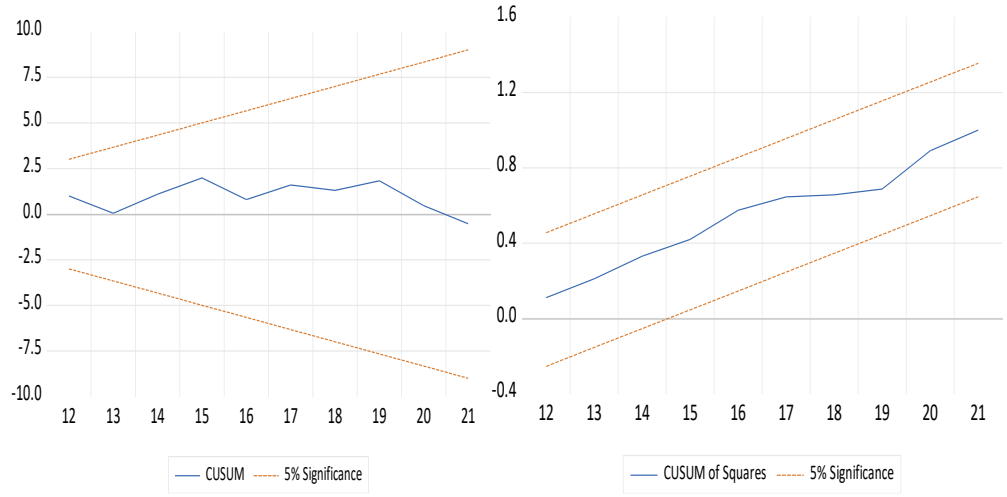
GDPPC and INF variables have a positive sign in the long run, EFI and TO variables have a negative sign.

In other words, the long-run error correction regression results presented in Table 7 show the long-term effects of the main macroeconomic variables in the model on the dependent variable. The findings show that economic growth, inflation and trade openness have significant and statistically consistent effects in the long run.

GDPPC is positive and highly significant ($p<0.01$). Its coefficient is estimated to be 0.3163, which indicates that a 1% increase in income level in the long run leads to an increase in the dependent variable by approximately 0.32%. This finding suggests that EG has a direct and strong impact on outcomes such as long-term welfare or IN. The INF variable is found to be positive and highly significant. The long-run coefficient of inflation is 0.058121, indicating that if this variable is in a continuous upward trend, it may create an increasing pressure on the dependent variable. This indicates that especially high inflation may deepen economic and social imbalances in the long run. The TO variable has a negative coefficient (-0.0011) and is statistically significant at the 5% significance level. This result indicates that openness to foreign trade has a decreasing effect on the related dependent variable in the long run. Although EFI has a negative sign, it is not statistically significant ($p=0.1950$). This indicates that the level of EF does not have a statistically significant effect on the dependent variable in the model in the long run. However, since this effect may be significant in the short run, the effect of the relevant variable may vary depending on the time dimension. The constant term (C) is positive and significant. This indicates that other fixed effects or structural factors not included in the model push the dependent variable upwards in the long run.

The CUSUM and CUSUM of Squares structural break tests, as outlined by Brown et al. (1975), were calculated to evaluate the validity of the study findings. This was done in order to take into consideration any shifts in the Turkish economy over the course of the analysis. The CUSUM and CUSUM of Squares test results are displayed in Figure 1.

Figure 1. CUSUM and CUSUM of Squares Test Results



The results of both tests indicate that the test statistics fall within the 5% confidence interval. The calculated parameters, in other words, are within the critical bounds. Consequently, it can be said that any modifications to the data period have no effect on the calculated parameters.

Table 8. Granger Causality Test Results

	F-ist	Prob.
EFI → GINI	6.3814	0.0072
GINI →/EFI	0.2113	0.8112

The Granger causality test results in Table 8 reveal the causality relationship between EFI and GINI index. According to the test results, the F-statistic value (6.3814) for "EFI → GINI" is statistically significant at the 1% significance level (p=0.0072). This finding indicates that past values of EF can predict IN in a statistically significant way. In other words, it is concluded that changes in EF have a determinant effect on income distribution over time. On the other hand, the test result for "GINI → EFI" is not significant (F=0.2113, p=0.8112). This suggests that past values of IN do not have a significant predictive power on the level of EF. Therefore, this test indicates the existence of a unidirectional causal relationship; that is, causality runs only from EF to IN. This finding has important implications for policymakers. Increasing EF- for example, by strengthening property rights, reducing barriers to market entry or improving financial liberalization - may reduce IN in the long run. However, there is no reverse relationship, i.e. causality in the sense that deterioration in income distribution affects EF.

5. CONCLUSION

The aim of this study is to analyze the impact of EF on IN in Türkiye between 1995 and 2021. For this purpose, ARDL bounds test and Granger causality test are applied. Thanks to these tests, the relationship between EF and IN has been analyzed both in the short and long run and important findings

have been identified. The ARDL bounds test results confirm that there is a long-run cointegration relationship between the variables in the model. This indicates that there is a stable and integrated relationship between EF and IN in the analyzed period. Short-run error correction model results show that current and lagged values of EF have negative and significant effects on IN. This finding suggests that short-term increases in EF play a stabilizing role on income inequality, in other words, EF has the potential to reduce IN in the short run. The long-run results are as follows: (i) Although the EF variable has a negative sign, it is not statistically significant. This indicates that EF does not have a direct and significant effect on IN in the long run. (ii) GDPPC is found to increase IN in the long run. (iii) The positive long-run effect of inflation indicates that high price increases may deepen socioeconomic imbalances. (iv) TO is found to have a dampening effect on IN in the long run. The Granger causality test results reveal that there is a unidirectional causality from EF to IN. This implies that EF plays a determinant role on IN over time, but not vice versa. In this context, it is understood that improvements in the EF level may have positive consequences for income distribution, but a worsening income distribution will not directly affect the EF level.

The findings are important for policymakers. Given that EF can have positive effects on IN, especially in the short run, steps to increase EF - strengthening property rights, facilitating market access, expanding financial freedoms - may contribute to improving income distribution. However, it should be noted that the long-term effects of these policies are limited.

These findings suggest that policies to reduce IN in Türkiye may be possible not only by increasing EF but also by implementing comprehensive policies such as sustainability of EG, inflation control and trade promotion. Future studies will allow for a more in-depth examination of this relationship with a larger data set or different methodological approaches.

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