

DOES INSTITUTIONAL QUALITY MATTER IN ACHIEVING INCOME INEQUALITY? PANEL CAUSALITY ANALYSIS FOR G-8 COUNTRIES^{*}

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Abstract

The level of GDP produced by countries varies due to differences in micro- and macroeconomic indicators. Beyond GDP magnitude, equitable income distribution is crucial. This study examines the impact of institutional quality on income distribution. Income inequality is measured using the GINI coefficient, while governance effectiveness, political stability, control of corruption, and rule of law as institutional quality indicators. Annual data from 2002–2023 are analyzed using the panel causality test by Emirmahmutoglu & Köse (2011). The horizontal-section dependency and heterogeneity precondition tests for the causality test were performed using the CDIm, Delta, and Deltaadj tests. Results for overall panel indicate unidirectional causality from governance effectiveness, political stability, and control of corruption to income distribution, and from income distribution to control of corruption. These findings suggest that institutional quality significantly shapes income distribution. Moreover, improvements in income distribution appear to reinforce anti-corruption efforts. The study highlights the critical role of institutions in promoting both social equity and economic governance, emphasizing that policies and institutional effectiveness are interlinked in reducing inequality.

Keywords: *Institutional Quality, Income Distribution, GINI, Panel Data*

Jel Classifications : *D64, E24, O15*

GELİR DAĞILIMI ADALETİNİN SAĞLANMASINDA KURUMSAL KALİTE ÖNEMLİ Mİ? G-8 ÜLKELERİ İÇİN PANEL NEDENSELLİK ANALİZ

Özet

Ülkelerin gelişmişlik düzeylerine bağlı olarak mikro ve makroekonomik göstergelerle beraber sosyo-kültürel göstergelerdeki farklılıklara bağlı olarak üretilen GSYH’da farklı olabilmektedir. GSYH’daki büyüklük farklılıklarının olmasının yanında elde edilen gelirin toplumun geneline dağılılabilmesi son derece önemli bir husustur. Gelir dağılımının adil olmasını etkileyebilecek birçok faktörün varlığı kaçınılmaz bir durumdur. Bu çalışmada ise kurumların, kurumsallığın dolayısıyla kurumsal kalitenin gelir dağılımı üzerindeki etkisi

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araştırılmıştır. Kurumsal kalitenin gelir dağılımı üzerindeki etkisi araştırılırken kurumsal kalite göstergelerinden yönetim etkinliği, politik istikrar, yolsuzluğun azaltılması ve hukukun üstünlüğü modele dahil edilmiştir. 2002-2023 dönemini kapsayan yıllık sıklığa sahip veri seti Emirmahmutoglu & Köse (2011) panel nedensellik test ile analiz edilmiştir. Nedensellik testinin yatay kesit bağımlılığı ve heterojenlik ön koşul testleri CDlm, Delta ve Delta_{adj} testleri ile gerçekleştirilmiştir. Panelin geneli için elde edilen sonuçlara göre yönetim etkinliği, politik istikrar ve yolsuzluğun azaltılmasından gelir dağılımına; gelir dağılımından yolsuzluğun azaltılmasına doğru tek yönlü nedensellik elde edilmiştir. Genel olarak kurumsal kalitenin gelir dağılımını etkilediği söylenebilir. Diğer yandan da gelir dağılımındaki bir iyileşmenin yolsuzluğu azaltılmasını etkilediği söylenebilir.

Anahtar Kelimeler: Kurumsal Kalite, Gelir Dağılımı, GINI, Panel Veri

Jel Kodları: D64, E24, O15

INTRODUCTION

When examining the evolution of economic theories, the classical economic approach explains economic growth through specialization, division of labor, and capital accumulation. However, before the emergence of endogenous growth models, the classical economists considered labor to be a homogeneous factor. Schultz (1962) later emphasized that labor should be viewed as human capital, highlighting that individual possess different skills and abilities. Similarly, technology, which had previously been assumed to be fixed, was recognized as a crucial determinant of economic growth. With the Solow growth model, technology began to be treated as a distinct factor of production. Subsequently, endogenous growth models explained economic growth through research and development (R&D) activities, human capital accumulation, the AK model, learning-by-doing, public expenditure, and production spillovers.

Although institutional economists such as Veblen (1899), Mitchell (1910), and Commons (1931) discussed the role of institutions—namely institutional quality—classical economists argued that the state’s role should be limited to providing services such as education, justice, defense, and infrastructure, while refraining from market intervention. This perspective indirectly acknowledged the economic significance of institutions and institutional quality. While this was the prevailing view in Western economic thought during the 17th and 18th centuries, when the foundations of capitalist philosophy were being established, the statement of Omar ibn al-Khattab, “Justice is the foundation of the state,” demonstrates that the importance of institutions and institutional quality in economic life had been emphasized long before, as early as the first half of the 7th century.

The recognition of institutions and institutionalization as determinants of economic growth rather than direct factors of production can be attributed to North (1990). Later, Kaufmann et al. (1999) developed the Worldwide Governance Indicators (WGI), which made it possible to measure “institutional quality” empirically. Following the 2000s, studies such as Globerman and Shapiro (2002) and Acemoğlu et al. (2005) became pioneering contributions to the empirical literature on this subject. Income distribution reflects how a country’s Gross Domestic Product (GDP) and economic welfare are

shared among its groups and individuals. The fairness or unfairness of income distribution provides significant insights into a country's level of economic and social development. Inclusive growth, which ensures the widespread distribution of income and improvements in the welfare of disadvantaged groups, plays a crucial role in achieving equitable income distribution. While mainstream economics generally focuses on how income is distributed among factors of production, institutional economics examines how income is distributed among households within society. Conversely, the neoclassical approach argues that the income received by each factor of production should be proportional to its marginal contribution. Institutional economists, however, contend that the distribution of income among households largely occurs within an institutional framework shaped by power relations (Akalm & Uzgören, 2019).

Per capita income is obtained by dividing the total GDP produced during a specific period by the country's population. However, when not all individuals benefit equally from this income, income inequality emerges. Many factors may influence income distribution positively or negatively. Based on this perspective, the present study investigates the impact of institutional quality on income distribution. The analysis employs annual data from the G-8 countries covering the 2002–2023 period. While various studies have examined the determinants of income distribution using different datasets and methodologies across countries and regions, this study contributes to the literature as the first to analyze the causal relationship between institutional quality and income distribution in G-8 countries using the panel causality test developed by Emirmahmutoğlu and Köse (2011).

This paper is structured in five sections. Following the introduction, the second section presents a review of the relevant literature. The third section describes the dataset and methodology, the fourth section reports the empirical findings obtained from the causality analysis, and the final section provides conclusions and discussion.

LITERATURE REVIEW

The relationship between institutional quality and income inequality is closely linked to the nature of economic development, governance capacity, and social inclusiveness. The direction of this relationship varies across studies depending on the institutional indicators used and the level of institutional development of the countries examined. One of the early studies that considered both developed and developing countries, Barro (2000), suggested that income inequality might promote growth in low-income countries but slow it down in high-income countries, implying that this relationship is closely associated with institutional capacity. Similarly, Gupta et al. (2002) emphasized the adverse effects of corruption on income inequality and poverty, empirically demonstrating the destructive consequences of institutional deterioration on social welfare. Rodrik et al. (2004), in an influential study, highlighted the primary role of institutions in economic development, underscoring those institutional structures—rather than geographic or trade factors—are key determinants of both

growth and inequality. In this context, Hartmann et al. (2015) examined the relationship between economic complexity and institutional quality in the context of income inequality and found that countries with more complex production structures and stronger institutional frameworks tend to exhibit lower levels of inequality.

Studies focusing on developing countries suggest that the effects of institutional quality may be more limited due to institutional weaknesses. For instance, Akalın and Uzgören (2019), in a comparative analysis of developed and developing countries, found that institutional quality indicators tend to reduce inequality in developed economies, while in developing countries their impact is unstable and often insignificant. Aslam et al. (2020) analyzed the combined effects of institutional quality, digitalization, and social inclusion on inclusive growth, demonstrating that strong institutional structures, coupled with digital transformation, contribute to reducing social inequality. Náplava (2020), focusing on post-Soviet countries, found that institutional indicators such as the rule of law and anti-corruption measures positively affect income distribution. Law and Soon (2020) argued that the impact of inflation on inequality can vary depending on institutional quality, showing that macroeconomic shocks have a more limited effect on inequality in countries with robust institutional frameworks.

Regional studies also provide valuable insights into the relationship between institutional quality and income inequality. Asamoah (2021), using a dynamic panel threshold analysis for developing countries, demonstrated that institutional quality reduces income inequality once it exceeds a certain threshold, implying that institutional reforms should be evaluated not only in quantitative terms but also in terms of structural characteristics. Nkoa and Song (2021) found that in African countries, some institutional indicators help reduce inequality, while others may exacerbate it—highlighting the heterogeneous and context-dependent nature of institutional effects. Tran et al. (2021), analyzing Asian economies, found that institutional structures indirectly reduce inequality by fostering economic growth. Alkhafaji and Almula-Dhanoon (2022), using panel data for institutionally developed countries, found that governance quality and transparency improve income distribution. Similarly, Lee et al. (2023) analyzed the relationship between institutional quality, income levels, and debt sustainability using a dynamic panel threshold regression, concluding that strong institutional frameworks facilitate fiscal sustainability and indirectly reduce inequality. Kebede et al. (2022) examined the impact of financial inclusion on income inequality in Africa and showed that institutional capacity determines the direction of this relationship. They emphasized that the inequality-reducing effect of access to financial services is directly linked to the regulatory and supervisory capacity of institutions. Dosso (2023) identified a nonlinear relationship between financial development and institutional quality in resource-rich countries, noting that strong institutional structures enhance financial system efficiency and reduce inequality. Sun et al. (2023), analyzing N-11 countries, investigated the joint effects of natural resources, urbanization, institutional quality, human capital, and income inequality, and highlighted the influence of institutional structures on environmental sustainability and income distribution.

Adeleye (2024), in a comparative analysis of Latin American and Sub-Saharan African countries, found that institutional quality moderates the relationship between human capital and income inequality—specifically, that low levels of institutional quality limit the capacity of human capital to reduce inequality. Huynh and Hoang (2024), examining the nexus between climate change, income inequality, and institutional quality in Asian countries, concluded that the effects of environmental threats on inequality are weaker in countries with strong institutions. Abbas et al. (2023), focusing on SAARC countries, found that high levels of corruption exacerbate inequality, whereas institutional indicators such as transparency, rule of law, and accountability contribute to its reduction. Ochi et al. (2024) analyzed the relationship between institutional quality, pro-poor growth, and inequality in low- and middle-income countries, demonstrating that under strong institutional frameworks, inequality reduction and poverty alleviation are more effective. Lee and Lee (2018) explored the link between country risk and income inequality using a multilevel analysis, finding that political instability, legal uncertainty, and weak governance tend to increase inequality, while strong institutional structures can offset these effects. Finally, Sadorsky (2013), although not directly addressing income inequality, examined the effects of urbanization and industrialization on energy intensity, emphasizing that institutions can play an indirect role in addressing inequality through environmental management and sustainability policies.

Overall, studies investigating the relationship between institutional quality and income inequality employ various time-series and panel data methods across different countries and regions. Although the findings vary depending on the level of institutional development, the consensus suggests that institutional quality tends to improve income distribution and promote equity. Consistent with this literature, the present study is expected to yield similar results.

DATA SET AND METHODOLOGY

The primary objective of this study is to empirically examine the relationship between income distribution inequality and institutional quality indicators in the context of G-8² countries. In this framework, the causal effect of institutional quality on income distribution is analyzed using annual data covering the period 2002–2023. For the causality analysis, the panel causality test developed by Emirmahmutoğlu and Köse (2011) is employed. There are three main reasons for choosing this particular test: (i) Sensitivity to Cross-Sectional Dependence: As a second-generation panel method that accounts for cross-sectional dependence, the test is capable of controlling for possible interdependencies and spillover effects among cross-sectional units. (ii) Flexibility Regarding Pre-testing: Unlike many conventional panel causality tests, the Emirmahmutoğlu and Köse (2011) test eliminates the requirement of testing the stationarity (unit root) properties of the variables prior to analysis. This feature makes the

² Canada, France, Germany, Italy, Japan, Russian, United Kingdom, United States

method more suitable for panels with mixed orders of integration. (iii) Panel-Level and Country-Specific Results: The method provides both an overall causality result for the entire panel and individual causality inferences for each cross-sectional unit (country) within the panel.

The dataset of the study consists of annual observations for the period 2002–2023. The aim was to utilize the widest possible time span. Data on institutional quality indicators were obtained from the World Bank, while the GINI coefficient data were sourced from the Standardized World Income Inequality Database (SWIID).

The dependent variable in this study is income inequality, measured using the GINI coefficient. To empirically examine the determinants of income distribution, four key indicators of institutional quality were included as independent variables in the model:

- Government Effectiveness (GOV)
- Political Stability (POL)
- Control of Corruption (COR)
- Rule of Law (LAW)

The functional form of the relationship between the variables is expressed as follows:

$$GINI = f(GOV, POL, COR, LAW)$$

Cross-sectional dependence tests for the variables used in the study were conducted using Pesaran's (2004) CD_{lm} test. This test provides reliable results in both cases where $T < N$ and $T > N$.

The CD_{lm} test is formulated as follows in Equation (1):

$$CD_{LM} = \sqrt{\frac{1}{N(N-1)} \sum_{i=1}^{N-1} \sum_{j=i+1}^N (T\hat{\rho}_{ij}^2 - 1)} \quad (1)$$

In Equation (1), N denotes the number of countries (cross-sectional units), and T represents the time dimension covered by the series. The hypotheses of the CD_{lm} test are specified as follows:

H_0 : There is no cross-sectional dependence.

H_1 : There is cross-sectional dependence.

The homogeneity of the model was examined using the S test and the Delta test. In the literature, the S test developed by Swamy (1970) and its extension, the Delta test proposed by Pesaran (2004), are commonly used to assess homogeneity. The corresponding test statistics are presented in Equations (3) and (4).

To determine whether the model is homogeneous, both the S test and the Delta test were applied. Additionally, the Delta test developed by Swamy (1970) and its Pesaran (2004) adjusted version, Delta_adj, were employed. The statistical formulations of these tests are provided in Equations (2) and (3).

$$\tilde{\Delta} = \sqrt{N} \frac{N^{-1}\tilde{S} - k}{\sqrt{2k}} \quad (2)$$

$$\tilde{\Delta}_{adj} = \sqrt{N} \frac{N^{-1}\tilde{S} - k}{\sqrt{\text{Var}(t, k)}} \quad (3)$$

The hypotheses of the tests are formulated as follows:

H₀: The coefficients are homogeneous.

H₁: The coefficients are heterogeneous.

In panel data analyses, causality relationships are commonly examined using methods such as Dumitrescu and Hurlin (2012) and Konya (2006). Among the most frequently applied tests in the literature is the panel causality test developed by Emirmahmutoğlu and Köse (2011). This test requires two preliminary conditions: first, the slope coefficients of the model must be heterogeneous; and second, the series must exhibit cross-sectional dependence. The test estimates a separate VAR model for each cross-sectional unit in the panel. Moreover, this approach analyzes the series at the level and, therefore, does not require pre-testing for stationarity using unit root tests.

The Fisher statistic, which indicates the overall Granger causality relationship for the entire panel, is computed as follows:

$$\lambda_i = -2 \sum_{i=1}^N \ln(p_i), i = 1, 2, 3, 4 \dots N \quad (4)$$

In this equation, p_i denotes the p -value obtained from the Wald statistic corresponding to the i -th cross-sectional unit. The Fisher statistic follows a chi-square distribution with $2N$ degrees of freedom. This test statistic is valid for a fixed number of cross-sectional units as the time dimension approaches infinity (Emirmahmutoğlu, 2011, pp. 99–104).

EMPIRICAL FINDINGS

Prior to applying the panel causality test developed by Emirmahmutoğlu and Köse (2011), the cross-sectional dependence of the series and the homogeneity–heterogeneity status of the model were examined. The results of the cross-sectional dependence tests are presented in Table 1. These results

indicate that there is statistically significant dependence among the cross-sectional units in the panel dataset under investigation. The CDIm test statistics for all variables (GINI, GOV, POL, LAW) are significant at either the $p < 0.01$, or $p < 0.05$ level, confirming the presence of cross-sectional dependence among the units.

Table 1. Horizontal Cross-Section Dependence Test Results

Variables	t-St	Prob.	Significance
GINI	14.817	0.000	a ($p < 0.05$)
GOV	9.205	0.004	a ($p < 0.01$)
POL	6.196	0.000	a ($p < 0.01$)
LAW	18.355	0.000	a ($p < 0.01$)
COR	5.444	0.000	a ($p < 0.01$)

*^a, indicates the level of statistical significance of $p < 0.01$.

Table 2 presents the results of the homogeneity tests, which reveal the presence of a statistically significant heterogeneity structure among the cross-sectional units in the panel dataset. Both the Delta test and the adjusted Delta test are statistically significant at the 1% level, indicating that the panel units exhibit a heterogeneous structure in terms of fixed effects.

Table 2. Homogeneity-Heterogeneity Test Results

Homogeneity-heterogeneity tests:	t-St	Prob.	Significance
Delta	3.965	0.000	a ($p < 0.01$)
Delta _{adj}	4.612	0.000	a ($p < 0.01$)

*^a, indicates the level of statistical significance of $p < 0.01$.

The significant differences in economic, institutional, and social structures across countries support the heterogeneity observed in the panel. In particular, variations in institutional quality, governance mechanisms, and economic dynamics between developed and developing countries are consistent with the finding that the panel units are heterogeneous.

The results of the causality analysis between income inequality (GINI) and governance quality (GOV) are presented in Table 3. For the overall panel, a unidirectional causality running from governance quality to income inequality was detected at the 1% significance level. This finding indicates that improvements in governance quality constitute a factor influencing income distribution. Conversely, no evidence of causality running from income inequality to governance quality was found.

Examining the results at the country level, a unidirectional causality from governance quality to income inequality was observed for the United States at the 1% significance level. For the other countries, no statistically significant relationships were detected in either direction. These results suggest that the impact of governance quality on income distribution may vary across countries.

Table 3. Panel Causality Results (GOV- GINI)

Countries	Lags (k)	GOV=>GINI		GINI=>GOV	
		t-St.	Prob.	t-St.	Prob.
Canada	2	1.969	0.374	0.727	0.695
France	1	0.003	0.958	0.308	0.579
Germany	1	0.032	0.859	0.001	0.974

Italy	2	0.368	0.832	3.188	0.203
Japan	1	0.024	0.877	0.587	0.444
Russian	2	0.698	0.706	0.162	0.922
United Kingdom	1	0.953	0.329	1.067	0.302
United States	3	30.595 ^a	0.000	4.473	0.215
PANEL		33.474 ^a	0.006	12.323	0.721

*^a, indicates the level of statistical significance of $p < 0.01$.

The results of the causality analysis between political stability (POL) and income inequality (GINI) are presented in Table 4. For the overall panel, a unidirectional causality running from political stability to income inequality was detected at the 1% significance level. This finding indicates that increases in political stability generally have a significant effect on income distribution in the countries included in the panel. Conversely, no evidence of causality running from income inequality to political stability was found.

At the country level, a unidirectional causality from political stability to income inequality was identified for Germany at the 5% significance level and for Japan at the 1% significance level. For the United States, the relationship was reversed: a unidirectional causality from income inequality to political stability was observed at the 5% significance level. No statistically significant relationships were detected for the remaining countries.

Table 4. Panel Causality Results (POL- GINI)

Countries	Lags (k)	POL=>GINI		GINI=>POL	
		t-St.	Prob.	t-St.	Prob.
Canada	2	0.961	0.619	2.086	0.352
France	3	3.219	0.359	5.036	0.169
Germany	2	7.212 ^b	0.027	0.443	0.801
Italy	2	0.688	0.709	1.932	0.381
Japan	3	29.760 ^a	0.000	2.868	0.412
Russian	2	0.013	0.994	0.465	0.793
United Kingdom	1	0.035	0.851	0.381	0.537
United States	3	1.595	0.661	8.518 ^b	0.036
PANEL		38.829 ^a	0.001	18.118	0.317

*^a and ^b, indicates the level of statistical significance of $p < 0.01$ and $p < 0.05$

The results of the causality analysis between control of corruption (COR) and income inequality (GINI) are presented in Table 5. For the overall panel, a unidirectional causality running from income inequality to corruption control was detected at the 5% significance level. Conversely, no statistically significant causality was found from corruption control to income inequality.

At the country level, a unidirectional causality from corruption control to income inequality was observed for Italy at the 1% significance level, while for Germany, a unidirectional causality from income inequality to corruption control was detected at the 5% significance level. Additionally, for the United Kingdom, a unidirectional causality from income inequality to corruption control was found at the 5% significance level. No statistically significant causality was identified for the remaining countries.

These findings indicate that there is an interaction between corruption and income distribution, although the nature of this interaction varies according to country-specific dynamics. The unidirectional causality from income inequality to corruption control can be interpreted as suggesting that high levels of income inequality may exacerbate institutional weaknesses and adversely affect the capacity to combat corruption. At the panel level, this unidirectional causality implies that as income inequality rises, conflicts of interest among social groups may increase the risk of corruption, thereby weakening institutional effectiveness.

Table 5. Panel Causality Results (COR- GINI)

Countries	Lags (k)	COR=>GINI		GINI=>COR	
		t-St.	Prob.	t-St.	Prob.
Canada	3	2.878	0.411	2.941	0.401
France	3	4.461	0.216	4.850	0.183
Germany	3	1.303	0.728	10.905 ^b	0.012
Italy	3	11.777 ^a	0.008	5.110	0.164
Japan	2	1.501	0.472	1.430	0.489
Russian	2	2.250	0.325	0.511	0.774
United Kingdom	2	1.430	0.489	7.075	0.029
United States	2	0.914	0.633	0.206	0.902
PANEL		21.186	0.171	26.869 ^b	0.043

^a and ^b, indicates the level of statistical significance of $p < 0.01$ and $p < 0.05$.

The results of the causality analysis between rule of law (LAW) and income inequality (GINI) are presented in Table 6. At the panel level, the analysis reveals a unidirectional causality running from the rule of law to income inequality at the 5% significance level. Conversely, no statistically significant causality was observed from income inequality to the rule of law.

Table 6. Panel Causality Results (LAW- GINI)

Countries	Lags (k)	LAW=>GINI		GINI=>LAW	
		t-St.	Prob.	t-St.	Prob.
Canada	1	0.992	0.319	0.143	0.705
France	2	2.585	0.275	0.323	0.851
Germany	3	0.207	0.977	1.407	0.704
Italy	2	5.937 ^c	0.051	0.67	0.715
Japan	2	4.626 ^c	0.099	3.300	0.192
Russian	1	2.379	0.123	0.02	0.887
United Kingdom	1	3.438 ^c	0.064	0.672	0.412
United States	1	0.921	0.337	0.072	0.789
PANEL		27.352 ^b	0.038	8.180	0.943

^b and ^c, indicates the level of statistical significance of $p < 0.01$ and $p < 0.05$.

At the country level, a unidirectional causality from the rule of law to income inequality was identified for Italy, Japan, and the United Kingdom at the 10% significance level. These findings suggest that improvements in the rule of law in these countries may have a measurable impact on income distribution. No statistically significant relationships were observed for the remaining countries.

DISCUSSION AND CONCLUSION

This study empirically examined the impact of institutional quality on income distribution for the G-8 countries during the 2002–2023 period using the panel causality test developed by

Emirmahmutoğlu and Köse (2011). Considering the presence of cross-sectional dependence and the heterogeneity of slope coefficients, the causality results indicate unidirectional relationships running from government effectiveness, rule of law, and political stability to income distribution, and from income distribution to corruption control.

The unidirectional causality from governance quality to income distribution demonstrates that governance quality has a significant impact on income distribution. Effective governance can play a role in reducing income inequality through more efficient allocation of public resources, decreased corruption, enhanced accountability, and the fairer implementation of social policies. This finding emphasizes that governance quality is a critical determinant not only for economic growth but also for social justice and income equality. At the panel level, the results suggest that good governance can be considered a fundamental policy tool for addressing inequality, aligning with findings reported in studies by Ahrlind (2021) and Ortega et al. (2017). Similarly, the unidirectional causality from political stability to income distribution indicates that political stability significantly influences income distribution. In politically stable countries, governments can implement social policies more effectively and ensure the long-term sustainability of economic policies, thereby improving income distribution. Overall, these panel-level findings support the theoretical expectations in institutional economics regarding the relationship between political stability and inequality and are consistent with empirical studies by Barış and Koçbulut (2024) and Elorabi et al. (2025). The analysis also highlights an interaction between corruption and income distribution, which varies depending on country-specific dynamics. The unidirectional causality from income inequality to corruption control suggests that high levels of income inequality may exacerbate institutional weaknesses and negatively affect the capacity to combat corruption. At the panel level, this finding implies that increasing inequality may heighten conflicts of interest among social groups, thereby increasing the risk of corruption. Anti-corruption measures may facilitate the more efficient use of public resources and the effective implementation of social policies, thereby reducing inequality. Overall, the results indicate that while a relationship exists between corruption and income distribution, the direction of causality may differ according to each country's institutional structure. These findings are consistent with previous studies, including Gupta, Davoodi, and Alonso-Terme (2002), Karluk and Ünal (2017), and Çeştepe and Tatar (2018). At the panel level, the results show unidirectional causality from the rule of law to income inequality, indicating that strengthening the rule of law is crucial for ensuring fairness in income distribution. An effective legal system can reduce inequality through mechanisms such as the protection of property rights, enforcement of contracts, and anti-corruption measures. These findings are in line with the literature, including Bhagat (2020), Durguti et al. (2024), and Gu et al. (2024). Although significant relationships were found at the panel level, the number of countries showing statistically significant results at the individual level remains limited. This raises the question of whether G-8 countries, despite their relatively high-income levels compared to the rest of the world, may not have achieved the necessary development in terms of

institutional quality. Accordingly, it can be suggested that institutional quality may increase income and improve income distribution, but high income alone may not be sufficient to ensure institutional quality.

Several limitations emerge within the theoretical and empirical framework of this study. First, institutional quality indicators are irregular or unavailable for years prior to 2002. Second, while this study focuses on institutional quality as a determinant of income distribution fairness, future research could examine its effects on agricultural production, food security, and health outcomes across different country groups.

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