

The Impact of Political Competition and Institutions on Income Inequality in Developing Countries: An Empirical Analysis

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Institutions are one of the primary sources of development disparities among countries. However, the choice and structure of economic institutions and the distribution of resources significantly depend on the degree of political competition and the structure of the prevailing political institutions. This research aims to examine the relationship between political competition, political institutions, and income inequality for 52 developing countries over the period 2000–2018. To examine the potential income-based heterogeneity, the sample is divided into two income groups: low- and lower-middle-income countries and upper-middle-income countries. Given the dynamic nature of the data and empirical models, the empirical analysis is conducted by applying the two-step system-GMM estimation method to address endogeneity and dynamic panel bias. The study presents three key findings. Firstly, higher levels of political competition, measured by a Polity-IV based composite index (POLCOMP), significantly and considerably reduce income inequality in the sample countries. Secondly, the impact of political competition on income inequality substantially depends on the type of prevailing political institutions. Specifically, political competition in parliamentary systems more strongly reduces inequality by enhancing legislative accountability and policy responsiveness. Thirdly, political stability is imperative for reducing income inequality, as it ensures policy consistency, efficient government, and long-term economic planning. The

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findings suggest that and higher level of political competition and strong institutions are vital for fostering the process of equal income distribution.

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I. Introduction

The unequal distribution of income is one of the long-lasting global problems that impede the progress of sustainable development and exacerbates social unrest. Indeed, income disparity has long been a subject of scholarly interest, mainly focusing on economic and social determinants of income inequality. Many factors, such as globalization (Milanovic, 2016), economic growth (Kuznets, 1955), education, employment opportunities, and technological advancements (Aghion et al., 1999; Piketty, 2014), have been analyzed for their impacts on income inequality across the world. Some empirical studies have focused on social factors including cultural influences, demographic trends, and access to healthcare, which also significantly contribute to unequal distribution of resources and income disparities within and across different countries (Atkinson, 2015; Sen, 1997). However, a growing corpus of evidence shows that institutions play an important role in determining income distribution and sustainable development (Chong and Gradstein, 2007; Perera and Lee, 2013; Acemoglu and Robinson, 2013). Among various institutional, political institutions influence resource distribution, property rights enforcement, and the formulation of redistribution policies, all of which in turn significantly affect income distribution (Acemoglu and Robinson, 2013; Stiglitz, 2012).

Similarly, the empirical evidence establishes that economic institutions play key role in the development of an economy. Economic institutions are the primary economic factors in society, determining society's aggregate economic potential and establishing economic outcomes as well as future resource allocation (Acemoglu et al., 2005). The economic institutions affect the range and division of the aggregate pie in society and are mainly determined by the collective selection of society. However, a conflict of interest may arise over the selection of economic institutions among different people and social groups in the society. Therefore, the question of which economic institution should emerge largely depends on *who holds political power*. So, it is well established that the *political power is the main factor* that determines the selection of economic

institutions and, thus, the economic performances of a country (Acemoglu et al., 2001; Acemoglu et al., 2005).

In an institutional context, North (1990) made a division between formal and informal institutions. Specifically, according to his doctrine, formal institutions are legal, economic, and political rules, while informal institutions are social, behavioral rules, and conventions. More specifically, “institutions are the rules of the game in a society, or, more formally, are the humanly devised constraints that shape human interaction. Consequently, they structure incentives in human exchange, whether political, social, or economic” (North, 1990, p. 3). In this perspective, Acemoglu and Robinson (2013) divide institutions into two main categories: extractive institutions and inclusive institutions. Extractive institutions concentrate money and power among elites, whereas, inclusive institutions promote widespread involvement and fair resource allocation (Acemoglu and Robinson, 2013).

Institutional economists emphasize that institutional differences are the primary factor explaining comparative growth (North, 1990; Acemoglu and Robinson, 2013; Acemoglu et al., 2005). On the other hand, factor accumulation and innovations, as claimed by exogenous and endogenous growth theories (Solow and Swan, 1956; Romer, 1986; Lucas, 1988; Aghion and Howitt, 1992), are just *proximate sources* of economic growth. Institutions are more critical in developing countries for their economic outcomes as compared to advanced countries (Neyapti, 2013). In fact, in advanced countries, institutions are relatively strong and have less influence on income distributions, whereas, in developing countries, institutions are relatively weak and have a substantial effect on the selection of economic institutions and thus, affecting income distribution (Teles and Pereira, 2013; Perera and Lee, 2013). Therefore, weak institutions definitely result in poor macroeconomic performance, leading to slower and more erratic growth, and detrimental impacts on income distribution (Chong and Gradstein, 2007; Acemoglu and Robinson, 2010; Perera and Lee, 2013; Gwama, 2014; Daniel et al., 2018).

The better income distribution in a country is expected to happen when, under a democratic regime, the political power is in the hands of a comparatively large group of people. Thus, a democratic system combined with considerable investment possibilities, restricted rents (which political leaders may extract from members of society), and limitations and checks on those who possess political power leads to higher economic performance and better income distribution (Mauro, 1995; Knack and Keefer, 1995; Acemoglu et al., 2005). In this relevance, North (1990) and Acemoglu

and Robinson (2013) argue that democratic regimes develop institutions that are essential for sustainable economic development. According to Rodrik (2000) and Acemoglu et al. (2005), democracy is often considered a meta-institution that shapes and strengthens other institutions. However, democratic rule itself is insufficient to achieve fantastic economic performance; instead, a democratic regime with good prevailing institutions may lead to better economic performance.¹

Political competition is an important aspect in the operation of a democracy, as it determines how policies are developed and influence the allocation of resources throughout society (Batool and Haq, 2024). Political competition is defined as fair and healthy competition among various political parties in winning elections (Krasa and Polborn, 2012). It promotes the responsiveness and accountability of governments, leading decision-makers to implement inclusive policies that reduce inequality (Acemoglu and Robinson, 2005). However, how much political competition may lessen or increase inequality depends on how well democratic institutions work and how well political actors are able to put policies in place that support social welfare and economic redistribution. According to Persson et al. (2000), political parties are more likely to support policies that lower inequality through progressive taxation and social programs in nations with higher degree of political competition.

However, political competition in weaker democracies might result in populist measures that fail to address the root causes of economic inequality (Alesina et al., 1999). Consequently, political competition may help reduce economic inequality, but how much of an impact it depends on the institutional setting and prevailing political climate in the country. Without solid institutions, political competition may result in populist policies or rent-seeking behavior that exacerbates economic inequality (Keefer, 2007). Political rent-seeking occurs when elites exploit political authority for unearned advantages (Tullock, 1967; Krueger, 1974), resulting in economic disparities that fuel redistributive conflict, particularly among developing nations with weak institutions (Junior and Garcia-Cintado, 2021).

In the institutional setup of a country, one crucial component is its constitution, which defines the formal rules of its political regime. Different policies can be derived from different political rules or systems. There is a continual debate among scholars about which form of government is better for better economic outcomes and society's economic and social welfare (Persson, 2002; Persson and Tabellini, 2003). Among

¹ See, for detail, Teles and Periera (2013).

constitutional institutions, the forms or types of governments, such as presidential system, parliamentary system, and assembly elected presidential system have a large impact on both economic performance and income distribution (Persson and Tabellini, 2003). Due to constitutional arrangements, government systems have a bigger effect on economic performance than that of democratic rule itself (Andersen and Aslaksen, 2008). Presidential systems tend to centralize power and put stability above equality. However, parliamentary systems are more likely to execute redistributive policies owing to their coalition-based decision-making (Persson and Tabellini, 2003). According to Mesquita et al. (2003), inclusive political institutions produce better results for equality because they have greater accountability and wider political engagement. On the other hand, hybrid systems or autocratic governments with few accountability measures often increase inequality in the society.

Within the political institutional framework, stability in institutions holds an important part in affecting income inequality. According to Acemoglu and Robinson (2013), Political stability refers to the resilience of a government and its institutions in maintaining order, avoiding disruptions such as coups, civil unrest, or policy volatility. So, political stability is the steady and uninterrupted operation of a political system. Political stability is critical for economic performance, especially in developing countries (Acar, 2019; Chtouki and Raouf, 2023). Stable political institutions also foster long-term policy, which is necessary to deal with structural inequality (Rodrik, 1999). According to Chong and Gradstein (2007), political instability makes income inequality worse by threatening democratic governance and permitting policies that benefit the wealthy and powerful. Developing nations have special circumstances in which the interaction of institutions and political competitiveness determines outcomes of inequality. According to Acemoglu et al. (2019), the ability of political competition to promote redistribution is frequently weakened by weak property rights, nepotism, and power grabs. Political instability exacerbates inequities by interfering with policy consistency and infrastructure investment. So, in exploring the association between political competition and income disparity, this paper tries to address the gap in the current knowledge about how political competition impacts income inequality while accounting for the moderating role of political stability.

Based on the discussion above, it is evident that political competition serves an important role in influencing inequality, interacting with other institutional factors like political institutions (political systems and stability). Until then, no study has specifically examined how political competition affects income inequality in relation

to different political systems and institutional stability. This study tries to fill this void by exploring the influence of political competition on income inequality, offering novel insights into the realm of political economy and income distribution. The study focuses on developing countries for testing the constructed hypotheses, as persistent and wider economic inequality in these nations poses a significant threat to both human and economic development. In developing countries, inequality is often attributed to underlying economic deficiencies and institutional challenges (Acemoglu and Robinson, 2013). Political competition and institutional frameworks play a crucial role in influencing income inequality, shaping wealth distribution and access to opportunities.

This research aims to empirically test the hypothesis that income distributions are improved by political competition, contingent on the quality of political institutions maintained by a nation. Over all this research adds to the corpus of knowledge in a variety of ways. It contributes to the literature by addressing the implications of political competition for income inequality. It also helps to understand how political systems can affect income inequality. It adds to the existing body of literature the channel effects of political competition which has always been overlooked in research through the conditional effect of political competition and political systems on income inequality. Moreover, the aim of this study is to determine how political stability affects income distribution. Additionally, whether the conditional effect of political stability and political competition would lessen or increase the distribution of income. The study examines the effect of political competition and institutions on income disparity for a sample of 52 developing nations, covering the time from 2000 to 2018. To address endogeneity concerns and account for the dynamic nature of the proposed empirical models, the study uses the two-step system Generalized Method of Moments (GMM) approach. Additionally, marginal effects analysis is carried to validate the presented empirical findings and observe the asymmetries in the effects across different levels on the underlying variables.

The rest of the paper is structured as follows. Section II covers theoretical review of literature, section III covers methodology, which involves formulating the empirical models, defining and constructing variables, and discussing estimation methods. Section IV covers empirical findings and their interpretation. Lastly, Section V includes some closing observations and policy implications.

II. Theoretical Review of Literature

There are three primary theories of political competition: the economic theory, the transaction cost theory, and the multidimensional theory. The economic theory suggests that political competition yields efficient outcomes, such as economic outcomes and public goods provision. It parallels electoral competition with market competition, drawing from the works of Downs (1957), Stigler (1972), Becker (1983), and Wittman (1989). Similarly, the Coase theorem (Coase, 1960) suggests that efficiency results from negotiation to internalize externalities, contingent on minimal transaction costs and defined property rights, implying that political actors can negotiate effectively for resource allocation. However, this is often limited by the reality of property rights and transaction costs. Furthermore, the median voter theorem, first formalized by Black (1948) and later refined by Downs (1957), elucidates voter behavior in two-candidate elections, indicating that the election outcome will reflect the median voter's preferences. This spatial voting theory highlights the significance of candidates' positioning relative to voter preferences in optimizing their chances of electoral success. Despite its influence on political competition and electoral behavior, the theorem may not accurately model all real-world elections.

The neoclassical theory presumes that politicians can perfectly commit to their pledges and possess complete knowledge of voter preferences. In contrast, North emphasizes the practical challenges where gathering information proves costly, leading to limited subjective interpretations of voter preferences. Consequently, politicians may struggle to accurately discern public desires and to convincingly assure voters of their commitment. This discourse highlights the inherent imperfections within political markets and the difficulties politicians face in establishing and maintaining public trust. North (1990) contended that political markets are fundamentally flawed and that political institutions evolve to address these imperfections by lowering transaction costs and uncertainty. The goal of these institutions is to encourage politicians to work together and reduce uncertainty; however, they cannot fully address commitment and accountability issues between politicians and principles.

The transaction cost theory of politics critiques the assumptions of perfect commitment and perfect information in political competition. It recognizes that participants may possess flawed subjective models and face high information costs, leading to inherent deficiencies in political markets. Political institutions emerge as responses to these imperfections, aiming to lower transaction costs and mitigate

uncertainty. This theory asserts that political outcomes are shaped not only by electoral processes but also by coordination and negotiation within legislative and governing frameworks (Buchanan and Tullock, 1965; Weingast and Marshall, 1988; North, 1990; Dixit, 1998; Besley and Coate, 1998). By creating a dynamic situation that gradually surpasses the election process, Acemoglu (2003) and Besley and Coate (1998) support the notion of extensive political failures. Recognizing the presence of imperfect political markets begs the issue of how to decrease market inefficiencies or move them nearer towards the second-best achievable equilibrium (Dixit, 1998).

Whereas, Bartolini's theory of the multidimensionality of political competition presents a framework that delineates four primary modes of interaction among autonomous political players: collaboration, negotiation, conflict, and competition. This theory postulates that political competition is context-dependent, manifesting in various arenas such as legislative, executive, and electoral domains. It challenges the notion that political competition arises naturally, arguing instead that continuous efforts are vital to ensure that politicians remain attuned to voter needs. The theory further suggests that the provision of public goods, economic performance, and the nature of political relationships are influenced by a blend of collusive and competitive interactions (Bartolini, 1999, 2000).

III. Methodology

1. Empirical Models

We propose the following specifications to empirically assess the effects of political competition on income inequality.

$$gini_{it} = \beta_0 + \alpha gini_{it-1} + \beta_1 pc_{it} + \beta_2 pi_{it} + \beta_3 regm_{it} + \sum_{j=1}^n \gamma_j X_{it} + \mu_i + \varepsilon_{it} \quad (1)$$

where $gini_{it}$ indicates income inequality in the it th country during time t . Given the persistent nature of income inequality, a lagged dependent variable ($gini_{it-1}$) is used to account for the path dependence. pc_{it} denotes political competition, which is our main variable of interest. pi_{it} shows political institutions as political systems and political stability. We also include the democratic regime variable ($regm_{it}$), which identifies a country's political system as either democracy or autocracy. X_{it} is the

vector of control variables that comprises growth rate of real GDP per capita (g_{it}), age dependency ($agedep_{it}$), urbanization growth ($urbn_{it}$), trade openness (top_{it}), and human capital (hc_{it}).² μ_i captures unobserved country specific factors and ε_{it} denotes the error term.

To explore the influence of political competition on political institutions, we include an interaction term in the baseline model, Equation (1). Following several prior empirical studies (Reuveny and Li, 2003; Chong and Gradstein, 2007; Islam, 2016; Dobre et al., 2019), the two aspects of political institutions have been captured, namely political system (presidential system, parliamentary system, and assembly elected presidential system) and political stability, separately in Equation (2) and Equation (3), respectively. Political systems and political stability are distinct institutional characteristics. Political systems define structural forms of governance, and political stability describes the degree of political certainty and risk over time.³ Specifically, our augmented model takes the following form.

$$gini_{it} = \beta_0 + \alpha gini_{it-1} + \beta_1 pc_{it} + \beta_2 sys_{it} + \beta_3 (pc_{it} * sys_{it}) + \beta_4 regm_{it} + \sum_{j=1}^n \gamma_j X_{it} + \mu_i + \varepsilon_{it} \quad (2)$$

where sys_{it} denotes political system, and $(pc_{it} * sys_{it})$ is the interaction term of political competition and political system. We employ partial derivatives of Equation (2) to estimate the marginal impact of political competition on income inequality across different political systems.

To examine the role of institutional stability in formulating the effect of political competition on income inequality, we estimate another specification presented in Equation (3).

$$gini_{it} = \beta_0 + \alpha gini_{it-1} + \beta_1 pc_{it} + \beta_2 stab_{it} + \beta_3 (pc_{it} * stab_{it}) + \beta_4 regm_{it} + \sum_{j=1}^n \gamma_j X_{it} + \mu_i + \varepsilon_{it} \quad (3)$$

² The income inequality correlates have been compiled from the body of existing literature (Babones and Vonada, 2009; Anyanwu et al., 2016; Ahmed, 2017; Dorn et al., 2022).

³ Both interactions simultaneously may result in multicollinearity, as political competition is involved in both terms. Estimating each interaction separately enables a more open and focused evaluation of each institutional channel through which political competition influences income inequality.

where, $stab_{it}$ indicates stability of institutions, and $(pc_{it} * stab_{it})$ is the interaction term of political competition and institutional stability that captures the effect of political competition on income inequality, conditional on the stability of institutions. To examine the asymmetries in the effects of political competition, we evaluate the marginal effect of political competition on income disparity in the context of different political systems and political stability by taking partial derivatives of Equations (2) and (3).

2. Construction of Variables

The empirical analysis is carried out on a panel of 52 developing countries from 2000 to 2018.⁴ The dependent variable is income inequality ($gini_{it}$), which is served by the proxy of the Gini coefficient. According to Berg et al. (2018), Solt (2015), Vu (2022), and Parsons and Rabhi (2025), the SWIID is the recommended dataset for research on cross-national income disparity in several fields, including developmental economics.⁵ We used the disposable-income Gini coefficient, which accounts for inequality after taxes and transfers.

Political competition (pc_{it}) is our key variable of interest, which is the composite driver constructed based on the elements of the competitiveness and regulation of political participation. The data on political competition is taken from Polity IV.⁶ To analyze the role of political institutions, we consider two forms of institutional variables: political system that represent constitutional arrangements, denoted by sys_{it} , and political stability, denoted by $stab_{it}$.

In terms of system, different political systems (e.g., presidential, parliamentary, and assembly-elected presidential system) may have different responses to governance performance. We also examine a third system called the semi presidential system, which falls between the two polarized types (Gerring et al., 2009; Skach 2009). The

⁴ To avoid potential heterogeneity, the sample is split into two categories: low- and lower-middle-income and upper-middle-income countries.

⁵ The limitation of SWIID data is its dependence on interpolation, particularly for developing nations with lesser incomes (Galbraith et al., 2014; Parsons and Rabhi, 2025). Moreover, underreporting of income by high earners might skew survey-based statistics (Alvaredo et al., 2013).

⁶ Polity IV, like the majority of cross-national institutional datasets, focuses on formal political arrangements and may not accurately represent informal political dynamics or institutional heterogeneity within a country.

codes for the political system variable are 0 for presidential, 1 for semipresidential, and 2 for parliamentary. In accordance with Gerring et al. (2009), we consider this variable as continuous in our regressions and see political systems as a continuum. We use the word parliamentarism to refer to this three-part coding system in general. We also incorporate the democratic regime variable ($regm_{it}$), which captures a country's political state, either democracy or autocracy. As it is well accepted in the literature, for this study, we consider that political competition is a basic aspect of democratic regimes. However, political competition of varied kinds and degrees may exist in all systems, even those that might not be entirely democratic. To summarize, democratic regimes require political competition, but these terms are not purely interchangeable. Keeping in view the standard inequality models, we use many control variables selected on the basis of the existing economic theories and prior empirical studies.⁷

3. Estimation Technique

Given the panel data set and the dynamic nature of empirical models proposed for the empirical analysis of this study, we used the Generalized Method of Moments (GMM) by Arellano and Bond (1991).⁸ To address endogeneity and heteroskedasticity, we employed the two-step system GMM technique by Arellano and Bover (1995), later refined by Blundell and Bond (1998).

System GMM incorporates a level and difference equation. Unlike the difference GMM, which tackles an empirical model's endogeneity using lagged variables, the system GMM integrates level and difference equations into a single system.⁹ To summarize, the system GMM model better accounts for three types of endogeneity: simultaneity, dynamic endogeneity, and unobserved heterogeneity (Verbeek, 2000, p. 143 and 331; Greene, 2002, p. 201, 525, and 523). Moreover, given the dynamic character of economic variables and the potential endogeneity of institutional variables, System GMM is applied. This technique tackles endogeneity and omitted variable bias

⁷ See Appendix A; Table A1 provides a description of the variables used in this study and their data sources.

⁸ GMM model has some limitations; however, many studies on institutions, especially political institutions, applied the GMM model (see, for detail, Garcia-Sanchez et al., 2013; Acemoglu et al., 2008; Aisen and Veiga, 2013).

⁹ Alonso-Borrego and Arellano (1999) and Bond et al. (2001) established this instrument.

by employing internal instruments generated from lagged variable levels and differences (Arellano and Bover, 1995; Blundell and Bond, 1998).¹⁰

The Generalized Method of Moments (GMM) estimator was selected because of its capacity to handle dynamic panel models with endogenous regressors, which are typical in institutional investigations. On the basis of the dynamic nature of the data, we tested static models but selected GMM as the appropriate method. While GMM has limitations, such as susceptibility to over-identification and mild instrument bias, following Arellano and Bover (1995), rigorous diagnostic tests like the Hansen J-test and Arellano-Bond test for autocorrelation validate the validity of the instruments utilized in this study.¹¹ The instruments must be valid to give unbiased and valid GMM estimates. Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998), also suggested the use of two specification tests. The first test is the Hansen test of over-identification restrictions, which assesses the instruments' general validity (Hansen, 1982).

The null hypothesis for the Hansen test is that all instruments are exogenous. Two autocorrelation terms (AR1) and (AR2) have been used to address the autocorrelation problem.¹² For the first test, the null hypothesis that the equation's error term is not serially correlated is evaluated, mainly about its first order (AR1). For the second test, the null hypothesis that the equation's error term is not serially correlated is assessed, particularly concerning its second order (AR2). Additionally, we used the instrument count rule, which states that there should be fewer instruments than cross-sectional units (Roodman, 2009).

¹⁰ Following established literature (Arellano and Bond, 1991; Blundell and Bond, 1998; Roodman, 2009), we treat the lagged dependent variable as endogenous, while our main variables of interest (regime, competition, system, stability) and their interactions are treated as predetermined. Control variables (economic growth, age dependency, urbanization, and human capital) are also treated as predetermined. Instruments for the differenced equation consist of lagged levels ($t-2$ to $t-4$) of endogenous and predetermined variables, while instruments for the level equation consist of lagged first differences. The instrument matrix is collapsed to reduce instrument proliferation, and two-step robust standard errors are reported.

¹¹ According to Roodman (2009), this issue becomes more severe when the sample size is small and has a limited time horizon.

¹² The null hypothesis of AR(1) asserts that there is no first-order autocorrelation in the residuals, whereas AR(2) states that there is no second-order autocorrelation in the residuals.

IV. Empirical Results

This section provides the estimated findings of the empirical models given in Equations (1) to (3). Table 1 displays the estimated results of empirical models in the overall sample of developing countries. As discussed earlier, the dependent variable is income inequality ($gini_{it}$). All specifications have the same set of standard control variables. However, variables of interest vary across specifications that allow for sensitivity analysis. The variable of interest is political competition, which contains a negative sign and is statistically significant in all estimated specifications, as indicated in Table 1.¹³

We estimate several different models to examine political competition, political system, political stability variables separately to perform significance analysis and ensure that the findings of one indicator are independent of those of another. However, the focus of our study and debate will be Models 4 and 6 results. Model 4 incorporates all political institutions and competition variables and the direct and interactive effects of political competition and political institutions on income inequality. In the aggregate sample of developing nations (see Table 1), Models 4 indicates that democratic regimes help to reduce income inequality.¹⁴ This outcome validates the findings of Muller (1988) and Lee (2005) that ensuring the best possible implementation of equity-oriented redistribution policies requires the institutionalization of democracy, which includes the development of a solid and efficient bureaucracy. According to Islam (2016) democracy reduces income inequality through more effective redistribution policies in a democratic system.

Similarly, Model 4 of Table 1 shows a negative association between political competition and income inequality. Political economics theory suggests that increased political competition lowers income inequality by boosting electoral accountability and providing incentives for redistributive measures (Meltzer and Richard, 1981; Acemoglu and Robinson, 2006). This result aligns with the findings of Kawanaka and Hazama (2016) and Zuazu (2022) that show electoral systems that foster competition significantly contribute to more equitable income distribution. Political economy theory emphasizes that political competition affects income distribution through

¹³ Robust two-step system GMM standard errors are provided. The instruments are collapsed in accordance with Roodman (2009).

¹⁴ The details of 52 countries are given in Appendix C.

institutional channels that shape policy incentives and constraints. In competitive political environments, incumbents face electoral pressure to adopt redistributive policies in order to secure political support, particularly from median and lower-income voters (Meltzer and Richard, 1981). Greater political competition can therefore reduce income inequality by increasing public spending on social protection, taxation progressivity, and inclusive economic policies. However, this mechanism is not automatic and depends critically on the institutional framework within which competition operates (Acemoglu and Robinson, 2006; North, 1990).

How political competition results in distributive outcomes depends on the form of political systems. Model 4 in Table 1 demonstrates that conditional effect of political competition and political systems ($pc_{it} * sys_{it}$) that is also statistically significant at the one percent level has a negative impact on income equality. Legislative confidence and executive authority are strongly related in parliamentary system, which promotes coalition-based policymaking and increases accountability. By restricting unilateral executive decisions and promoting wider representation of social interests, this institutional structure increases the connection between political competition and redistribution (Persson and Tabellini, 2003). Therefore, political competition under parliamentary systems is more likely to result in results that reduce inequality than in presidential systems, where winner-take-all dynamics and the division of powers may decrease redistributive incentives.

So the income inequality can be mitigated by political competition within the parliamentary system.¹⁵ There are different justifications for this result: political parties compete based on their histories of governance and policy; political competition, when it coexists with a parliamentary system, can help minimize corruption and favoritism and foster accountability and transparency that may help reduce income inequality. The interaction of parliamentary systems and political competition can promote transparency and accountability in the government, which helps to lessen corruption and favoritism, both of which help to lessen inequality (Besley, 2006). According to Ansell and Samuels (2014), political competition across the parliamentary system may facilitate policy consensus and coalition-building, leading to the implementation of more equitable policies such as progressive taxation, social safety nets, and labor market reforms that may reduce income inequality. Similarly, Marx and Nguyen (2018) argue that fighting

¹⁵ Tables 2 and 3 demonstrate that, with a slight change in the magnitude of the coefficients of variables, the findings of the disaggregate sample are aligned with those of the aggregate sample.

between anti-elite and traditional political groups in parliamentary systems may decrease the power gap across different brackets of income. These findings show that political competition in parliamentary systems potentially reduces wealth disparity. Under the democratic system, the types of political systems, such as parliamentary systems, are more inclined to result in lower income disparity than presidential systems.

As mentioned earlier, following Gerring et al. (2009), the political system variable is assigned a coding scale of 0, 1, and 2. This ordinal coding permits a simplified estimation of interaction effects. However, Gerring et al. (2009) caution that if the distances between these categories are not uniformly equal, employing an interval structure for these differences could lead to measurement inaccuracies. Thus, this limitation should be considered when interpreting the conditional effects.

Model 6 (Table 1) of the aggregate panel of developing countries shows that individual effects of political stability and competition contribute to lower income inequality. These results are consistent with previous findings that inclusive political institutions, a system of checks and balances and political competition, can result in a more equitable allocation of income (Acemoglu and Robinson, 2006). Likewise, the effect of political stability on income inequality is that political stable environment results in consistent policy implementation to reduce income inequality. Policies aiming at lowering income disparity can be implemented and upheld by governments in politically stable environment (Alesina and Perotti, 1996; Tabash et al., 2023). So, the social safety net programs, minimum wage regulations, and progressive taxes are prone to be established and maintained in nations with stable political environment.

The effect of political competition on income inequality also depends on the political stability. While stability can foster long-term policy planning, it can also strengthen political elites and make governments less receptive to distributive demands. Competition in relatively stable political situations may be sustained through privileged bargaining rather than substantive redistribution, especially in developing countries with weak institutional checks and insufficient fiscal capacity (Keefer and Khemani, 2005). The conditional effect of political competition and political stability ($pc_{it} * stab_{it}$) has the positive effect on income inequality as the size of coefficient is 0.008 and which is statistically significant at the one percent level. Political competition that gets too fierce or polarizing can result in political instability, which may have adverse impact on the economy and can accelerate income inequality. According to Sochirca et al. (2016), political competition has a detrimental impact on government education expenditure and income disparity in low-income nations.

Strong political stability combined with low political competition can lead to policy stagnation in developing nations; conversely, high political competition combined with low political stability can cause policy inconsistency and frequent policy changes, both of which impede economic growth and exacerbate income inequality.

Institutional mechanisms are likely to operate differently across income groups due to variations in state capacity, political accountability, and policy implementation. In low- and lower-middle-income countries, weaker bureaucratic capacity, higher informality, and limited fiscal space may constrain the ability of political competition to translate into effective redistributive policies, even when competitive pressures exist. In contrast, upper-middle-income countries generally possess relatively stronger administrative institutions, broader tax bases, and more developed welfare systems, enabling political competition to more effectively influence redistribution and reduce income inequality. Moreover, political stability and institutional constraints tend to be stronger in higher-income developing countries, allowing competitive politics to produce more sustained and credible policy outcomes.

The findings for low- and lower-middle-income nations are close to the outcomes obtained for the whole sample of developing countries, with slight changes in the size of coefficients, as shown in Model 6 of Table 2. According to Acemoglu and Robinson (2013), institutional quality plays a crucial role in implementing redistributive measures to reduce inequality, particularly in middle-income democracies. Extreme political competition and low stability can result in inconsistent economic policies, impeding long-term development and worsening income inequality in low- and lower-middle-income countries. Our findings show that a balance between political rivalry and political stability is required to shape income disparity. A healthy level of political competition, as demonstrated by a competitive political climate, can result in policies that encourage equitable distribution of wealth while tackling inequality (Persson and Tabellini, 2003). At the same time, a stable political climate promotes governance continuity, the rule of law, and efficient policy implementation, all of which are critical for lowering economic gaps (Acemoglu and Robinson, 2013). A balance between these two factors, which is ensuring appropriate political competition while not weakening stability, can generate the environment for lower income disparity and more fair economic outcomes.

The relationship between political competition and political stability has a detrimental impact on income inequality in upper-middle-income nations with comparatively better political institutions and administrative capabilities. In the context of upper middle-

income countries, the outcome of political competition on income inequality that is conditional on political stability is significant and negative (-0.006). According to Iversen and Soskice (2006), political stability in these environments increases the legitimacy and enforcement of laws, enabling competitive forces to translate into long-term redistributive policies like social protection and progressive taxes, ultimately lowering inequality. Upper-middle-income countries with higher level of political competition and stability can benefit from dynamic policy debates and innovation, while ensuring consistent implementation of effective policies. According to Kudamatsu and Besley (2007), stable democracies with strong institutions tend to adopt policies that promote fairness and social welfare. So, in politically competitive contexts, governments are more likely to embrace policies that combat inequality, such as progressive taxation, social expenditures, and worker protections (Persson and Tabellini, 2003). However, the efficacy of these programs is contingent on the stability of political institutions. Without political stability, frequent governance changes, policy reversals, and uncertainty may impede the long-term execution of redistribution plans, eventually failing to reduce inequality. Our findings show that the influence of political competition on income disparity varies according to the development level of countries and prevailing political institutions.

The control variables include GDP per capita growth (g_{it}), age dependency ($agedep_{it}$), urban population ($urbn_{it}$), trade (top_{it}), and human capital (hc_{it}), have significant impacts. The results indicate that economic growth lessens income inequality by expanding economic resources, creating employment opportunities, increasing wages, and enhancing access to goods and services (Kang, 2014; Banna et al., 2020; Wang and Lee, 2023). Kuznets' hypothesis suggests income inequality increases but eventually declines as more people participate in economic activities (Kuznets, 1955). Forbes (2000) identified that heightened income inequality is noticeably linked with enhanced subsequent economic growth. Inclusive growth, which leads to investment in education and infrastructure, benefits lower-income groups (Dollar and Kraay, 2002; Banerjee and Duflo, 2003).

About the impact of age dependence on inequality, the results indicate that a higher age dependency increases income inequality. Age dependence is utilized as a control variable given that it represents the demographic pressure on the working-age population. A larger age-dependence ratio puts additional financial strain on households, which lowers savings and investments and widens income disparities (Becker and

Tomes, 1979; Zakaria et al., 2016). Furthermore, in countries with insufficient social safety systems, a higher dependent population means increased reliance on scarce income resources, worsening the income gaps (Bloom and Williamson, 1998).

The influence of urbanization on income inequality indicates that urbanization relates to lower income disparity as it improves accessibility to economic opportunities, infrastructure, and social services like education and healthcare. The centralized nature of industries and services in cities generates more jobs, raises earnings, and promotes upward mobility, particularly among low-income migrants from rural regions (Todaro, 1980). Urbanization also encourages human capital development and innovation, reducing skill and wealth disparities among socioeconomic groupings (Fields, 1975). Furthermore, metropolitan areas frequently establish redistributive laws along with social security programs, which help to reduce disparity (Kim et al., 2021; Ali, 2023). However, in the case of the aggregate panel of developing countries, there is no statistically significant impact of urbanization on income inequality. According to earlier studies, there may be a mixed or statistically insignificant relationship between urbanization and income inequality, especially when taking into account variations across development groups (Ali et al., 2022).

Regarding how trade impacts income disparity, our findings show that trade reduces inequality in low- and lower-middle-income countries while increasing inequality in upper-middle-income nations (Ravallion, 2001; Milanovic, 2005). This impact is attributed to differences in economic structures and the influence of trade liberalization across income levels (Barusman and Barusman, 2017; Akyuz et al., 2022). Trade tends to increase growth in labor-intensive industries in low- and lower-middle-income nations, lowering inequality by generating employment and raising earnings for lower-income people (Krugman, 1997).

In upper-middle-income nations, however, trade frequently advantages capital-intensive and skill-intensive industries, disproportionately favoring skilled workers and capital owners, increasing income inequality (Wood, 1997). Furthermore, in these countries, trade-related technology developments may benefit higher-income groups, increasing the gap in wages between skilled and unskilled workers (Feenstra and Hanson, 1996; Neagu et al., 2016). The different degrees of economic growth, the industries that profit from trade and the amount of technical advancement in these nations may all be linked to the different ways that trade affects income disparity.

The effect of human capital as a control variable for inequality suggests that human capital reduces inequality. It is justifiable as human capital improves productivity, education, and skills, which lower economic inequality by helping underprivileged people and better-paying jobs and closing wage gaps (Rehme, 2007; Becker, 2009; Josifidis and Supic, 2019). Productivity gains by skilled workers result in higher wages and less wage inequality (Barro, 2000). So, a key element in lowering inequality is human capital development, which ensures that economic gains are more widely distributed by fostering equitable development and social mobility (Cingano, 2014).

Table 1 shows that in the case of a full sample of countries, the second-order serial correlation test statistics (AR2) demonstrate that the null hypothesis stating that there is no serial correlation cannot be rejected. Likewise, Hansen test for over-identification illustrates that the overall instrument exogeneity null hypothesis is also not rejected. Additionally, the instrument count is much lower than the cross-sectional unit count, which is also satisfactory.¹⁶

The study contributes to the existing body of knowledge by systematically analyzing how political institutions, such as political stability, types of political systems, and political competition income inequality in developing nations. This research offers a comprehensive perspective on how institutional settings impact income inequality by examining their direct and interacting effects, unlike other studies that focus on these elements in isolation.

We employed the two-step system GMM estimator, which addresses issues such as endogeneity, omitted variable bias, and dynamic panel characteristics. GMM is widely recognized in the literature on institutions and economic performance for its robust and reliable estimation (Garcia-Sanchez et al., 2013; Aisen and Veiga, 2013). Although simultaneity and unobserved heterogeneity are addressed by System GMM, possible endogeneity particularly reverse causality from inequality to political institutions remains. Future studies can improve inference by expanding the sample size and the period of coverage.

¹⁶ The second-order serial correlation test statistics (AR2) and the Hansen test for over-identification are also satisfactory with regard to the disaggregate sample of developing countries.

Table 1. The Effect of Political Competition and Political Institutions on Income Inequality

Aggregate Panel of Countries						
Variables	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6
Lag Inequality	0.427*** (0.010)	0.535*** (0.047)	0.644*** (0.009)	0.715*** (0.072)	0.766*** (0.010)	0.562*** (0.009)
Economic Growth	-0.258*** (0.084)	-2.085*** (0.371)	-0.160** (0.071)	-1.336*** (0.401)	-0.152** (0.063)	-0.258*** (0.050)
Age Dependency	0.018*** (0.005)	0.088*** (0.027)	0.020*** (0.003)	0.071** (0.041)	0.012** (0.006)	0.019*** (0.005)
Urbanization	-0.054 (0.150)	-0.076 (0.063)	-0.031 (0.050)	-0.070 (0.087)	-0.020 (0.023)	-0.032 (0.260)
Trade	-0.023 (0.031)	-0.037*** (0.012)	-0.039*** (0.007)	-0.045*** (0.003)	-0.026 (0.032)	-0.013*** (0.001)
Human Capital	-0.253** (0.106)	-0.039 (0.456)	-0.159*** (0.018)	-0.263*** (0.011)	-0.233*** (0.090)	-0.187*** (0.066)
Political Competition	-0.040*** (0.007)	-	-0.027* (0.016)	-0.191** (0.085)	-0.051*** (0.018)	-0.060*** (0.009)
System	-	0.210* (0.124)	-0.792*** (0.173)	0.682*** (0.119)	-	-
Stability	-	-	-	-	0.017*** (0.001)	-0.033*** (0.002)
Political Competition ×System	-	-	-	-0.108*** (0.026)	-	-
Political Competition ×Stability	-	-	-	-	-	0.008*** (0.001)
Regime	-	-	-0.243*** (0.056)	-0.601* (0.332)	-0.241** (0.120)	-0.340*** (0.078)
Constant	3.777*** (0.462)	9.419** (4.394)	4.583*** (0.324)	19.624*** (5.903)	3.656*** (0.763)	5.300*** (0.529)
Observation	822	822	822	822	822	822
No of years	18	18	18	18	18	18
No of cross sections	52	52	52	52	52	52
No of Instruments	22	28	26	32	33	23
p-value (AR1)	0.005	0.001	0.000	0.006	0.001	0.003
p-value (AR2)	0.124	0.234	0.125	0.285	0.178	0.235
p-value (Hansen stat)	0.225	0.233	0.281	0.232	0.230	0.148

Notes: The robust standard errors are indicated in parentheses. The symbols ***, **, and * indicate significance levels of 1%, 5%, and 10%.

Table 2. The Effect of Political Competition and Political Institutions on Income Inequality

Variables	Low- and Lower-Middle-Income Countries					
	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6
Lag Inequality	0.482*** (0.018)	0.345*** (0.023)	0.605*** (0.030)	0.508*** (0.045)	0.650*** (0.008)	0.751*** (0.006)
Economic Growth	-0.191*** (0.058)	-0.231** (0.097)	-0.500** (0.208)	-0.705*** (0.217)	-0.310*** (0.062)	-0.283*** (0.084)
Age Dependency	0.010*** (0.002)	0.016*** (0.004)	0.025*** (0.007)	0.026*** (0.009)	0.009 (0.033)	0.008*** (0.002)
Urbanization	-0.130 (0.087)	-0.027 (0.033)	-0.093** (0.042)	-0.071*** (0.005)	-0.076*** (0.008)	-0.023*** (0.002)
Trade	-0.044 (0.050)	-0.016*** (0.001)	-0.005** (0.002)	-0.023*** (0.002)	-0.028*** (0.001)	-0.016*** (0.002)
Human Capital	-0.070*** (0.023)	-0.202** (0.095)	-0.198* (0.120)	-0.228*** (0.033)	-0.061 (0.082)	-0.138* (0.083)
Political Competition	-0.018*** (0.003)	-	-0.022** (0.011)	-0.035* (0.021)	0.040*** (0.013)	0.084*** (0.026)
System	-	0.031 (0.023)	-3.025*** (0.496)	4.405*** (0.743)	-	-
Stability	-	-	-	-	-0.002 (0.004)	0.014** (0.006)
Political Competition ×System	-	-	-	-0.517*** (0.081)	-	-
Political Competition ×Stability	-	-	-	-	-	0.003*** (0.001)
Regime	-	-	0.409*** (0.035)	-0.570** (0.236)	-0.525*** (0.063)	-0.404*** (0.061)
Constant	2.767*** (0.986)	4.517*** (1.719)	-1.336 (2.118)	14.968*** (3.286)	5.435*** (0.369)	4.897*** (0.500)
Observation	404	432	432	432	404	404
No of years	18	18	18	18	18	18
No of cross sections	28	28	28	28	28	28
No of Instruments	18	22	16	20	15	21
p-value (AR1)	0.001	0.012	0.007	0.004	0.005	0.000
p-value (AR2)	0.217	0.165	0.276	0.274	0.186	0.343
p-value (Hansen stat)	0.248	0.176	0.259	0.138	0.138	0.264

Notes: The robust standard errors are indicated in parentheses. The symbols ***, **, and * indicate significance levels of 1%, 5%, and 10%.

Table 3. The Effect of Political Competition and Political Institutions on Income Inequality

Upper-Middle-Income Countries						
Variables	Model-1	Model-2	Model-3	Model-4	Model-5	Model-6
Lag Inequality	0.883*** (0.044)	0.886*** (0.031)	0.700*** (0.019)	0.650*** (0.016)	0.981*** (0.012)	0.873*** (0.021)
Economic Growth	-0.301 (0.278)	-0.537*** (0.119)	-2.261*** (0.225)	-0.402*** (0.080)	-0.395*** (0.138)	-0.450* (0.240)
Age Dependency	0.158*** (0.052)	0.127** (0.053)	0.046 (0.043)	0.070*** (0.022)	0.028* (0.016)	0.026* (0.010)
Urbanization	0.021 (0.085)	0.056* (0.034)	0.088*** (0.003)	0.043 (0.076)	0.051* (0.030)	0.015*** (0.001)
Trade	0.074*** (0.002)	0.027 (0.021)	0.038*** (0.002)	0.035* (0.020)	0.010*** (0.002)	0.011** (0.005)
Human Capital	-1.520** (0.628)	-3.052*** (0.639)	-0.356*** (0.016)	-0.429** (0.194)	-0.192** (0.092)	-0.104*** (0.001)
Political Competition	-0.016*** (0.003)	-	0.125*** (0.045)	-0.105* (0.055)	-0.133*** (0.048)	-0.141** (0.061)
System	-	0.290 (0.336)	1.823*** (0.238)	0.529** (0.312)	-	-
Stability	-	-	-	-	0.018*** (0.003)	-0.039* (0.022)
Political Competition ×System	-	-	-	-0.056* (0.029)	-	-
Political Competition ×Stability	-	-	-	-	-	-0.006*** (0.002)
Regime	-	-	0.243*** (0.056)	-0.601* (0.320)	0.423* (0.248)	0.484* (0.286)
Constant	15.005*** (4.713)	13.266*** (3.350)	12.759*** (2.491)	5.391*** (1.099)	3.704** (1.487)	4.380** (2.020)
Observation	390	390	390	390	390	390
No of years	18	18	18	18	18	18
No of cross sections	24	24	24	24	24	24
No of Instruments	14	12	17	10	13	12
p-value (AR1)	0.004	0.003	0.006	0.017	0.002	0.005
p-value (AR2)	0.348	0.241	0.256	0.274	0.128	0.375
p-value (Hansen stat)	0.275	0.220	0.167	0.238	0.146	0.276

Notes: The robust standard errors are indicated in parentheses. The symbols ***, **, and * indicate significance levels of 1%, 5%, and 10%.

1. Marginal Effects of Political Competition

We calculated the marginal effects of political competition on income inequality across various prevailing political systems (where 0 represents a presidential system, 1 represents an assembly-elected presidential system, and 2 indicates a parliamentary system) to clarify the results of the estimated models. By taking the partial derivatives of Equation (2), we determined the impact of political competition on income inequality in case of various political systems. So, this part provides a robustness check utilizing marginal effects derived for each category (0, 1, 2), allowing us to evaluate the linearity assumption.¹⁷ The conditional analysis model presented in Table 4 indicates that political competition, particularly in parliamentary systems, reduces income inequality in both overall and disaggregated samples of developing countries. In the aggregate model of developing nations, political competition in parliamentary systems significantly decreases income inequality. Our findings suggest that increased competition in parliamentary systems (2) has a less pronounced negative effect on income inequality compared to other political systems. The findings indicate that the political system variable acts as a moderating part in the relationship between political competition and income inequality in emerging nations.

Table 4. Marginal Effect of Political Competition on Income Inequality across Political Systems

Variable	Aggregate Panel of Developing Countries	Low- and Lower-Middle-Income Countries	Upper-Middle-Income Countries
0	-0.027*** (0.008)	-0.135*** (0.005)	-0.105 (0.092)
1	-0.135*** (0.025)	-0.552*** (0.081)	-0.161*** (0.052)
2	-0.234*** (0.007)	-1.069*** (0.065)	-0.217 (0.163)

Notes: $\frac{\partial gini_{it}}{\partial pc_{it}} = \beta_1 + \beta_3 \times sys_{it}$, evaluated at various values of the political system. Where ***p<0.01, **p<0.05, *p<0.1; where standard errors are indicated in parenthesis.

¹⁷ This is a robustness check to the limitation in Section III.2.

We used conditional analysis (as shown in Table 5) to examine the effect of political competition on income inequality at three distinct percentiles (25th, 50th, and 75th) of the political stability variable. The findings show that political competition, when combined with political stability, has a positive effect on income inequality in both the full sample and low- to lower- middle-income nations. Furthermore, the degree of this effect grows as the percentile level of stability rises. However, in upper-middle-income nations, political competition has a negative impact on income disparity. This displays that the relationship between political competitiveness and income inequality varies with a nation’s development state and institutional framework. Our findings suggest that political stability exerts a moderate role in the association between political competition and income inequality.

Table 5. Marginal Effect of Political Competition on Income inequality with Political Stability

Percentiles of Stability	Aggregate Panel of Developing Countries	Low- and Lower-Middle-Income Countries	Upper-Middle-Income Countries
25th (low)	0.012 (0.087)	0.102 (0.078)	−0.177** (0.067)
50th (Medium)	0.044 (0.076)	0.123*** (0.023)	−0.219*** (0.041)
75th (High)	0.132*** (0.023)	0.156*** (0.027)	−0.285*** (0.065)

Notes: $\frac{\partial gini_{it}}{\partial pc_{it}} = \beta_1 + \beta_3 \times stab_{it}$, evaluated at various percentiles of the political stability. ***p<0.01, **p<0.05, *p<0.1; whereas, standard errors are indicated in parenthesis.

We provide marginal effects with 95% confidence intervals to illustrate how political competition affects inequality at different political system levels and whether these effects are statistically significant or not. Figures 1 and 2 present the scatter plot of the marginal effect of political competition on income inequality across political systems in the case of a full sample of developing countries and upper-middle-income countries, respectively.

Figure 1. Marginal Effect of Political Competition on Income Inequality across Political Systems (Aggregate Panel of Developing Countries)

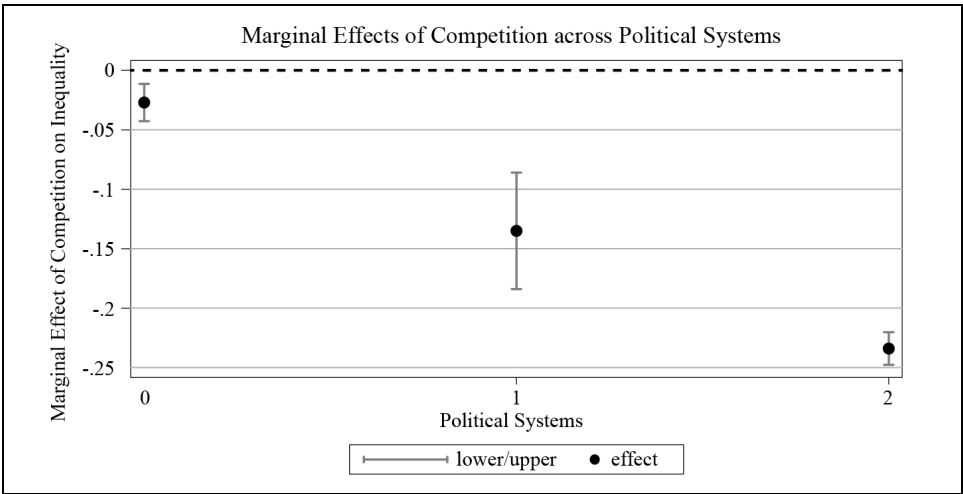
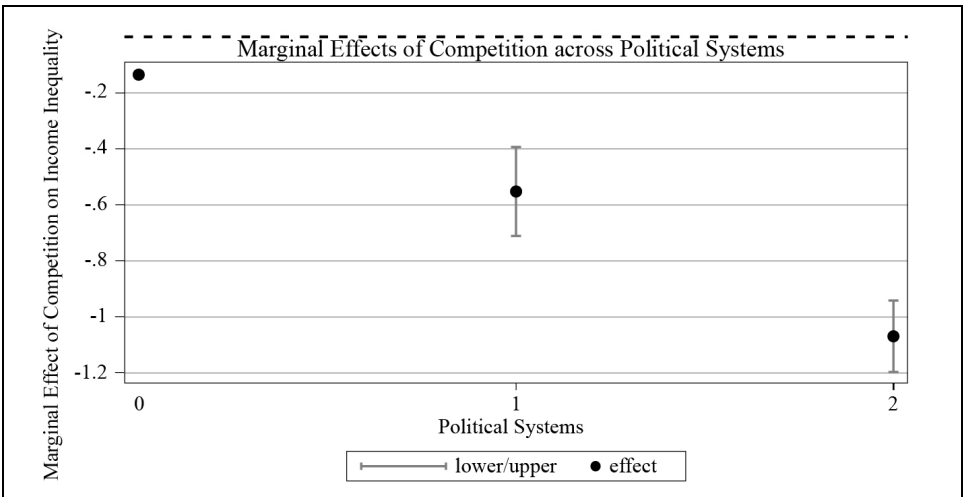


Figure 2. Marginal Effect of Political Competition on Income Inequality across Political Systems (Low- and Lower-Middle-Income Countries)



Similarly, Figures 3, 4, and 5 present scatter plots of marginal effects of political competition on income inequality at different percentiles of political stability in aggregate as well as a disaggregated panel of developing countries.

Figure 3. Marginal Effect of Political Competition on Income Inequality across Political Systems (Upper-Middle-Income Countries)

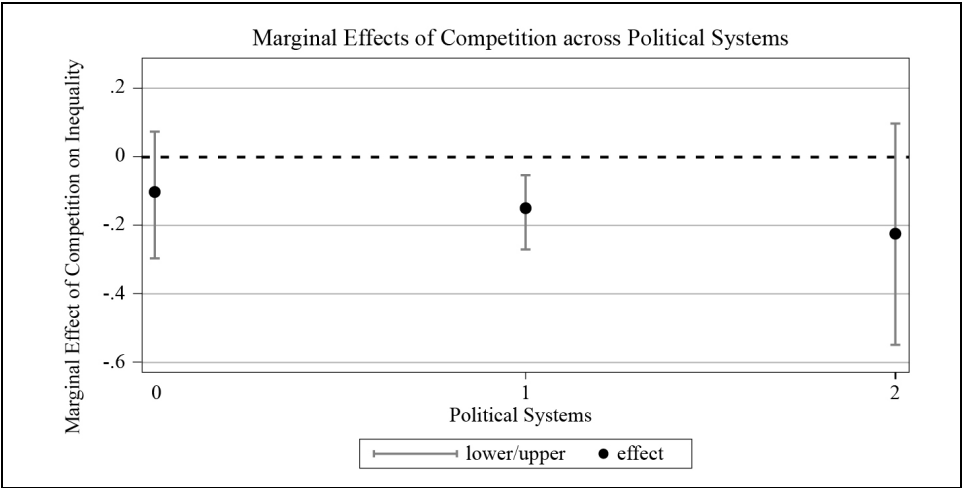


Figure 4. Marginal Effect of Political Competition on Income Inequality with Political Stability (Aggregate Panel of Developing Countries)

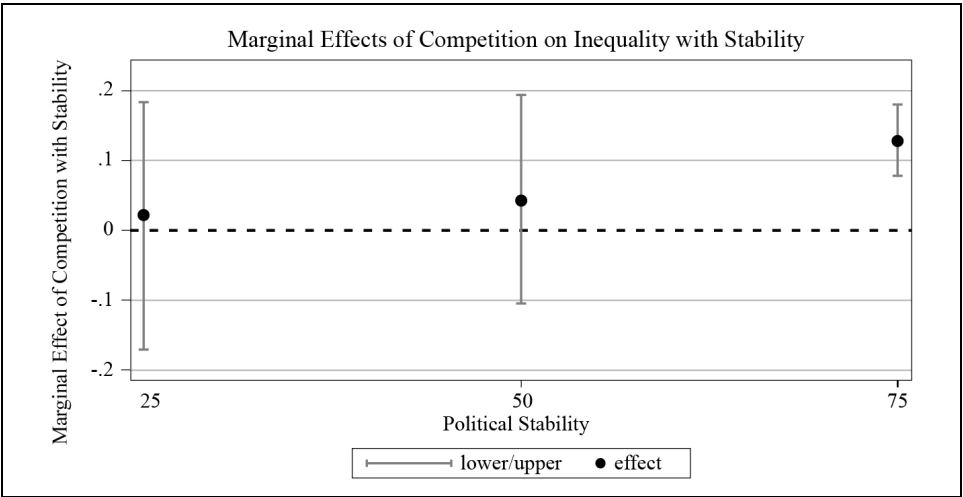


Figure 5. Marginal Effect of Political Competition on Income Inequality with Political Stability (Low- and Lower-Middle-Income Countries)

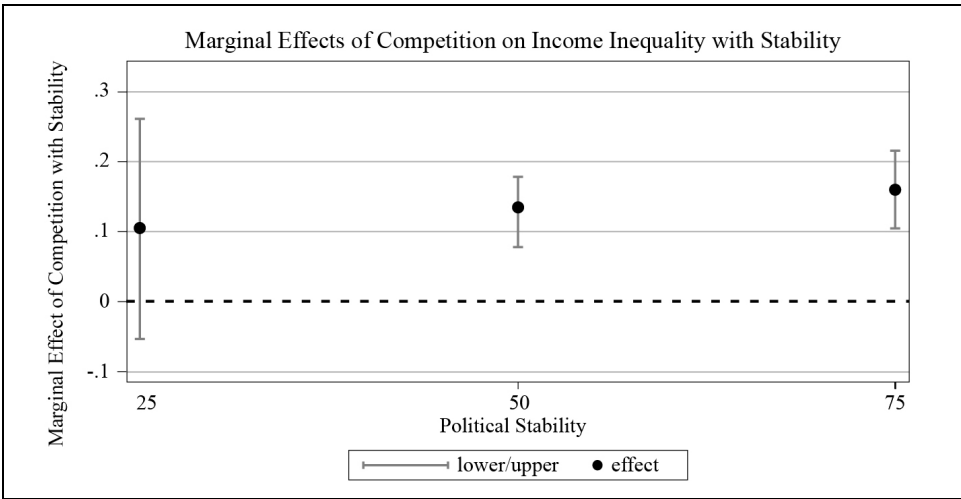
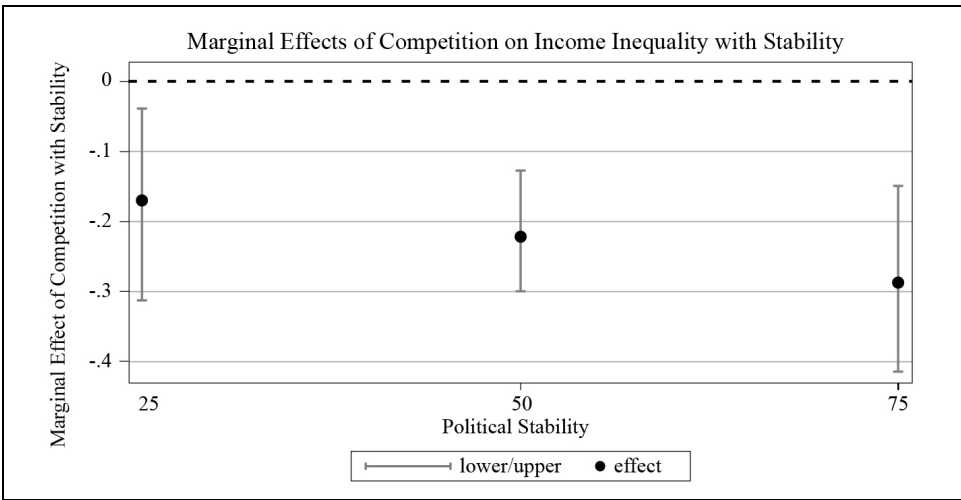


Figure 6. Marginal Effect of Political Competition on Income Inequality with Political Stability (Upper-Middle-Income Countries)



V. CONCLUSION

This study examines the impact of political competition and institutions on income inequality in developing countries. It contributes to existing research by analyzing how political competition affects income inequality within the framework of existing political institutions. The study analyzes data from 52 developing countries for the period 2000–2018 and categorizes them into low- and lower-middle-income and upper-middle-income countries to account for the existence of any potential heterogeneity. The study finds that political competition plays a crucial part in reducing income inequality. Moreover, the findings of the study emphasize the significance of parliamentary accountability in democratic systems for addressing inequality. Additionally, the empirical findings of the study show that political stability is essential in reducing income inequality by ensuring policy consistency, efficient administration, and long-term economic planning. This study suggests that policymakers should focus on institutional structures that assure a competitive electoral environment, accountability of incumbents, and political stability to effectively tackle social and economic inequalities. Policymakers should consider the advantages and disadvantages of all political systems, and they should align governance structures with the particular requirements of their country. Future research can include advanced nations and extend the time span for cross-country comparisons at various phases of development. Fair and vibrant political competition through transparent electoral frameworks is essential for better economic performance and governance quality. Furthermore, future research can investigate potential nonlinear effects in the relationship between political competition and income inequality. Moreover, Future research may extend this study by adopting various metrics of inequality and political institutions and political competition to test the robustness of the findings.

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APPENDIX

Table A1. Variable Description and Data Sources

Variables	Name	Description	Data Sources
Income Inequality	$gini_{it}$	Inequality is defined as how money is distributed unequally among the population. The Gini coefficient, developed by Corrado Gini in 1912. ¹⁸ The Gini coefficient value lies between 0 and 100, where values near to 100 indicate an uneven distribution of income and values near to 0 indicate an equal distribution of income. We calculate income inequality by the Gini coefficient from the Standardized World Income Inequality Database (SWIID), version 9.0, which modifies for uncertainty in the Gini coefficients and offers an essentially full inequality data set for cross-national analysis. Solt created the SWIID (2020).	Standardized World Income Inequality Database (SWIID)
Political Competition	pc_{it}	We measure political competition by using a composite measure of overall political competition, namely ‘POLCOMP’ from the Polity IV dataset. This is the composite index that is based on the determinants of the competitiveness and political participation regulation. It is scaled from 1 to 10, with greater numbers signifying more political competition.	Polity IV dataset ¹⁹
Political Systems	sys_{it}	The presidential system is a single executive system where the president is chosen by an electoral college. The parliamentary system, on the other hand, is a political system where a parliamentary legislature elects the chief executive. The political system is treated as “2” if a parliamentary system exists, otherwise “0” for a presidential system, and “1” for an assembly-elected president.	DPI of the World Bank ²⁰
Political Stability	$stab_{it}$	Political stability is the capacity of a government or political system to maintain continuity and avoid significant shocks or conflicts that would endanger its legitimacy and its ability to function. ‘DURABLE’ is used as a proxy for political stability, using the Polity IV dataset that captures the lifespan of a polity.	Polity IV dataset
Regime	$regm_{it}$	The variable is treated as a dummy; it takes 1 if a country’s political regime is democratic otherwise, it takes 0.	Polity IV dataset

¹⁸ Also see, Gini (1921).¹⁹ Polity IV dataset is constructed by Center for Systematic Peace. <https://www.systemicpeace.org/polityproject.html>²⁰ The DPI (Database of Political Institutions) of the World Bank is accumulated by Beck et al. (2001) and it is available now in updated version. For more information on the political variables incorporated in this study, see, <https://publications.iadb.org/en/database-political-institutions-2020-dpi2020>.

Table A1. Continued

Variables	Name	Description	Data Sources
Economic Growth	g_{it}	Economic growth is evaluated by taking the proxy growth rate of GDP per capita.	WDI, World Bank
Age Dependency	dep_{it}	The age dependency ratio is dependents' ratio (those under the age of 15 to those beyond the age of 64) to those of working age. The statistics is shown as a proportion of dependents per 100 persons of working age.	WDI, World Bank
Urbanization	$urbn_{it}$	According to national statistics agencies, urban population represents the number of people who live in urban areas.	WDI, World Bank
Trade Openness	opp_{it}	Trade openness is measured through the trade-to-GDP ratio.	WDI, World Bank
Human capital	hc_{it}	Human capital is measured through an index based on average years of schooling and returns to education. ²¹	Penn World Table

Table A2. Descriptive Statistics of Variables under Observation

Variable	Obs.	Mean	Std. Dev.	Min	Max
$gini_{it}$	874	45.275	5.589	32.6	62.4
$regm_{it}$	874	0.743	0.437	0	1
pc_{it}	874	6.977	2.463	1	10
sys_{it}	874	0.408	0.777	0	2
$stab_{it}$	874	18.856	18.583	0	99
$grow_{it}$	874	2.604	4.697	-38.562	49.032
dep_{it}	874	16.78	24.268	3.84	102.55
$urbn_{it}$	874	14.922	3.942	2.109	19.959
top_{it}	874	69.815	34.736	0.021	157.407
hc_{it}	874	2.289	0.584	1.069	3.501

²¹ See for detail, the Penn World Table (Feenstra et al., 2015) version 10.01 database.

Table 3A. Correlation Matrix for the Income Inequality Model

Aggregate Panel of Developing Countries									
Variables									
Regime	1.000								
Political Competition	0.710	1.000							
System	0.091	-0.025	1.000						
Stability	0.047	0.088	0.147	1.000					
Economic Growth	0.143	0.185	0.095	0.285	1.000				
Age Dependency	0.073	-0.033	-0.121	-0.159	-0.495	1.000			
Urbanization	0.092	0.080	0.214	0.236	0.072	-0.134	1.000		
Trade	-0.107	0.026	0.263	0.105	0.071	-0.223	0.303	1.000	
Human Capital	0.030	0.042	0.080	0.206	0.596	-0.414	0.090	0.158	1.000
Low- and Lower-Middle-Income Countries									
Regime	1.000								
Political Competition	0.706	1.000							
System	0.138	0.082	1.000						
Stability	-0.090	-0.150	0.379	1.000					
Economic Growth	-0.203	-0.161	-0.141	0.223	1.000				
Age Dependency	0.152	0.020	-0.183	-0.198	-0.636	1.000			
Urbanization	0.128	0.125	0.565	0.453	0.070	-0.170	1.000		
Trade	-0.096	0.079	0.178	0.232	0.195	-0.301	-0.248	1.000	
Human Capital	-0.251	-0.276	0.037	0.272	0.391	-0.464	0.116	0.277	1.000
Upper-Middle-Income Countries									
Regime	1.000								
Political Competition	0.633	1.000							
System	-0.079	-0.271	1.000						
Stability	0.137	0.283	-0.048	1.000					
Economic Growth	0.025	0.051	-0.045	0.369	1.000				
Age Dependency	0.259	0.242	0.202	0.010	0.153	1.000			
Urbanization	0.039	0.020	-0.192	-0.086	0.401	0.089	1.000		
Trade	-0.165	-0.062	0.335	-0.021	-0.108	-0.077	-0.450	1.000	
Human Capital	0.111	0.129	-0.119	-0.020	0.251	0.493	0.150	-0.008	1.000

Source: Authors' own calculation.

Table 4A. List of Low- and Lower-Middle-Income Countries

Burkina Faso	Algeria	India	Nicaragua
Burundi	Angola	Iran, Islamic Rep.	Nigeria
Gambia	Benin	Kenya	Pakistan
Madagascar	Egypt, Arab Rep.	Lesotho	Senegal
Malawi	Honduras	Mauritania	Sri Lanka
Morocco	Tunisia	Mongolia	Tajikistan
Nepal	Ukraine	Vietnam	Zimbabwe

Table 5A. List of Upper-Middle-Income Countries

Albania	Dominican Republic	Kazakhstan
Argentina	Ecuador	Malaysia
Armenia	Equatorial Guinea	Mauritius
Fiji	Belarus	Mexico
Guatemala	Brazil	Paraguay
Bulgaria	Colombia	Peru
Jamaica	Turkey	Suriname
Georgia	Turkmenistan	Costa Rica