

## Investigating the Effect of Democracy and Governance Quality on Income Inequality: Evidence from BRICS

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### Abstract

*This paper empirically investigates the influence of democracy and governance quality on income inequality in the rapidly growing emerging BRICS (Brazil, Russia, India, China, and South Africa) countries during the period from 1996-2020. The study employed feasible generalized least squares (FGLS), panel corrected standard errors (PCSE), and the Driscoll-Kraay (DK) standard error estimation method to deal with the problems of autocorrelation, heteroskedasticity, and cross-sectional dependence and to find the effect of democracy and governance quality on income inequality. The results of the study indicate that democracy in BRICS countries exacerbates income inequality, while governance quality helps reduce income inequality. These insights offer valuable implications for decision-makers in crafting policies within these spheres.*

**Keywords:** Income Inequality, Democracy, Governance, FGLS, PCSE, DK

**JEL classification:** O15, P16, O17

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### 1. Introduction and Theoretical Framework

This phenomenon is not surprising that the global rise of income inequality affects almost every country, regardless of their development level, and has a severe impact on the social welfare of the people (Moheddine and Marwa, 2018). Over recent decades, this trend of widening income inequality has been observed worldwide, even against the backdrop of substantial economic expansion (Piketty, 2015; Asamoah, 2021). The BRICS economies - Brazil, Russia, India, China, and South Africa—exemplify this paradox, having seen their economies expand significantly in recent years. This group of nations has increasingly influenced international economic and political dynamics, marking a shift that has been particularly notable over the past decade (Degaut, 2015; Wang, 2019). A remarkable aspect of this growth is that out of the total annual rise in global income, more than three quarters is accounted for by developing and emerging economies, of which more than half is accounted for by the BRICS nations alone, and since 2008, BRICS countries have contributed 56 percent of the total global growth (Reddy, 2018). According to the World Bank (2020), the collective gross domestic product (GDP) of BRICS economies amounted to US\$19.6 trillion GDP, and also BRICS represents 42% of the global population and 23% of the world GDP (Zhao et al., 2021). This economic surge, characterized by rapid GDP growth, positions the BRICS

as strong competitors in the global economy (Chotia and Rao, 2017). The acceleration in GDP growth within these countries has not only showcased their economic potential but also highlighted the need for systematic progress to bolster economic performance and enhance the well-being of their citizens (Younsi and Bechtini, 2018). Although the member countries have similar economic growth potential, their governance frameworks and systems vary significantly. For e.g., China and Russia are examples of nations where a single political party largely influences governance, with dominant ideologies that guide their coexistence and the formulation of policies (Öniş & Gencer, 2018). However, despite the rapid economic expansion, the BRICS nations have encountered challenges with income inequality in recent years, posing a significant threat to their social, economic, and political stability (Chotia and Rao, 2017; Younsi and Bechtin, 2018; Berisha et al., 2020). Despite growth and development, why does income inequality remain a major challenge in BRICS economies? Theoretically, the literature suggests a multitude of socio-economic, political, and demographic variables as potential influencers of income inequality. So, this paper tries to examine how democracy and governance quality affect income inequality in BRICS economies.

The relationship between democracy and income inequality remains a pivotal issue in the field of comparative political economy. Democracy is often assumed to have a redistributive effect, as it empowers the poor and middle classes to demand more resources and public goods from the state through redistributive policies (e.g., progressive taxation, welfare spending, price subsidies, minimum wage laws, and public work provisions) (Reuveny and Li, 2003). However, empirical evidence on this relationship is mixed and inconclusive, as different types of democracy and welfare systems may have different effects on inequality. With an increase in democratic engagement, as seen through greater public participation in elections, the political power shifts from the elites to the middle and less advantaged sections of society, forcing the politicians virtually to increase public programmes due to the underlying redistributive pressures (Boix, 2001; Meltzer and Richard, 1981). On the other hand, Simpson (1990) argued that democracy increases income inequality with the early introduction of political rights by facilitating only a few numbers of the wealthy, whereas further extension of political rights strengthens social democratic power and results in a decrease in inequality in income. Long-lasting democratic countries have a lower level of inequality because, in democracy, the voice of the underprivileged is heard by the political party (Huber et al., 2006). However, the notion that democracy reduces income inequality through redistributive policy fails if income inequality becomes high when democracy provides the elite or wealthier population with means and incentives to take over the government indirectly through de facto power (Kotschy and Sunde, 2017; Acheampong et al., 2023). But if a democratic institution provides political rights to the majority of the people, the redistribution policy is decided by the median voters, which reduces income inequality (Bourguignon, 2004). However, it has been observed that certain nations, including Singapore, the Republic of Korea, and East European countries, which may have unique political ideologies and lower democratic ratings, also exhibit lower levels of income inequality (Blancheton and Chhorn, 2021). Gradstein et al. (2001) asserted that ideological influences could play a pivotal role in shaping income distribution. The process of democratization might lead to a marked reduction in income disparities, particularly within societies with Judeo-Christian values, as opposed to societies with other cultural or religious foundations such as Buddhism, Hinduism, or Confucianism (Gradstein et al. 2001). Furthermore, Gradstein et al. (2001) indicated that parliamentary forms of governance might be more effective in addressing income inequality compared to presidential systems. Democracy at the grassroots level has the potential to lower income inequality by raising the responsiveness of local authorities, which in turn increases the income share of the poorer section of the population (Shen and Yao, 2008).

The quality of governance or institutions can affect income distribution, and their effect on income inequality depends on a country's development level. In today's contemporary era, developed

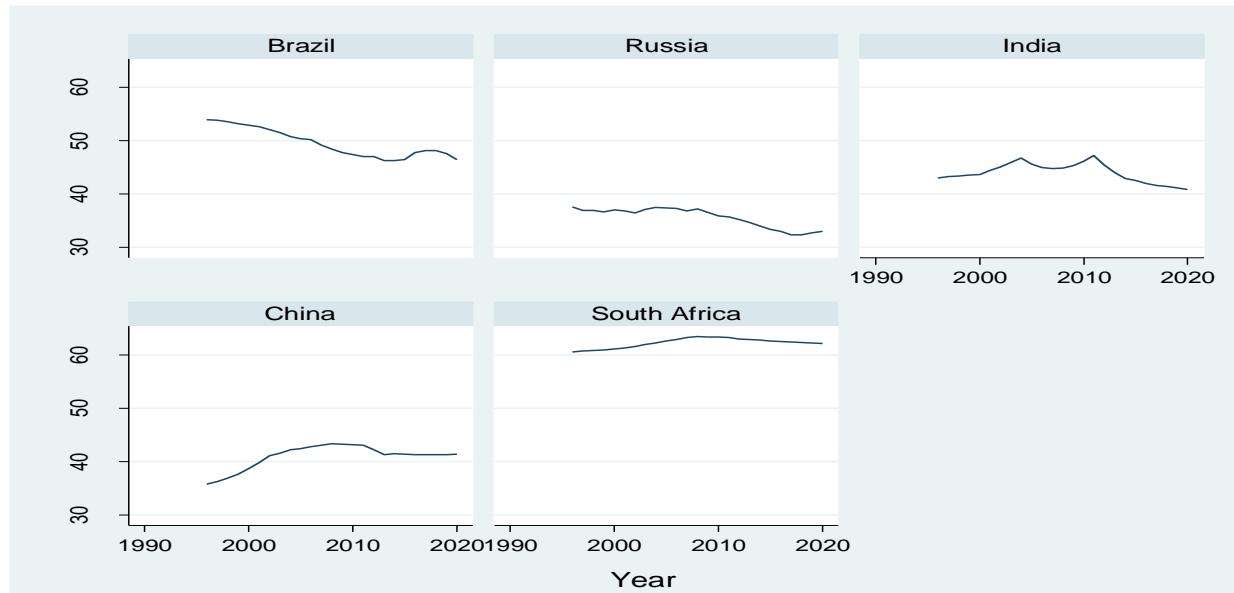
countries have better quality governance, and developing and underdeveloped nations have bad to worse governance quality (Hassan et al., 2021). Countries with poor governance and weak rule of law tend to exhibit higher levels of income inequality, while countries with sound institutions and effective policies tend to have more equitable outcomes (Chong and Gradstein, 2007). Few other authors argued that improvement in institutional quality always does not mean a reduction in income inequality. For e.g., Chong and Calderón (2000) asserted that improvement in the quality of institutions in developing countries tends to result in a more unequal distribution of income. They reasoned that institutional changes in these countries may create high costs for those who work in the informal sector, which consists of not only poor people but also a large share of the population. Nguyen et al. (2020) asserted that good governance increases income inequality, where only the rich people with larger capital enjoy the benefits of economic activity. While a few studies claimed that weak governance has a negative impact on income inequality. For e.g., Andres and Ramlogan-Dobson (2011) demonstrated the dependence of poor people on the informal sector for this reason because these people lack the personal qualities required to get a job in the formal economy. Polacko (2021) argued that neoliberal policies since the 1980s have eroded governance quality and increased income inequality in advanced economies by weakening unions, increasing executive pay, cutting welfare state spending, and reducing tax progressivity. When the judicial system fails to protect the rights of the disadvantaged, they have less opportunity to benefit from rent-seeking activities than the privileged, and high-income disparity may enable the wealthy to exert more political power and undermine institutional quality (Chong and Gradstein, 2007).

### **1.1. Stylized facts: trends of income inequality (Gini index), democracy (liberal democracy), and governance (governance quality) in BRICS countries**

In contemporary times, income inequality has emerged as a pervasive global issue. During the 1990s, a discernible shift in the global pattern of income disparity was observed, characterized by a contraction of the inequality gap. Nonetheless, this shift was not uniformly experienced across nations; a significant number of countries reported an escalation in income inequality within their territorial confines (World Inequality Report, 2022). Therefore, before proceeding to the main econometric analysis, it is important to see the trends of income inequality and its determinants, i.e., democracy and governance quality, in BRICS countries.

Figure 1 provided showcases the Gini index, a measure of income inequality, for BRICS countries from 1996 to 2020. Over this period, Brazil's Gini index shows a gradual decrease, indicating a reduction in income inequality, with a notable drop from 53.9 in 1996 to 46.5 in 2020. Russia's Gini index also displays a downward trend, moving from 37.6 in 1996 to 33 in 2020. India's Gini initially increased, peaking at 47.2 in 2011, before decreasing to 40.9 by 2020. China's Gini index, on the other hand, rose steadily from 35.8 in 1996 to 41.4 in 2020, suggesting growing income inequality. South Africa had the highest Gini index throughout the period, starting at 60.5 in 1996 and slightly decreasing to 62.1 in 2020, remaining significantly higher than the other countries, which reflects its status as one of the most unequal societies in terms of income distribution.

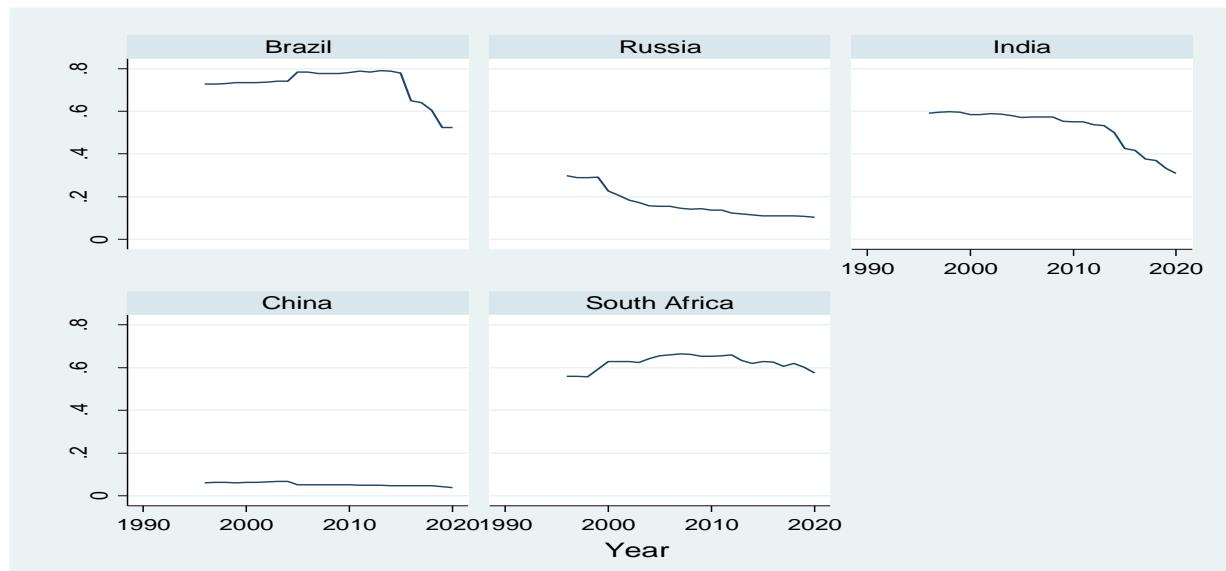
Figure 1 – Trends of income inequality in BRICS during 1996-2020



Source: Standardized World Income Inequality Database (SWIID).

Figure 2 presents a comparative view of democracy index for BRICS countries from 1996 to 2020. Brazil's democracy index started at 0.728 in 1996 and saw fluctuations, reaching a peak of 0.791 in 2013 before declining to 0.523 by 2020. Russia's index remained relatively low, beginning at 0.297 in 1996 and decreasing to 0.104 in 2020. India's index showed more stability in the earlier years, maintaining values around 0.59, but it experienced a significant drop after 2014, ending at 0.31. China's index was consistently low, starting at 0.061 in 1996 and slightly decreasing to 0.039 in 2020. South Africa's index fluctuated, starting at 0.559, peaking at 0.664 in 2007, and then decreasing to 0.575 in 2020.

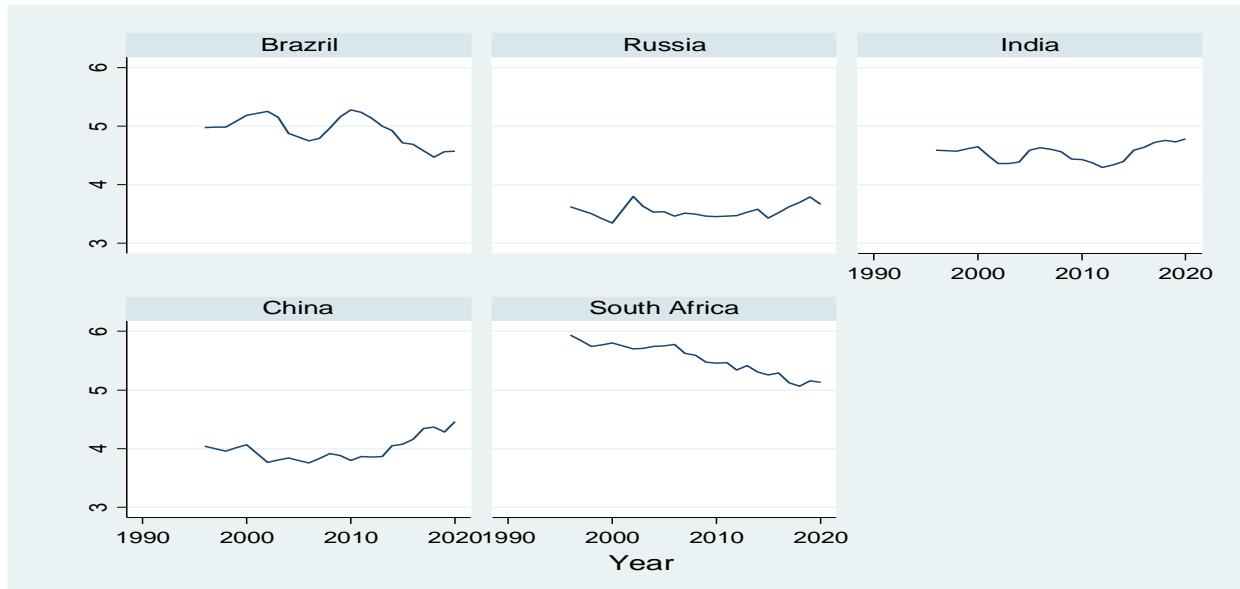
Figure 2 – Trends of democracy in BRICS during 1996-2020



Source: V-Dem, Varieties of Democracy.

The BRICS nations have shown varied governance scores from 1996 to 2020, as shown in Figure 3. Brazil's governance score fluctuated, peaking at 5.28 in 2010 before declining to 4.57 in 2020. Russia's score saw a gradual increase from 3.34 in 2000 to 3.79 in 2019, and then slightly decreased to 3.67 in 2020. India's governance score generally increased, reaching its highest at 4.78 in 2020. China's score also increased over the years, with a notable rise to 4.46 in 2020. South Africa started with the highest governance score among the BRICS in 1996 at 5.94 but experienced a downward trend to 5.13 in 2020.

Figure 3 – Trends of governance quality in BRICS during 1996-2020



Source: The World Bank, Worldwide Governance Indicators (note: the calculation of governance quality is provided in methodology section).

The organization of the study follows: in Section 2, a literature review is discussed; Section 3 deals with data sources and methodology; Section 4 provides the findings and their interpretation; and Section 5 summarizes the conclusions drawn from the study.

## 2. Literature Review

This segment examines scholarly works that discuss the relationship between democracy and income inequality, as well as the impact of governance quality on income inequality.

### 2.1. Democracy and Income Inequality

Research conducted by Reuveny and Li (2003) in 69 countries during 1960-1966 revealed that democracy helps to narrow income inequality in both less-developed and developed countries. Shen and Yao (2008), using data from eight Chinese provinces (48 villages), showed grassroots democracy helps in the reduction of income inequality. Boix (2001) and Huber et al. (2006) demonstrated that the presence of a stable democracy contributes to the reduction of income inequality. Conversely, Gradstein et al. (2001) observed that inequality is negatively, but only marginally, affected by democracy. However, other studies (e.g., Acemoglu et al., 2013) have reported an absence of a robust relationship between the presence of democracy and the level of

income inequality. A study by Islam (2016), encompassing a dataset from 83 countries during 1968-2011, concluded that political liberty has a negative impact on income inequality in democratic regimes but not in others. Burkhart (2007) claimed that a declining level of income inequality is associated with a higher level of democracy. Acheampong et al. (2023) study in SSA revealed that democracy increases income inequality by shifting political power to middle-class people instead of poor people, who form the majority of the population. Bahamonde and Trasberg (2021) noted that democratic rule widens income inequality when accompanied by strong state capacity because strong state capacity attracting more FDI increases the demand for skilled labour or workers and creates wage discrepancies between skilled and low-skilled labour and workers. Trinugroho et al. (2023) pointed out that democracy reduces income inequality because democratic governments are less corrupt and are interested in providing equal improvements to society.

## **2.2. Governance or Institutional Quality and Income Inequality**

Chong and Gradstein (2007) and Ullah et al. (2021) showed that weaker institutional quality increases income inequality. Chong and Calderón (2000) concluded that for developing countries, better institutions may lead to more inequality, while for developed countries, better institutions may reduce income inequality. Research by Blancheton and Chhorn (2021) demonstrated the negative long-run and steady-state effects of institutional quality on income inequality. A study by Nguyen et al. (2019) in Vietnam concluded that good governance helps to lower income inequality by providing income-increasing benefits to lower-income households. Nguyen et al. (2020) showed that institutional quality increases income inequality in low- and lower-middle-income and upper-middle-income countries, whereas in high-income countries, institutional quality reduces income inequality. Gupta et al. (2002) demonstrated that poor governance quality or a higher degree of corruption widens income inequality. But Andres and Ramlogan-Dobson (2011) posit an inverse association between corruption and income inequality. Research by Kunawotor et al. (2020) in Africa over the period from 1990 to 2017 found no significant impact of institutional quality on income inequality.

This study contributes to the existing literature in three ways: first, by investigating the effect of democracy and governance quality on income inequality in BRICS economies. To our comprehension, this is the inaugural inquiry into such a relationship within the context of BRICS economies. Second, it encompasses the long time period from 1996 to 2020 to thoroughly comprehend the objectives pursued, and third, the study used feasible generalized least squares (FGLS), panel-corrected standard errors (PCSE), and the Driscoll-Kraay (DK) estimation method to tackle the issues of heteroskedasticity, autocorrelation, and cross-sectional dependence (CD).

## **3. Data Sources and Methodology**

### **3.1. Data Sources and Model Specification**

We collected secondary data from different sources during the period 1996-2020. The variables and proxy used, unit of measurement, description, sources, and expected sign are reported in Table 1.

Table 1 – Variables and Proxy Used, Unit of Measurement, Description, Sources, and Expected Sign

Variables	Proxy used	Unit	Description	Sources	Expected sign
Income inequality (INE)	Gini disposable income <sup>1</sup>	Index	Unequal distribution of income	Standardized World Income Inequality Database (SWIID)	Not applicable
Democracy (DEM)	liberal democracy	Index	Information on voting rights, election integrity, civil freedoms, and checks on executive power (index ranges from 0 to 1 (fully democratic)).	V-Dem, Varieties of Democracy	Negative
Governance quality (GOV)	Governance indicators <sup>2</sup>	Score	The exercise of power in managing a nation's economic and social resources for development.	The World Bank, Worldwide Governance Indicators (WGI)	Negative
Economic growth (GDPPC)	GDP per capita	Constant 2015 US\$	Total GDP divided by the country's population.	The World Bank, World Development Indicators	Positive
Population (POP)	Population growth	(Annual %)	Percentage increase of the population from the middle of the previous year to current year.	The World Bank, World Development Indicators	Positive
Urbanization (UB)	Urban population growth	(Annual %)	People reside in urban areas.	The World Bank, World Development Indicators	Negative
Inflation (INFL)	Consumer price index	(Annual %)	Yearly percentage change in the average cost of a set basket of goods and services.	The World Bank, World Development Indicators	Positive
Globalization (GLOB)	Globalization index	Index	How much countries are interconnected economically, socially, and politically.	KOF Swiss Economic Institute	Negative

Source: Authors' compilation from secondary sources.

<sup>1</sup> As the Gini index data for South Africa is available only up to 2017, to ensure homogeneity in data with other countries, Gini index data for South Africa is generated by the method of extrapolation for the years 2018, 2019, and 2020.

<sup>2</sup> According to WGI, six indicators of governance<sup>2</sup> are: (i) government effectiveness (GE) (ii) regulatory quality (RQ), (iii) control of corruption (CC), (iv) rule of law (RL), (v) voice and accountability (VA), and (vi) political stability and no violence (PV). The score of each of the indicators lies between -2.5 to +2.5. -2.5 indicates a very weak quality of indicators, and +2.5 indicates a very strong quality of indicators.

Following Abbas et al. (2021), we calculate the governance quality index as: governance quality index =  $(\frac{\text{sum of six indicators}}{6} + 2.5) \times 2$ , where the score lies between 0 (very poor quality of governance) to 10 (very strong quality of governance). This study makes use of an aggregate index of governance quality because the governance indicators of WGI seem to be correlated with each other (Abbas et al., 2021).

All the variables used are transformed into log form. Again, to create a log of negative values, variables with negatives are converted into positives by the method applied by Busse and Hefeker (2007):  $= \ln(x + \sqrt{(x^2 + 1)})$ .

We then generate the following general regression equation for the analysis:

$$\ln\text{INE}_{it} = \alpha_{it} + \phi_1 \ln\text{DEM}_{it} + \phi_2 \ln\text{GOV}_{it} + \phi_3 \ln\text{GDPPC}_{it} + \phi_4 \ln\text{POP}_{it} + \phi_5 \ln\text{UB}_{it} + \phi_6 \ln\text{INFL}_{it} + \phi_7 \ln\text{GLOB}_{it} + \epsilon_{it} \quad (1)$$

Where  $\ln$  represents the natural log;  $i$  and  $t$  indicate country and time period, respectively;  $\alpha$  is the intercept;  $\phi_1, \phi_2, \phi_3, \phi_4, \phi_5, \phi_6$ , and  $\phi_7$  are the coefficients of democracy, governance quality, economic growth, population, urbanization, inflation, and globalization respectively; and  $\epsilon$  is the error term. We assume economic growth, population, urbanization, inflation, and globalization as control variables. In our analysis, we run two econometric models with and without control variables, as given below:

$$\ln\text{INE}_{it} = \alpha_{it} + \phi_1 \ln\text{DEM}_{it} + \phi_2 \ln\text{GOV}_{it} + \phi_3 \ln\text{GDPPC}_{it} + \phi_4 \ln\text{POP}_{it} + \phi_5 \ln\text{UB}_{it} + \phi_6 \ln\text{INFL}_{it} + \phi_7 \ln\text{GLOB}_{it} + \epsilon_{it} \quad (2)$$

$$\ln\text{INE}_{it} = \alpha_{it} + \phi_1 \ln\text{DEM}_{it} + \phi_2 \ln\text{GOV}_{it} + \epsilon_{it} \quad (3)$$

Where Equation (2) is the regression to be estimated with control variables and Equation (3) is the regression to be estimated without control variables.

## 4. Results and Discussion

### 4.1. Descriptive Statistics and Correlation Matrix

The summary statistics and the correlation matrix for the variables studied are reported in Tables A1 and A2 in the appendix.

### 4.2. Levin Lin Chu (LLC) Stationarity Test

To confirm that the data series is stationary, the LLC test formulated by Levin et al. (2002) is utilized. The result from Table 2 indicates that income inequality, economic growth, inflation, and globalization are stationary at the level, whereas population, urbanization, democracy, and governance are not stationary at the level but become stationary after the first difference.

Table 2 – LLC Unit Root Test

Variables	At level	First difference
lnINE	-1.3078*	--
lnDEM	1.5788	-2.3751***
lnGOV	-0.4806	-5.2024***
lnGDPPC	-2.4597***	-
lnPOP	1.0851	-1.6959**
lnUB	-0.3091	-3.3455***
lnINFL	-2.2247**	-
lnGLOB	-5.4656***	-

Source: Authors' calculation.

Note: \*\*\*, \*\*, and \* denotes significance level at 1%, 5%, and 10% respectively.

### 4.3. Robustness Check

Table 3 shows the Hausman test, heteroskedasticity, autocorrelation test, multicollinearity, and cross-sectional dependence (CD) test of the series. The Hausman test proposed by Hausman (1978) and presented in Table 3 shows that the fixed effect (FE) model is appropriate. But a common problem in panel data analysis is that the random effect (RE) and FE estimators may not be consistent and efficient due to the existence of serial correlation (autocorrelation) and cross-sectional heterogeneity (Greene, 2000). We checked the robustness of autocorrelation proposed by Wooldridge (2010) and heteroskedasticity proposed by Greene (2000), and the results in Table 3 indicate the existence of autocorrelation and heteroskedasticity within the data. Consequently, the FGLS and PCSE methods are suitable for addressing disturbances that exhibit autocorrelation, heteroskedasticity, and are interrelated across panels (Greene, 2012; Reed and Ye, 2011; Zhang and Zhao, 2014). However, our series is free from the multicollinearity problem as the mean variance inflation factor (VIF) is less than 10 (Gujarati and Sangeetha, 2007). Again, we also checked for CD, which is also a major issue in panel data, using the CD test propounded by Pesaran (2021). The test presented in Table 3 shows the absence of CD for Equation (1), but for Equation (2), the result shows the presence of CD. Since our data suffers from autocorrelation, heteroskedasticity, and cross-sectional dependence, it can be handled using the DK standard error estimation method developed by Driscoll and Kraay (1998) (Hoechle, 2007). The DK standard error estimation can be applied when there is an issue of autocorrelation, heteroskedasticity, or cross-sectional dependence in the series. Therefore, to make our results more robust, we apply FGLS, PCSE, and DK regression estimation.

Table 3 – Robustness Check

Tests	Equation 1	Equation 2
Hausman test	$\chi^2 = 106.82$ p-value = 0.000	$\chi^2 = 34.66$ p-value = 0.000
Wald test for groupwise heteroskedasticity	$\chi^2 = 29.96$ p-value = 0.000	$\chi^2 = 1639.46$ p-value = 0.000
Wooldridge test for autocorrelation	F = 273.177 p-value = 0.0001	F = 277.934 p-value = 0.0001
Mean VIF	3.52	1.02
CD test	-0.735, p-value = 0.4626	1.951, p-value = 0.051

Source: Authors' calculation.

Note: (1) Hausman test assumes  $H_0$ : RE is appropriate,  $H_a$ : FE is appropriate; (2) Wald test assumes  $H_0$ : series are homogeneous,  $H_a$ : series are not homogeneous; (3) Wooldridge test assumes  $H_0$ : series are not serially correlated,  $H_a$ : series are serially correlated; (4) CD test assumes  $H_0$ : absence of cross-sectional dependence,  $H_a$ : presence cross-sectional dependence.

#### 4.4. FGLS, PCSE, and DK Results

Table 4 – FGLS, PCSE, and DK Results (dependent variable: lnINE)

Variables	FGLS (1)	FGLS (2)	PCSE (3)	PCSE (4)	DK (5)	DK (6)
lnDEM	0.988*** (2.82)	1.027*** (3.00)	0.988*** (2.62)	1.027*** (2.68)	.988*** (3.19)	1.027*** (3.83)
lnGOV	-1.302* (-1.66)	-.958 (-1.24)	-1.302 (1.56)	-.957 (-1.21)	-1.302 (-1.57)	-.958 (-1.19)
lnGDPPC	0.002 (0.05)	–	0.002 (0.08)	–	.002 (0.05)	–
lnPOP	0.932** (2.07)	–	0.932** (2.07)	–	.932** (2.45)	–
lnUB	-1.242** (-2.12)	–	-1.242** (-2.34)	–	-1.242** (-2.52)	–
lnINFL	-0.002 (-0.12)	–	-0.002 (-0.15)	–	-.002 (-0.13)	–
lnGLOB	-0.009 (-0.04)	–	-0.009 (-0.06)	–	-.009 (-0.06)	–
Constant	3.867*** (5.54)	3.840*** (210.01)	3.867*** (9.24)	3.840*** (424.93)	3.867** (11.33)	3.840*** (418.31)

Source: Authors' calculation.

Note: \*\*\*, \*\*, and \* denotes significance level at 1%, 5%, and 10% respectively.

Table 4 displays the outcomes from the FGLS, PCSE, and DK regression analyses, both including and excluding control variables. The findings indicate a significant and positive impact of democracy on income inequality. The result corroborates the findings of Simpson (1990) and Kotschy and Sunde (2017). It suggests that the level of democracy may not yet be sufficient to

contribute effectively to lowering income inequality (Simpson, 1990). Our result also goes along with the argument given by Kotschy and Sunde (2017), who claimed that the elite may use their means and resources indirectly to influence the government in a democratic system, leading to high income inequality. Governance quality has a negative impact on income inequality. It implies that governance plays a significant role in diminishing income inequality within BRICS economies. It is possible that this negative effect is due to the effective and efficient delivery of public services (Chong and Calderón, 2000). However, in models 2 through 6, the data does not demonstrate a significant influence of governance on income inequality. The reason could be the weak nature of governance quality and the lack of statistical strength to cause a major impact on income inequality (Kunawotor et al., 2020). The impact of control variables, like an increase in population, leads to an increase in income inequality. Urbanization helps in the reduction of income inequality. Economic growth, inflation, and globalization do not show a significant impact on income inequality in our study.

## 5. Conclusion

This study aims to explore the effects of governance and democracy on income disparity within the BRICS nations over the period 1996-2020. Addressing the challenges of autocorrelation and heteroskedasticity, the research employs FGLS and PCSE. Additionally, to manage issues of autocorrelation, heteroskedasticity, and cross-sectional dependence, the DK regression technique is utilized. The findings of our study revealed that democracy increases income inequality, while the governance quality helps to mitigate it. Control variables like population increase income inequality, and urbanization tends to lower income inequality.

Based on the results, this study has important policy implications for lowering income inequality in BRICS countries. First, promoting democratic institutions and practices may not necessarily lead to lower income inequality and may even exacerbate it in some cases. Therefore, policymakers should be aware of the potential trade-offs between democracy and equity and seek to balance them with other social and economic goals. Second, further improving governance quality is an effective way to further lower income inequality, as it enhances accountability, transparency, and participation in public decision-making. Third, managing population growth is crucial for reducing income inequality, as this factor tends to increase the gap between the rich and the poor. Fourth, supporting urbanization may also contribute to lower income inequality, as it can facilitate economic diversification, innovation, and productivity, create more jobs and incomes, and improve access to infrastructure and amenities.

The shortcoming of this study is that it considers SWIID's Gini disposable income as a proxy for income inequality. Gini index from other sources, such as the World Inequality Database, the World Bank, the World Income Inequality Database (WIID), etc., can be used to check the robustness of the results. A future study can also reinvestigate the results using different alternative independent variables and econometric models. A country-wise analysis using time series data is also suggested to get the results for specific countries. However, our study is robust in terms of addressing autocorrelation, heteroskedasticity, and cross-sectional dependence.

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## **Conflict of interest**

The authors declare that there is no conflict of interest.

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## Appendices

Table A1 – Descriptive statistics

Variable	Mean	Std. Dev.	Min	Max
lnINE	3.82	0.195	3.478	4.149
lnDEM	-1.252	1.023	-3.244	-0.234
lnGOV	1.493	0.162	1.207	1.782
lnGDPPC	8.383	0.795	6.48	9.246
lnPOP	0.708	0.49	-0.445	1.476
lnUB	1.233	0.711	-0.451	2.142
lnINFL	2.31	0.934	-1.139	5.145
lnGLOB	4.109	0.126	3.725	4.279

Source: Authors' calculation.

Table A2 – Correlation Matrix

Variables	lnIEQ	lnDEM	lnGOV	lnGDPPC	lnPOP	lnUB	lnINFL	lnGLOB
lnINE	1.000							
lnDEM	0.654	1.000						
lnGOV	0.905	0.721	1.000					
lnGDPPC	0.048	-0.161	-0.045	1.000				
lnPOP	0.629	0.554	0.729	-0.521	1.000			
lnUB	0.416	-0.007	0.456	-0.481	0.792	1.000		
lnINFL	-0.031	0.378	-0.060	0.066	-0.206	-0.547	1.000	
lnGLOB	-0.050	-0.134	-0.180	0.668	-0.529	-0.499	0.122	1.000

Source: Authors' calculation.