

# GOVERNANCE AND ECONOMIC WELFARE: A BRICS PANEL ANALYSIS

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## Abstract

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An effective governance structure is central to growth, sustainable development and equal income distribution (economic welfare) (Glass & Newig, 2020). Brazil-Russia-India-China-South Africa (BRICS) countries differ in governance structure with varying outcomes on economic welfare. This article explores the extent to which governance impacts economic welfare in BRICS countries viewed as an emerging powerhouse, with significant growth prospects — yet distinct in their governance systems, and income variability amongst its population. The article utilised panel static models (pooled ordinary least squares (OLS) and fixed effects (FEs) estimator) from 1996 to 2019 to investigate the effects of governance proxied by the World Bank World Governance Indicators (WGI) on economic welfare (proxied from two channels): quantitative (output stock/economic growth) and qualitative (reduced income inequality). The two channels combine the ordinary measure of welfare: gross domestic product (GDP), a proxy for economic growth, household and income distribution, and a proxy for income inequality drawing (Heys, 2019). The findings revealed that governance produced varying results on the economic welfare in BRICS. Democratic countries which practise good governance principles (South Africa and Brazil) had a negative economic welfare effect from both channels compared to one-party states, such as China and Russia. Therefore, the findings invalidate the null hypothesis that good governance is a catalyst for economic welfare. Sound policies, especially on structural change and equitable income distribution are necessary to enhance economic welfare in BRICS countries. The article is relevant and discloses iterations of the distinction between good governance and sound policy implications on developing nations' economic welfare.

**Keywords:** Governance, Good Governance, Income Inequality, Economic Growth, BRICS

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## 1. INTRODUCTION

Many emerging economies face unequal income distribution and low growth which affects their welfare attributes. It is implicitly believed that increased growth would result in enhanced livelihoods and equality. However, the literature

argues differently. Projects raise income unequally to the benefit of first-class elites (Shafique & Haq, 2006; Kyriacou, 2019). Consistent policy instruments are required to resolve these challenges, which should aim at income and job growth, sustainable development and equal income distribution (Shafique & Haq, 2006). Sen (1983) postulates that

social well-being should be judged primarily on the basis of the degree of freedom people have to encourage or fulfill the roles they value.

The institutional/governance structure is essential to transform growth and welfare into sustainable processes. As such, the governance structure is central to growth, sustainable development and equal income distribution (Shafique & Haq, 2006; Glass & Newig, 2019). Governance is crucial for social welfare. Better governed countries are richer, happier and experience fewer social and environmental problems (Kyriacou, 2019). *Governance* refers to systems and processes designed to ensure accountability, openness, responsiveness, rule of law, stability, fairness and inclusiveness, empowerment and broad-based participation. Governance is one of the primary factors that explains the differences in performance across countries (Kyriacou, 2019). The influence of various policy tools depends on how efficiently the public sector performs. To ensure public value, through efficient public sector performance. Kjoer and Kinnerup (2002) introduced the concept of *good governance*. They defined it as an approach to a government dedicated to establishing a framework based on justice and peace that respects individuals' human rights and civil liberties. It reinforces the notion of transparency, accountability and participation. Participation necessitates that all communities, especially the most vulnerable (poor), have direct or equitable access to public systems (Kjoer & Kinnerup, 2002).

*Economic welfare* is defined as the level of prosperity and quality of living standards in an economy. Economic welfare can be measured through a variety of factors such as GDP and other indicators which reflect welfare of the population (for example, literacy, levels of inequality, levels of pollution, access to health care, and assessments of environmental quality) (Samuelson & Nordhaus, 2004).

Economic welfare comprises economic growth and reduced income inequality. The classification follows Heys's (2019) preposition on the future of gross domestic product (GDP) as a sole measure of economic welfare. In his seminary work, which is the basis for this study, economic welfare is purely market sector GDP, plus income inequality, denoted by disposable income (Aitken, 2019).

BRICS (Brazil-Russia-India-China-South Africa) countries are perceived as an emerging powerhouse with significant growth patterns — yet distinct in their governance systems, as well as income variability. This article intends to respond to the following research questions:

*RQ1: How does governance impact economic welfare in BRICS countries?*

*RQ2: What is the relationship between governance and good governance?*

The study utilised panel static models (pooled ordinary least squares (OLS) and fixed effects (FEs) estimator from 1996 to 2019 to investigate the effects of governance proxied by the World Bank World Governance Indicators (WGI) on economic welfare (proxied from two channels): quantitative (output stock/economic growth) and qualitative (reduced income inequality) (Aitken, 2019).

The analysis by pooled OLS and FEs will reveal a sizeable and robust effect of inequality and governance on economic welfare. There are many challenges in estimating the impact of governance and inequality on economic growth. First, governance indices are generally subject to measurement error because, in reality, democratic institutions do not truly change in line with governance scores. Secondly, it is worth noting that both democratic and non-democratic countries in the BRICS consortium differ in various aspects, for example, institutions, cultural policies, and historically. Therefore, cross-country estimations are unlikely to reveal more in-depth insight into governance's causal effect on growth. Thirdly, it is informally acknowledged that marginal movements in the GDP precede democratisations. Thus, a reliable approach is to estimate GDP dynamics in real terms, which is difficult to do because of economic variables' lag overtime. Brückner and Ciccone (2011) highlighted that even if year and country fixed effects are considered, changes in democracy (a precursor of governance) may be correlated with other economic conditions, possibly resulting in the exclusion of variable bias concerns.

In order to address some of the challenges stated previously, this study builds on the vital work conducted by Islam and McGillivray (2020) to estimate a model that includes various governance measures through country effects to eliminate the impact of potential economic growth correlation with governance. Furthermore, year-fixed effects are included to eliminate any change in governance which is correlated with the GDP. Our first trial is to estimate a linear regression with robust standard errors to correct issues of heteroscedasticity, while the second strategy endeavours to estimate time series estimators through static models which deal with endogeneity.

The BRICS countries are selected purposively due to their unique dominance in their respective regions, however, with differing democracies and governance systems (Öniş, 2016). The BRICS countries are an emerging global powerhouse that exists to meet the developmental needs of member countries through various initiatives including intra-trade and investment (Hooijmaaijers, 2021). Despite similar growth prospects, the member countries differ in governance structure and systems. For example, China and Russia are generally one-party governed states dominated by ideologies that define their co-existence (Öniş & Gençer, 2018). As such, this study offers an unfamiliar perspective to understand how democracy and governance can be a catalyst to growth regardless of the economic system at play. Consequently, the study is distinct in using Heys's (2019) preposition of future measures of growth beyond GDP. His supposition is included in the economic welfare variable utilised in this article. The variable combines GDP and reduced inequality as measures of economic welfare.

The article is structured as follows: Introduction is followed by a Section 2 that presents the literature review. This is followed by Section 3 that demonstrates the empirical framework. Findings and results are presented in Section 4, Section 5 discusses the results, and finally Section 6 provides conclusion and recommendations.

## 2. LITERATURE REVIEW

According to the endogenous growth theory<sup>1</sup>, income and wealth inequality can impede economic growth in the long term for various reasons. Firstly, through economic challenges, where inequality creates political pressure for wealth distribution through taxation, it affects investment and growth. Secondly, socio-political instability creates uncertainty in property rights, and thereby slows capital accumulation. On the other hand, credit market imperfections are seen as vehicles that reduce investment and growth (Howitt, 2010). The proposition of the endogenous growth theory is attested to by numerous growth theories which postulate that output is measured by factor productivity — GDP — that is a product of technological progress (Saleem, Shahzad, Khan, & Khilji, 2019). Consequently, Aitken (2019) argued that GDP is primarily a measure of market production, and one benefit thereof is that they have 'objective' values to value volumes of products and services, and thereby allow various items to be 'added up'. Economists (and others) have consistently cautioned that GDP is not and was never meant to be an indicator of well-being. According to Aitken (2019), "we must be skeptical of the notion that long-term improvements in the rate of growth of welfare can be estimated even loosely from changes in the rate of growth of output" (p. 4). Despite these precautions, it is often utilised as a proxy for welfare by most policymakers, and economists (Aitken, 2019).

In considering alternatives to GDP, Heys (2019) presented a spectrum of theoretical options at the ESCoE Conference on Economic Measurement 2019 (Payne & Vassilev, 2019). The spectrum presented by Heys (2019) suggests that GDP could be corrected. This notion was termed future GDP and comprises purely market sector GDP, plus an adjustment for public sector quality, as well as missing capitals, including intangibles, net national disposable income, including a household account of unpaid services. The extension to GDP is distinct with two aspects (welfare is represented by disposable income) wellbeing which captures a range of social and economic aspects of the quality of life (Aitken, 2019).

Wagener (2004) and Mira and Hammadache (2017) revealed statically significant effects of governance on economic welfare. Nonetheless, recent studies have provided ambiguous results. For example, Afrimadona, Darmastuti, and Fathun (2019) and Shin (2019) reported that established links between good governance and growth are a result of the linkages between governance and other growth determinants such as human capital. Likewise, Doumbia (2019) highlighted that after controlling for other variables, there does not seem to be a strong relationship between growth and economic welfare.

Piketty (2014) and Horlings and Smits (2019) revealed adverse growth effects of income inequality. As income accumulates, so does the interest rate, capital gain and dividends. This relationship has puzzled researchers because,

in certain instances, growth supersedes income inequality.

Bagchi and Svejnar (2015) and Jorgenson (2018) argued that most national income in developing economies is concentrated among the elite, frequently politicians and their cronies. It was generally revealed that politically accumulated income/wealth inequality has an adverse effect on economic growth. A similar view is held by Morck, Yeung, and Yu (2000) and Omar and Indaba (2020) that a high concentration of national income among the elite leads to rent-seeking, decelerated capital development and impedes growth significantly. Therefore, it concurs that good governance<sup>2</sup> is an essential tool to achieve sound economic growth and development.

Inequality is primarily influenced by global governance, and good governance ensures an equitable distribution of national wealth and income (Dollar & Kraay, 2002; Asongu & Odhiambi, 2020). Zhuang, de Dios, and Lagman-Martin (2010) posit that the poor enjoy a smaller share in egalitarian economies; therefore, political rights in the form of democracy may be accompanied by equal income distribution.

One-party states such as China have the ability to impose critical policies necessary for growth (Guo, 2020). As such, democracy, if not aligned with policy implementation will have adverse effects on growth (Gerring, Thacker, & Alfaro, 2012). Barro (1997) expresses similar sentiments and argued that advocacy for political rights does not influence growth.

Income inequality might have an impact on democratic reform and democratic political engagement. High levels of inequality may result in economic elitism to oppose democracy. Moreover, fear of the redistribution tension is expected to evolve in the normal course of democratic politics (Kyriacou, 2019; Boix, 2003). This could be as a result of the shift of power in one-party state countries (China), or consequently, countries liberated from colonial rule (South Africa).

Finally, corruption plays a role in advancing both inequality and growth in developing countries. It amasses wealth in the hands of a few ruling elites (World Bank, n.d.; Khan & Naeem, 2020). Convicted cases in crimes involve the distribution of state resources and require the reimbursement of any misappropriated or stolen funds. Corruption in state finances is the reason for inequality in developing countries because funds meant for the poor are misappropriated (Khan & Naeem, 2020). South Africa can attest to this challenge, where corruption-inequality anti-graft campaigns are on the increase (Patel, 2020).

BRICS countries have a mixed governance record. Most of the members are trapped in the lack of good governance in both the economic and political structures. Issues of government ineffectiveness, lack of rule of law including political instability are prevalent. As such, good governance has been central to development in the BRICS development agenda, and recent BRICS summits

<sup>1</sup> Endogenous growth is described as long-run economic progress dictated by internal economic system forces. Forces evaluate resources and motivations to build technological know-how (Howitt, 2010; Aitken, 2019).

<sup>2</sup> Good governance is an approach to government dedicated to establishing a framework based on justice and peace that respects individuals' human rights and civil liberties. It reinforces the notion of transparency, accountability and participation. Participation necessitates that all communities, especially the most vulnerable (poor), have direct or equitable access to public systems (Kjoer & Kinnerup, 2002).

(Singh, 2019; Wilson, 2016). Existing evidence on governance and economic welfare does not provide clear-cut support of the idea that enhanced good governance is a catalyst for economic welfare (Singh, 2019; Wilson, 2016).

Given the identified gap in the literature, this study focuses on the effect of good governance on the economic welfare in BRICS countries. While it is traditionally acceptable that good governance automatically yields positive growth and welfare, this study explores this phenomenon from the BRICS countries' perspective with varying governance structures. This is the major contribution of this study in this discourse. None of the previous studies have focused on measuring the effects of good governance on economic welfare on a panel of countries with varying governance structures. Consequently, the study deviated from the general governance, economic welfare studies wherein growth is utilised as a proxy for economic welfare by adopting Heys (2019) and Aitken's (2019) definition of economic welfare, which encompasses disposable income proxied by income inequality. The study is relevant for policy recommendations wherein governments in developing countries and BRICS propose growth policies that include welfare. Consequently, advocacy to promote good governance in both economic and political structures is linked to the welfare of the citizens.

### 3. EMPIRICAL FRAMEWORK

The article utilised the panel static and fixed effects models to determine the extent to which good governance affects economic welfare in BRICS countries. One method was to produce similar results not utilised in the study and necessary for future research is the structural equation modelling (SEM). According to Zyphur et al. (2020), SEM is a very general, chiefly linear, chiefly cross-sectional statistical modelling technique used to derive unbiased estimates for the relations between latent constructs, in this case, WGI. The technique utilises factor and path analysis including regression. It is confirmatory rather than explanatory.

The panel static and FEs model utilised in this study is exploratory, and hypothesises that:

*H1: Good governance has a positive effect on economic welfare (growth and reduced inequality) in BRICS countries.*

In developing an empirical model, the study follows the theoretical foundations of the endogenous growth theory embedded by Islam and McGillivray (2020):

$$GDPC_{it} = \beta_0 + \beta_1 GDPC_{i,t-1} + \beta_2 INQ_{it} + \gamma X_{it} + \pi_i + \rho_t + \mu_{it} \quad (1)$$

where,  $GDPC$  is the per capita real GDP growth rate measured by the first difference of natural logarithm of per capita real GDP;  $GDPC_{i,t-1}$  is the natural logarithm of one period lagged value of per capita real GDP;  $INQ_{it}$  is inequality measured by the Gini index (Acemoglu & Johnson, 2005);  $X_{it}$  represents control variables including trade openness, inflation rate, population to name a few;  $\pi_i$  is unobserved country-specific fixed effects;  $\rho_t$  is the time dummy; and  $\mu_{it}$  is the error term. The subscripts  $t$  indicates the period, and  $i$  denotes a particular country. Our

estimation begins with the baseline model where control variables are excluded, and the proposed full model includes control variables. Equation (1) is estimated using data from 5 BRICS countries from 1996–2019. The sample is determined by the availability of data in all variables.

The lagged real GDP is included in the model to capture convergence because developing countries grow faster than rich countries in per capita output. The literature revealed that capital expenditure can determine growth. Meanwhile, trade openness is an essential factor for development and growth. Radelet, Sachs, and Lee (2001) defined trade openness as an import penetration and foreign direct investment, amongst other, factors which affect the variable. On the other hand, school literacy enhances a country's technological innovation level and is a prerequisite for growth. The inflation rate is included in the capture of macroeconomic stability.

#### 3.1. Model specification

The generalized method of moments (GMM) estimator is a widely utilised tool to manage unobserved heterogeneity and endogeneity bias in estimation. In heteroscedasticity cases, the GMM estimator is more robust and efficient than the instrumental variable estimator (Baum, Schaffer, & Stillman, 2003). Meanwhile, Bond, Hoeffler, and Temple (2001) proved that the GMM estimator is more efficient in estimating growth models due to its superior ability to explore stationarity restrictions. However, the GMM is applicable when the number of periods is relatively small compared to that of cross-sectional observations ( $t < \text{or} = N$ ). Alternatively, asymptotic biases may arise. Barajas, Chami, and Yousefi (2013) posit that one needs to avoid over-identification of instruments in GMM. Consequently, the general dynamic panel model takes the following form:

$$Y_{it} - Y_{i,t-1} = (\alpha - 1)Y_{i,t-1} + \beta'X_{it} + \pi_i + \rho_t + \mu_{it} \quad (2)$$

where,  $Y$  is the log of real per capita GDP;  $X$  is a set of explanatory variables;  $\pi_i$  is unobserved country-specific fixed effects;  $\rho_t$  is the time-specific fixed effects; and  $\mu$  is the error term. The model can be reparametrized as follows:

$$Y_{it} = \alpha Y_{i,t-1} + \beta'X_{it} + \pi_i + \rho_t + \mu_{it} \quad (3)$$

In equation (3), the lagged dependent variable is correlated with the time-invariant country-specific effects. As a result, the within-group or fixed estimators are inconsistent even if the error term is not correlated serially. Nickell (1981) posited that if the lagged dependent variable is an explanatory variable, the OLS estimator results in spurious regression, and the within-group estimator is inconsistent. To correct this problem, Arellano and Bond (1991) proposed an alternative equation in the following form:

$$\Delta Y_{it} = \alpha \Delta Y_{i,t-1} + \beta' \Delta X_{it} + \Delta \mu_{it} \quad (4)$$

where,  $\Delta$  is the first different operator, an instrumental variable approach can be applied to manage the potential correlation between

the transformed lagged dependent variable and the transformed error terms. The relationship between economic growth and income inequality is prone to be affected by reverse causality and endogeneity; hence, the GMM estimator is utilised to mitigate those problems. However, Blundell and Bond (1998) demonstrated that lagged endogenous variables may be imperfect instruments and suggested lagged difference instruments referred to as system GMM. As previously stated, the GMM is inefficient in small samples. Given the panel of 5 countries and a more extended period, it is evident that the GMM cannot be a model of choice for this study. To avoid overfitting the endogenous variables and weakening over-identifying restrictions, instruments should be relative to the number of country-level observations in system GMM. Thus, the number of instruments should be fewer than the number of countries. However, this is not the case in this study. Consequently, it is estimated that static models perform better when  $N$  is small and  $t$  is longer.

Beck and Katz (1995) asserted that an OLS regression with lagged dependent variables and dummies could be utilised to correct non-spherical disturbances. The lagged dependent variable and dummy inclusion are open to debate because running an OLS regression removes some of the noble spherical disturbance problems and affects the variable of interest. Therefore, in this study, an OLS regression is estimated using panel-corrected standard errors (PSCE) to manage heteroscedasticity and avoid the inclusion of a lagged dependent variable and unit dummies. It is wise to admit that while standard errors may remove some of the highlighted stated challenges, it is worthy to note that removing the lagged dependent variable and dummies, which are widely included in panel estimation can result in bias. Consequently, to test the robustness of our results, a fixed-effect model was considered. A fixed-effect model is utilised to control omitted variables that differ between cases over time. It allows changes with the advent of time to estimate the effects of independent variables on the dependent variable. However, to decide which model to use between the random or fixed effect, a Hausman test was conducted.

A Hausman test compares the fixed and random-effects models. The null hypothesis is the fixed effect and is not correlated with other regressors. If the null hypothesis is rejected, the random-effects model experiences both bias and inconsistent estimates. Thus, if the null hypothesis is rejected, a fixed model is utilised.

### 3.2. Data

The article utilised annual data from 1996 to 2019. The rate of change in GDP is the preferred dependent variable because it measures an economy's annual performance in detail compared to the real GDP per capita, which measures individual access to income. The GDP per capita estimates are oppressive in many instances unless there is a substantial economic disturbance. Several governance-related measures such as the rule of law, political rights, political

instability and civil liberties are utilised to capture governance since the latter is a broad term that includes these selected indices. Other control variables of interest which affect the real GDP (inflation, capital investment, trade openness, foreign direct investment (FDI), population, Gini index and literacy rate) are included. The variables are sourced from TheGlobalEconomy.com.

The variables are described as illustrated in Table 1 below

**Table 1.** Variable description

Variable	Description
<i>GDP</i>	Gross domestic product
<i>Capital investment</i>	Capital investments in US\$
<i>Inflation</i>	Inflation rate %
<i>Trade openness</i>	Trade openness
<i>FDI</i>	Foreign direct investments
<i>Rule of law</i>	Rule of law
<i>Corruption</i>	Corruption
<i>Civil liberties</i>	Civil liberties
<i>Political rights</i>	Political rights
<i>Population</i>	Population per km
<i>Gini index</i>	Gini index
<i>Literacy rate</i>	Literacy rate

Source: Authors' elaboration.

Table 2 provides a summary statistic of the variables used in the study.

**Table 2.** Summary statistics of key variables (5 countries, 1996–2018)

Variable	Obs.	Mean	Std. Dev.	Min	Max
<i>GDP</i>	120	4.680083	3.764283	-7.8	14.23
<i>Capital investment</i>	119	647.8627	1187.656	18.8	6085.02
<i>Inflation</i>	120	7.435833	9.331169	-1.4	85.7
<i>Trade openness</i>	120	43.848	13.96128	15.64	72.87
<i>FDI</i>	120	48.58083	65.42952	0.55	290.93
<i>Rule of law</i>	105	-0.2664762	0.3713463	-1.1	0.35
<i>Corruption</i>	105	-0.3221905	0.4274702	-1.13	0.73
<i>Civil liberties</i>	125	3.768	1.651666	2	7
<i>Political rights</i>	125	3.688	2.283941	1	7
<i>Population</i>	120	577.3189	558.8683	42.24	1397.71
<i>Gini index</i>	115	47.19167	9.300762	34.4	64.8
<i>Literacy rate</i>	115	89.14441	9.183597	61.01	99.73

Source: Authors' elaboration.

## 4. RESULTS

This section presents the regression results. The analysis is based on panel statistic models: pooled OLS, and FEs models. The fixed effect assumption is that the individual-specific effects are correlated with the independent variables, as such a correlation matrix was not presented in the findings, as individual specific effects are correlated with the independent variables (Hsiao, 2003).

Table 3 illustrates the pooled OLS estimates for the BRICS countries throughout 1996–2019, where the rate of change of real GDP growth rate is the dependent variable, and the Gini index measures inequality. The Gini index generalises the overall wealth distribution.

Table 3. Baseline model (controls excluded)

Variable	OLS robust	FEs	FEs robust
Rule of law	-3.155431 (0.283)	-15.07327 (0.001***)	-15.07327 (0.085*)
Corruption	9.624501 (0.000***)	8.575675 (0.002***)	8.575675 (0.017**)
Political rights	1.524257 (0.04**)	2.688362 (0.005***)	2.688362 (0.005***)
Civil liberties	-0.877258 (0.284)	-1.687498 (0.112)	-1.687498 (0.002***)
Gini index	-0.3033684 (0.003***)	0.0474223 (0.795)	0.0474223 (0.708)
_cons	18.4489 (0.004***)	-5.101569 (0.555)	-5.101569 (0.542)
N	120	120	120
r2	0.9247		
r2_o		0.1464	0.1464
r2_b		0.0029	0.0029
r2_w		0.4074	0.4074
Sigma_u		6.9225752	6.9225752
Sigma_e		2.82913	2.8291328
rho		0.85688255	0.85688255

Notes: In all specifications of the fixed-effect model, we control a full set of country and year-fixed effects. Standard errors robust against heteroscedasticity and serial correlation at the country level are in parentheses.

\*\*\* Represent statistical significance at 1% levels.

\*\* Represent statistical significance at 5% levels.

\* Represent statistical significance at 10% levels.

Our interest is in income inequality, economic growth and governance. Our estimation starts with a pooled OLS regression where corruption, political rights, and inequality affects a country's economic growth significantly. The coefficient of corruption and political rights is positively related to growth. A 1% increase in growth leads to an increase in corruption (9%) and political rights (1.5%), respectively. Meanwhile, a 1% increase in growth leads to a decline in inequality by 3%. The governance indicators reveal mixed results; this conforms with what Helleiner and Wang (2018) found in BRICS countries pertaining to governance.

As Baum (2013, pp. 9–20) and Wooldridge (2012) postulated that the linear regression model may suffer from omitted variable bias. This implies that unobserved individual or time-specific factors might influence the outcome of regression beyond the defined regressors. Therefore, to correct this omission, a fixed-effects model was applied. According to Baltagi (2013), the panel data model is appropriate to manage unobserved endogeneity. The fixed model without robust errors reveals that growth is affected by the rule of law, corruption and political rights. Meanwhile, in the data fixed-effects model with robust errors, civil rights and rule of law affects growth negatively.

Moving from our baseline models estimated in Table 3, control variables were added to the equation. Table 4 below illustrates the final output from those regressions.

Table 4. Results after controls are added

Variable	OLS robust	FEs	FEs robust
Rule of law	-12.74976 (0.028**)	-18.13255 (0.143)	-18.13255 (0.000***)
Corruption	12.276 (0.032**)	0.8994076 (0.904)	0.8994076 (0.002***)
Political rights	-5.078951 (0.088 *)	3.476316 (0.230)	3.476316 (0.001***)
Civil liberties	2.950717 (0.187)	-10.66022 (0.121)	-10.66022 (0.000***)
Gini index	-0.625361 (0.023**)	0.4842597 (0.567)	0.4842597 (0.001***)
Capital invest	-0.0025447 (0.750)	0.0212962 (0.226)	0.0212962 (0.000***)
Inflation	-1.134966 (0.009***)	-0.3612192 (0.509)	-0.3612192 (0.004***)
Trade openness	0.2397529 (0.043**)	0.0420196 (0.896)	0.0420196 (0.574)
FDI	0.0328006 (0.531)	0.0272093 (0.533)	0.0272093 (0.000***)
Population	0.006523 (0.555)	0.9693795 (0.281)	0.9693795 (0.008***)
Literacy rate	0.6298091 (0.132)	-0.3473767 (0.313)	-0.3473767 (0.001***)
_cons	-20.23614 (0.444)	-6.968564 (0.916)	-6.968564 (0.122)
N	120	120	120
r2	0.9660		
r2_o		0.2248	0.2248
r2_b		0.5543	0.5543
r2_w		0.9635	0.9635
Sigma_u		180.59086	180.59086
Sigma_e		1.0369525	1.0369525
rho		0.999996703	0.999996703

Notes: In all specifications of the fixed-effect model, we control a full set of country and year-fixed effects. Standard errors robust against heteroscedasticity and serial correlation at the country level are in parentheses.

\*\*\* Represent statistical significance at 1% levels.

\*\* Represent statistical significance at 5% levels.

\* Represent statistical significance at 10% levels.

Table 4 illustrates that the rule of law, corruption, political rights, Gini, and inflation were significant in the OLS and the fixed effect model with robust errors. This suggests a marginal difference between the two methods even if the lagged dependent and dummies are dropped in the pooled OLS. Huber and Stephens (2012) assert that democracy is associated with governance in policies that result in an equal redistribution of resources. The variables, rule of law and civil liberties were associated negatively with growth. Meanwhile, political rights were of negative significance on the OLS regression but positive on the FEs robust estimation.

## 5. DISCUSSION

The empirical findings on the pooled OLS regression do not support the claim that democracy proxied by political rights leads to better governance. However, the variable is positive with the FEs estimator, possibly highlighting that the OLS provides inconsistent estimates due to the lagged dependent variable's omission and dropped dummies. Simultaneously, the issue of political rights may be influenced by China's inclusion in the regression, given that it scores lower on the political rights index. The sample comprises extreme countries in governance-related issues. Yi (2013) postulates that democratic governments do not translate to equal income distribution, which is quite true. For example, South Africa is considered highly democratic, however, it is one of the world's most unequal countries.

Russia is considered the poorest performer within the BRICS group in terms of governance due to patronage and clientelism and the lack of participation by independent experts. However, in civil society participation, only China fares worse (Larianova & Shelepov, 2019).

Meanwhile, the Gini coefficient is expectedly related negatively to growth. High inequality among states affects growth in various ways, and as such, creates a welfare status. This is primarily driven by the government's quest to redistribute wealth to the poor, which affects its spending because certain programmes need to be withdrawn to fund social welfare. Halter, Oechslin, and Zweimuller (2014) revealed conflicting results on the effect of inequality on growth and reported that inequality helps in the short term but impedes growth in the long term.

In order to minimise income inequalities, the BRICS countries should consider raising the minimum wage. This neither damages the economy nor decreases employment. Furthermore, policies that promote high savings and lower the cost of building assets for the poor and middle classes also help to minimise inequality. The tax code should also be more progressive. Taxes on capital gains should be related to income tax. Ultimately, investment in education should be promoted. Investment must concentrate on the added value of professional skills. Such skills, along with the government's funding for start-up small and medium enterprises (SMEs), would make people self-reliant and reduce the impact of unemployment.

The reduction of income inequality is a requirement for growth. This should include good governance principles. However, while economic growth is the key objective to reduce inequality and good governance, BRICS countries should accentuate economic growth through policies on structural change. Although these policies vary among nations, they should incorporate increased productivity in various economic sectors.

Nevertheless, it is essential to recognise the significance of BRICS globally due to the strength of the economies in the group. All countries in the group have bilateral and inter-regional agreements which strengthen their economies even in instances of world devastations. However, it is difficult to predict with certainty the impact of

the BRICS countries to challenge the western hegemony in terms of growth. While China has set itself apart as a giant economy, Russia remains in the "cold war economic games with the west" (Sakwa, 2020, p. 8). On the other hand, India shares multi projects with China and Russia, both in military and civilian. Thus, South Africa is left to rely on China due to the intra-trade between the two nations compared to the rest of the BRICS countries. Consequently, positive spillovers in terms of favourable or free trade are expected amongst the BRICS countries to maintain their global position.

## 6. CONCLUSION

This article analysed the effects of good governance on economic welfare in BRICS countries. The study utilised panel static models: OLS and FEs estimator from 1996 to 2019 to investigate the impact of good governance proxied by the World Bank WGI on economic welfare (proxied from two channels): quantitative (output stock/economic growth) and qualitative (reduced income inequality). The two channels combine the ordinary measure of welfare — GDP: a proxy for economic growth, household and income distribution, and a proxy for income inequality from Heys (2019). The findings revealed that it is difficult to draw the good governance — economic welfare linkage across the BRICS countries. Hence, it is invalidating the null hypothesis. However, a few key issues emerged. BRICS economies exhibit high levels of inequality, although it has declined substantially in all the countries in the panel. This was proven in the regression models, that is economic growth was linked negatively to inequality. Therefore, this could have led to a bias in the OLS. Secondly, governance is a significant concern due to political interference because politicians undertake rent-seeking adventures at the expense of the poor. Politicians are renowned for utilising patronage and clientelism; thus, the mixed results of the various indicators are testimony to this challenge. On the other hand, control variables, for example, inflation, capital investment, and FDI, were significant in the fixed effect model with robust standard errors. These macroeconomic aggregates are well-documented throughout literature including the severity in which these affect growth (An & Yeh, 2021; Makiela & Quattarra, 2018). With the exception of China, the rest of the BRICS group has not been performing well in the last five years due to several internal or domestic matters and stalled growth policies. Thirdly, with the advent of time, the BRICS countries have experienced constant growth due to the effects of various growth catalysts (intra-trade and investment, which is, however, primarily skewed towards China).

This study infers that the impact of rapid economic growth in BRICS countries on the developing world could be either positive or negative. It could be positive if it leads towards an enhancement in terms of trade and technologies. China's rapid growth as a world superpower is testimony to this claim. However, it would also be harmful to developing countries to compete for export markets and investments. This was possible by the recently launched BRICS Development Bank,

which is expected to roll over huge investment loans to its members and beyond (Hooijmaaijers, 2021).

Due to various issues which affect BRICS countries, policies which support structural change are critical. These policies must target productivity in various sectors, and the principles of good governance must be implemented to limit income inequality. The implementation of governance reforms must equate to each country's challenges and opportunities.

The article is relevant to disclose the distinction between good governance and sound policies in measuring the economic welfare of BRICS nations, not to disregard democracy but practice the latter with accountability.

The study concludes that good governance is not a significant feature for the growth of BRICS

economics, especially in those with extreme income variability. In simple terms, good governance impacts the growth of all countries in BRICS negatively. Therefore, since the research focused on BRICS economies in different regions, it is highly likely that the selected variables would behave differently if utilised in a single country. Furthermore, given the different economic systems, it is likely that certain variables would produce inconclusive results depending on how these are analysed. Another shortcoming was the lack of available data in selected variables under study. However, the lack thereof was extrapolated.

Future research must consider utilising the SEM in individual analysis in BRICS countries to measure the implications of governance on economic welfare.

## REFERENCES

1. Acemoglu, D., & Johnson, S. H. (2005). Unbundling institutions. *Journal of Political Economy*, 113(5), 949-995. <https://doi.org/10.1086/432166>
2. Afrimadona, Darmastuti, S., & Fathun, L. M. (2019). Democracy and economic welfare: An empirical analysis. *Journal of Governance*, 4(1), 16-29. <https://doi.org/10.31506/jog.v4i1.4020>
3. Aitken, A. (2019). Measuring welfare beyond GDP. *National Institute Economic Review*, 249, R3-R16. <https://doi.org/10.1177/002795011924900110>
4. An, T.-H. T., & Yeh, K.-C. (2021). Growth effect of foreign direct investment and financial development: New insights from a threshold approach. *Journal of Economics and Development*, 23(2), 144-162. <https://doi.org/10.1108/JED-08-2020-0108>
5. Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *The Review of Economic Studies*, 58(2), 277-297. <https://doi.org/10.2307/2297968>
6. Asongu, S. A., & Odhiambo, N. M. (2020). Inequality thresholds, governance and gender economic inclusion in sub-Saharan Africa. *International Review of Applied Economics*, 34(1), 94-114. <https://doi.org/10.1080/02692171.2019.1645817>
7. Bagchi, S., & Svejnar, J. (2015). Does wealth inequality matter for growth? The effect of billionaire wealth, income distribution, and poverty. *Journal of Comparative Economics*, 43(3), 505-530. <https://doi.org/10.1016/j.jce.2015.04.002>
8. Baltagi, B. H. (2013). *Econometric analysis of panel data* (5th ed.). Chichester, the UK: John Wiley & Sons, Inc.
9. Barajas, A., Chami, R., & Yousefi, S. R. (2013). *The finance and growth nexus re-examined: Do all countries benefit equally?* (International Monetary Fund Working Paper No. 13/130). <https://doi.org/10.5089/9781484372104.001>
10. Barro, R. J. (1997). *Getting it right: Markets and choices in a free society*. Cambridge, MA: The MIT Press.
11. Baum, C. F. (2013). *Panel data management, estimation and forecasting*. Retrieved from <https://sil0.tips/download/panel-data-management-estimation-and-forecasting>
12. Baum, C. F., Schaffer, M. E., & Stillman, S. (2003). Instrumental variables and GMM: Estimation and testing. *The Stata Journal*, 3(1), 1-31. <https://doi.org/10.1177/1536867X0300300101>
13. Beck, N., & Katz, J. K. (1995). What to do (and not to do) with time-series cross-section data. *American Political Science Review*, 89(3), 634-647. <https://doi.org/10.2307/2082979>
14. Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, 87(1), 115-143. [https://doi.org/10.1016/S0304-4076\(98\)00009-8](https://doi.org/10.1016/S0304-4076(98)00009-8)
15. Boix, C. (2003). *Democracy and redistribution*. <https://doi.org/10.1017/CBO9780511804960>
16. Bond, S. R., Hoeffler, A., & Temple, J. (2001). *GMM estimation of empirical growth models* (Centre for Economic Policy Research Discussion Paper). Retrieved from [https://www.researchgate.net/publication/4753417\\_GMM\\_Estimation\\_and\\_Empirical\\_Growth\\_Models](https://www.researchgate.net/publication/4753417_GMM_Estimation_and_Empirical_Growth_Models)
17. Brückner, M., & Ciccone, A. (2011). Rain and the democratic window of opportunity. *Econometrica*, 79(3), 923-947. <https://doi.org/10.3982/ECTA8183>
18. China's Xi allowed to remain 'president for life' as term limits removed. (2018, March 11). *BBC News*. Retrieved from <https://www.bbc.com/news/world-asia-china-43361276>
19. Davies, J. B., Sandström, S., Shorrocks, A., & Wolff, E. N. (2008). The world distribution of household wealth. In J. B. Davies (Ed.), *Personal wealth from a global perspective* (pp. 395-418). <https://doi.org/10.1093/acprof:oso/9780199548880.003.0019>
20. Dollar, D., & Kraay, A. (2002). Growth is good for the poor. *Journal of Economic Growth*, 7(3), 195-225. <https://doi.org/10.1023/A:1020139631000>
21. Doumbia, D. (2019). The quest for pro-poor and inclusive growth: The role of governance. *Applied Economics*, 51(16), 1762-1783. <https://doi.org/10.1080/00036846.2018.1529392>
22. Gerring, J., Thacker, S. C., & Alfaro, R. (2012). Democracy and human development. *The Journal of Politics*, 74(1), 1-17. <https://doi.org/10.1017/S0022381611001113>
23. Glass, L.-M., & Newig, J. (2019). Governance for achieving the Sustainable Development Goals: How important are participation, policy coherence, reflexivity, adaptation and democratic institutions? *Earth System Governance*, 2, 100031. <https://doi.org/10.1016/j.esg.2019.100031>



24. Guo, B. (2020). A partocracy with Chinese characteristics: Governance system reform under Xi Jinping. *Journal of Contemporary China*, 29(126), 809–823. <https://doi.org/10.1080/10670564.2020.1744374>
25. Halter, D., Oechlin, M., & Zweimüller, J. (2014). Inequality and growth: The neglected time dimension. *Journal of Economic Growth*, 19, 81–104. <https://doi.org/10.1007/s10887-013-9099-8>
26. Hardoon, D., Ayele, S., & Fuentes-Nieva, R. (2016, January, 18). An economy for the 1%. *Oxfam GB for Oxfam International*. Retrieved from <https://www.oxfam.org/en/research/economy-1>
27. Helleiner, E., & Wang, H. (2018). Limits to the BRICS' challenge: Credit rating reform and institutional innovation in global finance. *Review of International Political Economy*, 25(5), 573–595. <https://doi.org/10.1080/09692290.2018.1490330>
28. Heys, R. (2019). Bridging the gap between GDP and welfare. Paper presented at the *ESCoE Conference*, King's College London. Retrieved from <https://www.escoe.ac.uk/events/escoe-research-seminar-12-february-2019/>
29. Hooijmaaijers, B. (2021). China, the BRICS, and the limitations of reshaping global economic governance. *The Pacific Review*, 34(1), 29–55. <https://doi.org/10.1080/09512748.2019.1649298>
30. Horlings, E., & Smits, J.-P. (2019). Measuring well-being and sustainability in the Netherlands: The first monitor of well-being. Paper presented at the *ESCoE Conference*, King's College London. Retrieved from [https://www.researchgate.net/publication/335107460\\_Measuring\\_Well-being\\_and\\_Sustainability\\_in\\_the\\_Netherlands\\_the\\_first\\_Monitor\\_of\\_Well-being](https://www.researchgate.net/publication/335107460_Measuring_Well-being_and_Sustainability_in_the_Netherlands_the_first_Monitor_of_Well-being)
31. Howitt, P. (2010). Endogenous growth theory. In S. N. Durlauf, & L. E. Blume (Eds.), *Economic growth* (pp. 68–73). [https://doi.org/10.1057/9780230280823\\_10](https://doi.org/10.1057/9780230280823_10)
32. Hsiao, C. (2003). Fixed-effects models. In *Analysis of panel data* (2nd ed., pp. 95–103). New York, NY: Cambridge University Press. Retrieved from [https://phdeconomicsgcu.files.wordpress.com/2016/10/analysis\\_of\\_panel\\_data\\_book.pdf](https://phdeconomicsgcu.files.wordpress.com/2016/10/analysis_of_panel_data_book.pdf)
33. Huber, E., & Stephens, J. D. (2012). *Democracy and the left: Social policy and inequality in Latin America*. <https://doi.org/10.7208/chicago/9780226356556.001.0001>
34. Islam, M. R., & McGillivray, M. (2020). Wealth inequality, governance and economic growth. *Economic Modelling*, 88, 1–13. <https://doi.org/10.1016/j.econmod.2019.06.017>
35. Jorgenson, D. W. (2018). Production and welfare: Progress in economic measurement. *Journal of Economic Literature*, 56(3), 867–919. <https://doi.org/10.1257/jel.20171358>
36. Kachur, P. (2020, August 5). Russian constitutional change entrenches Putin's rule, heralds a dystopian future. *Daily Maverick*. Retrieved from <https://www.dailymaverick.co.za/article/2020-08-05-russian-constitutional-change-entrenches-putins-rule-heralds-a-dystopian-future/>
37. Khan, R. E. A., & Naeem, H. M. (2020). Corruption, income inequality and human resource development in developing economies. *Asian Journal of Economic Modelling*, 8(4), 248–259. <https://doi.org/10.18488/journal.8.2020.84.248.259>
38. Kjoer, M., & Kinnerup, K. (2002). Good governance — How does it relate to human rights? In H.-O. Sano, & G. Alfredsson (Eds.), *Human rights and good governance*. Leiden, the Netherlands: Martinus Nijhoff Publishers.
39. Kyriacou, A. P. (2019). *Inequality and governance*. <https://doi.org/10.4324/9781315536910>
40. Larianova, M., & Shelepov, A. (2019). The G20 and BRICS: Engaging with international institutions for global governance. *South African Journal of International Affairs*, 26(4), 643–661. <https://doi.org/10.1080/10220461.2019.1694065>
41. Makiela, K., & Ouattara, B. (2018). Foreign direct investment and economic growth: Exploring the transmission channels. *Economic Modelling*, 72, 296–305. <https://doi.org/10.1016/j.econmod.2018.02.007>
42. Mira, R., & Hammadache, A. (2017). Good governance and economic growth: A contribution to the institutional debate about state failure in Middle East and North Africa. *Asian Journal of Middle Eastern and Islamic Studies*, 11(3), 107–120. <https://doi.org/10.1080/25765949.2017.12023313>
43. Morck, R., Yeung, B., & Yu, W. (2000). The information content of stock markets: Why do emerging markets have synchronous stock price movements? *Journal of Financial Economics*, 58(1–2), 215–260. [https://doi.org/10.1016/S0304-405X\(00\)00071-4](https://doi.org/10.1016/S0304-405X(00)00071-4)
44. Nickell, S. (1981). Biases in dynamic models with fixed effects. *Econometrica*, 49(6), 1417–1426. <https://doi.org/10.2307/1911408>
45. Omar, M. A., & Inaba, K. (2020). Does financial inclusion reduce poverty and income inequality in developing countries? A panel data analysis. *Journal of Economic Structures*, 9, 37–49. <https://doi.org/10.1186/s40008-020-00214-4>
46. Öniş, Z. (2016). Democracy in uncertain times: Inequality and democratic development in the global North and global South. *METU Studies in Development*, 43, 317–336. Retrieved from [https://www.researchgate.net/publication/299599320\\_Democracy\\_in\\_uncertain\\_times\\_Inequality\\_and\\_democratic\\_development\\_in\\_the\\_global\\_North\\_and\\_global\\_South](https://www.researchgate.net/publication/299599320_Democracy_in_uncertain_times_Inequality_and_democratic_development_in_the_global_North_and_global_South)
47. Öniş, Z., & Gençer, A. Ş. (2018). Democratic BRICS as role models in a shifting global order: Inherent dilemmas and the challenges ahead. *Third World Quarterly*, 39(9), 1791–1811. <https://doi.org/10.1080/01436597.2018.1438185>
48. Patel, R. (2020, August 29). Inequality driven anti-graft campaign amid SA corruption pandemic. *The South African*. Retrieved from <https://www.thesouthafrican.com/news/inequality-driven-anti-graft-campaign-amid-sa-corruption-pandemic/>
49. Payne, C. S., & Vassilev, G. (2019). Invisible economics — Valuing time-use to measure the modern economy. Paper presented at the *ESCoE Conference*, King's College London.
50. Piketty, T. (2014). *Capital in the twenty-first century*. <https://doi.org/10.4159/9780674369542>
51. Radelet, S., Sachs, J., & Lee, J.-W. (2001). The determinants and prospects of economic growth in Asia. *International Economic Journal*, 15(3), 1–29. <https://doi.org/10.1080/10168730100000041>
52. Sakwa, R. (2020). Greater Russia: Is Moscow out to subvert the West? *International Politics*. <https://doi.org/10.1057/s41311-020-00258-0>
53. Saleem, H., Shahzad, M., Khan, M. B., & Khilji, B. A. (2019). Innovation, total factor productivity and economic growth in Pakistan: A policy perspective. *Journal of Economic Structures*, 8(7). <https://doi.org/10.1186/s40008-019-0134-6>
54. Samuelson, P. A., & Nordhaus, W. (2004). *Economics*. London, the UK: McGraw-Hill Education.

55. Sen, A. (1983). Poor, relatively speaking. *Oxford Economic Papers*, 35(2), 153-169. <https://doi.org/10.1093/oxfordjournals.oep.a041587>
56. Shafique, S., & Haq, R. (2006). Governance and income inequality. *The Pakistan Development Review*, 45(4, Part II), 751-760. <https://doi.org/10.30541/v45i4IIpp.751-760>
57. Shin, G. (2019). Welfare, innovation capacity, and economic performance: Evidence from American federalism. *Public Policy and Administration*, 34(3), 349-381. <https://doi.org/10.1177/0952076718796104>
58. Singh, B. P. (2019). Does governance matter? Evidence from BRICS. *Global Business Review*. <https://doi.org/10.1177/0972150919861222>
59. Wagener, H.-J. (2004). Good governance, welfare, and transformation. *The European Journal of Comparative Economic*, 1(1), 127-143. Retrieved from [https://www.researchgate.net/publication/5163937\\_Good\\_Governance\\_Welfare\\_and\\_Transformation](https://www.researchgate.net/publication/5163937_Good_Governance_Welfare_and_Transformation)
60. Wilson, R. (2016). Does governance cause growth? Evidence from China. *World Development*, 79, 138-151. <https://doi.org/10.1016/j.worlddev.2015.11.015>
61. Wooldridge, J. M. (2012). *Introductory econometrics: A modern approach* (5th ed.). Mason, OH: South-Western Cengage Learning. Retrieved from [https://economics.ut.ac.ir/documents/3030266/14100645/Jeffrey\\_M.\\_Wooldridge\\_Introductory\\_Econometrics\\_A\\_Modern\\_Approach\\_\\_2012.pdf](https://economics.ut.ac.ir/documents/3030266/14100645/Jeffrey_M._Wooldridge_Introductory_Econometrics_A_Modern_Approach__2012.pdf)
62. World Bank. (n.d.). *Worldwide governance indicators*. Retrieved from <http://info.worldbank.org/governance/wgi/#home>
63. Yi, D. J. (2013). Politics and income inequality: Does politics still matter in new democracies? *New Political Economy*, 18(5), 653-679. <https://doi.org/10.1080/13563467.2013.736956>
64. Zhuang, J., de Dios, E., & Lagman-Martin, A. (2010). *Governance and institutional quality and the links with economic growth and income inequality: With special reference to developing Asia* (Asian Development Bank Economics Working Paper Series No. 193). <https://doi.org/10.2139/ssrn.1619116>
65. Zyphur, M. J., Voelkle, M. C., Tay, L., Allison, P. D., Preacher, K. J., Zhang, Z., ... Diener, E. (2020). From data to causes II: Comparing approaches to panel data analysis. *Organizational Research Methods*, 23(4), 688-716. <https://doi.org/10.1177/1094428119847280>