

## Finance, Growth, and Institutional Framework in Emerging Countries

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### ABSTRACT

This study evaluates the effect of institutional quality (IQ) on the supply-leading and demand-following hypotheses in the BRICS nations for the 1996-2020 period. This study used Pooled OLS, Fixed effect and Random effect models to estimate the panel dataset of financial development index (FDI), gross domestic product (GDP), institutional quality index (IQI), inflation and trade. The panel analysis provides the following key findings. Firstly, GDP has a positive but insignificant effect on FDI and not vice versa. Secondly, IQI has an increasing effect on GDP and a reducing effect on FDI. Thirdly, IQI strengthens the positive effect of GDP on FDI. In order words, IQI is growth-inducing, while FDI is growth-induced. This study concludes that economic growth and trade openness play a leading role in the development of the financial system, thus supporting the demand-following hypothesis in the BRICS. This study contributes to the literature by establishing the moderating effect of institutional quality on the finance-growth nexus in BRICS.

Keywords: Foreign direct investment, finance, growth, institutional framework.

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## 1. INTRODUCTION

For many decades, the nexus between FD and EG has piqued the interest of researchers and policymakers in emerging and advanced economies. This link between FD and EG is controversial. On the one hand, a rise in the amount and value of economic products and services manufactured and consumed in an economy or society required adequate funds and financial services. In this context, growth in economic activities tends to precede the development of financial architecture, suggesting that financial development is passive. At the same time, a matured financial system has the requisite to supply finances needed for growth-inducing investment, suggesting that financial development played an active role in the process of growth.

BRICS economies occupy a central position in the discussion of the fastest-growing emerging economies. The BRICS countries (Brazil, Russia, India, China, and South Africa) are among the world's major emerging economies and are regarded as innovative building blocks in the global economy. The total GDP of the BRICS nations constitutes 17 trillion USD in 2014 and 18.6 trillion USD in 2018 corresponding to 22% and 23% of the world's economy respectively (Lowe, 2016; Wang *et al.*, 2021). In addition to being a bloc of fast-growing economies or emerging markets, BRICS has taken several steps to develop its financial system and architecture both individually and as a league. This is evidenced by the establishment of the BRICS New Development Bank, and the BRICS Contingent Reserve Initiative, among others. The status of the BRICS as one of the fastest-growing nations as well as their financial

development initiatives presents an opportunity for a reassessment of the FD-EG nexus in the bloc.

There is a motivation to consider the relevance of IQ in the examination of the nexus between FD and EG. Institutional quality is a wide-ranging notion that encapsulates the quality of law and order, human rights, government efficiency and effectiveness (Barbier & Burgess, 2021). It has been observed that institutional development is a *sine qua non* for economic growth and financial development as it ensures adherence to the rule of law and contractual obligations, safeguards property rights, ameliorates corrupt practices, and boosts investors' confidence (Law & Habibullah, 2006). This implies that IQ tends to reinforce FDI and EG. Consequently, the moderating role of IQ has recently been considered in many aspects of economic relationships. For example, Kutun, Samargandi, and Sohag (2017) showed that FD boosts EG only when there is IQ. However, it is yet to be seen whether economic growth boosts FD in the presence of IQ. This research idea is conspicuously neglected in the available literature. Given this background, there is a gap in investigating the role of IQ in the FD-EG nexus in BRICS.

## 2. LITERATURE REVIEW

According to the supply-leading hypothesis, causality flows from finance to EG, hence, a country must have a well-developed financial sector for its economy to grow (Adeyeye, Fapetu, Aluko, and Migiro, 2015). The proponents of this theory argue that FD stimulates the mobilization of savings and its allocation for productive activities, ameliorates information asymmetry, enhances risk management, and promotes entrepreneurship (Yinusa *et al.*, 2020). Sound financial architecture encourages efficient allocation and effective utilization of financial resources and easy access to financial information. This outcome, *inter alia*, engenders a positive macroeconomic outlook and stimulates EG (Yinusa *et al.*, 2020). On the other hand, the demand-following hypothesis suggests that increased demand for financial amenities due to EG leads to FD (Bara *et al.*, 2016). In this context, causality is expected to flow from EG to FD (Adeyeye *et al.*, 2015; Calderón and Liu, 2002; Odhiambo, 2009).

Recent studies demonstrate the role of institutional development in the attainment of economic growth and development in BRICS countries (Khan *et al.*, 2020; Wang *et al.*, 2021) and other countries (Ahmed *et al.*, 2022; Khan *et al.*, 2019). Thus, it is crucial to establish how IQ influences the FD-EG nexus within the BRICS bloc. The influence of financial sector development on EG is connected to facilitating elements of human capital, strong governance, and IQ (Ibrahim and Alagidede, 2018). Jadhav (2012) investigated how institutional, political as well as economic factors attract Foreign Direct Investment in BRICS using panel unit root and multiple regressions for the periods 2000-2009 and found that economic factors were more significant in attracting more foreign direct investment than political and institutional factors. Singh (2021) conducted a study on how IQ decreases poverty rates in BRICS economies through the development of the financial system using Kao's cointegration and Fully Modified Ordinary Least Squares and found that the rule of law has a direct positive relationship with poverty reduction. In Addition, Mhango (2019) used a VECM Granger causality test and discovered that FD, both bank and market, causes an increase in EG in the long run and that EG and FD have a positive relationship (bidirectional relationship) in the long run, however, in the short-run, only bank-based FD has a positive impact on EG.

The effects of institutional quality on the relationship between financial development and economic growth have been extensively investigated, and not the other way around. Focusing on the African nations, Effiong (2015) analyzed the moderating impact of IQ on FD

- EG relationship in SSA nations. First, it was found that FD does not impact EG significantly in SAA nations. Second, the interaction of IQ with FD portends a positive but insignificant sign for growth. A similar study by Kassie (2021) in 35 African countries revealed that the FD effect is ambiguous on EG, but the impact is significant taking into consideration IQ indexes such as corruption, rule of law, and a stable government administration. Additionally, FD impact in countries with high institutions is high compared to those with lower IQ. Ahmed *et al.* (2022) focus on promoting green economic growth in South Asian countries. It was concluded that IQ and FD promote sustainable growth in the long run. The aforementioned studies have signaled the potential impact of the interaction between IQ and FD in the process of growth. In the context of the demand-following hypothesis, a potential interactive effect of IQ with growth is also suggestive.

The positive impact of different measures of institutional qualities on economic growth has been established. For example, Valeriani and Peluso (2011) found a positive effect of civil liberties and quality of government on EG among nations at different levels of development. Financial development reduces poverty and subsequently stimulates EG (Onalapo, 2015). Similarly, several measures of financial development have a significant and positive impact on growth (Sharma, 2016). According to Kim, Yu and Hassan (2018), financial inclusion drives economic growth, and the two variables granger cause each other. Focusing on Brazil, China, Mexico, Indonesia, Turkey, Egypt, and India, the supply-leading hypothesis or one-way causal relationship from FD to economic growth is prevalent (Erataş-Sönmez and Sağlam, 2019). From the existing literature, most publications emphasize the link between economic growth and financial development. However, the empirical investigation of the impact of institutional quality on the relationship between financial and economic development is scarce, hence this study.

### 3. RESEARCH METHODS

The study aims to achieve its objectives by conducting a panel analysis of BRICS countries. It utilizes annual panel data from the period 2010 through 2020 for a sample of five emerging economies: Brazil, Russia, India, China, and South Africa (BRICS). BRICS was formed in 2010, and the data are available until 2020. When it comes to analyzing empirical data, Stiglingh (2015) states that panel data analysis is preferable to cross-country and time-series analysis. In addition, using panel data allows the study to cover a greater range of variables and address more challenging and complex problems. As a result, panel data is used in this study. Several empirical studies (e.g., Karabayik, 2016; Kassie, 2021, Khan, *et al.*, 2020), have used annual data, readily available for the variables under consideration. The study requires data on FDI, EG and IQI. The study relies on the multidimensional measure of financial development developed by the IMF which is an index that overcomes the weakness of other proxies. Financial Development Index (FDI) dataset is obtained from the IMF. The IQI is derived from six variables, control of corruption, rule of law, government effectiveness, voice and accountability, political stability and the lack of violence/ terrorism and regulatory quality. Extant studies rarely considered the six dimensions. The indicators used to form the index are collected from World Governance Indicators. This study measured economic growth using GDP, a superior proxy in extant studies and it is obtained from World Bank Development Indicators.

To fulfil the objective of this study, panel data for BRICS nations is estimated using the Pooled OLS (POLS), Fixed effect, and Random Effect. Pooled OLS regression models assume that all countries' intercepts are the same. The fixed effects model (FEM) distinguishes the intercepts across countries although the slope coefficient does not vary across the countries.

FEM further assumes that intercept is time-invariant. Contrary to the fixed effects model, the variation across entities is supposed to be random and unrelated to the independent variables included in the model, which is the basis for the random effects model (Rousseau and Wachtel, 2011). Because the countries are drawn from the same population, a certain part of the intercept in REM is similar and the remaining part of the intercept which is cross-sectional variant is added to the error term. There are two dimensions to the model estimation and specification based on the two objectives. Firstly, this study examined the effect of FD on EG and *vice versa*. Subsequently, the interaction of IQI with FDI and GDP are incorporated respectively to determine how IQI affects the impact of one on the other. Hence,

$$GDP_{i,t} = \beta_0 + \beta_1 FDI_{i,t} + \beta_2 IQI_{i,t} + \beta_3 FDI_{i,t} * IQI_{i,t} + \beta_4 TO_{i,t} + \beta_5 INF_{i,t} + e_{i,t} \quad (1)$$

$$FDI_{i,t} = \beta_0 + \beta_1 GDP_{i,t} + \beta_2 IQI_{i,t} + \beta_3 GDP_{i,t} * IQI_{i,t} + \beta_4 TO_{i,t} + \beta_5 INF_{i,t} + e_{i,t} \quad (2)$$

Where the subscript  $i$  and  $t$  are the cross-sectional units (i.e., BRICS nations) and time series units respectively and  $e_{i,t}$  is used to represent the error term. GDP is the proxy for EG and financial development index is the proxy for FD, respectively.  $IQI_{i,t}$ ,  $TO_{i,t}$ , and  $INF_{i,t}$  are the proxies for institutional quality index, trade openness, and inflation. The constant term is captured by  $\beta_0$  while the coefficients of the independent variables, FDI, GDP, IQI, TO and INF are represented by  $\beta_1 - \beta_5$ .  $\beta_3$  denotes the coefficient of the interaction of IQI with FDI and GDP variables. On the one hand, finance and institutions can complement each other in the process of growth (Abaidoo & Agyapong, 2022). On the other hand, growth and institutions can complement each other in the process of stimulating FD.  $\beta_4 - \beta_5$  are the coefficients of the control variables. The Hausman test is used to assess if the FE or RE technique is the best model.

#### 4. ANALYSIS AND RESULTS

Table 1 below shows the pairwise correlations for the variables. All the independent variables with the exception of IQI are positively correlated with the dependent variable. A rule of thumb indicates that the multicollinearity problem exists only when the correlation coefficient is greater than 0.8 (Gujarati, 2004). As it can be noted from the positive correlation coefficient none is greater than 0.8. This, therefore, means that the issue of multicollinearity does not exist in the variables. More precise estimates are produced when correlation is less than 0.8 (2009).

Table 1: Pairwise correlation

	FDI	GDP	IQI	TRADE	INFLATION
FDI	1.0000				
GDP	0.2426*	1.0000			
IQI	-0.3858*	0.4123*	1.0000		
TRADE	0.7652*	0.2533*	-0.3600*	1.0000	
INFLATION	0.7337*	0.2736*	-0.2621*	0.5827*	1.0000

Table 2 shows regression results for the pooled OLS, Fixed effects and Random effects. Regressing FDI on several independent variables (GDP, IQI, TRADE and Inflation), the Hausman test favours the REM model while the REM and the pooled OLS produce the same results. REM shows that FDI responds positively to an increase in GDP with an estimated

coefficient of 0.0020. This implies that all other things being constant, a % increase in the GDP leads to an insignificant increase in FDI at a 5% level of significance. FDI is negatively related to IQI with an estimated coefficient of -0,0751. A % increase in IQI decreases FDI by 7,51%. A positive relationship exists between FDI and Trade as well as FDI and Inflation. The role of macroeconomic variables on financial market has been confirmed in literature (Obalade, Khumalo, Naidoo, Thwala, Maistry and Muzindutsi, 2023). Considering the interaction effect, GDP spurs financial development in the presence of good institution at the 10% level of significance. This results to some extent are consistent with supply following hypothesis in BRICS, especially with the support of institutional quality.

Table 2: FDI = F (GDP, IQI, TRADE, INFLATION and GDP\*IQI)

Variable	Pooled OLS		Fixed effect		Random effect	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Constant	-0.0061	0.144	-0.0067	0.119	-0.0061	0.144
GDP	0.0020	0.211	0.0019	0.229	0.0020	0.211
IQI	-0.0751	0.027	-0.0777	0.025	-0.0751	0.027
Trade	0.0041	0.000	0.0040	0.000	0.0041	0.000
Inflation	0.0033	0.000	0.0034	0.000	0.0033	0.000
GDP*IQI	0.0047	0.097	0.0046	0.098	0.0047	0.097
R-squared	0.7263		0.7263		0.7263	
F-test	P-value = 0.0000		P-value = 0.0000		P-value = 0.0000	
Hausman	(P-value) 0.8828					

Table 3 below shows regression results for the pooled OLS, Fixed effects and Random effects. Regressing GDP on several independent variables (FDI, IQI, TRADE and Inflation), the Hausman test favours the REM model, whose output is similar to pooled OLS. REM shows that GDP responds negatively to an increase in GDP, suggesting that FDI is not growth-inducing in BRICS. This finding is similar to Effiong (2015) who found that FD has not made a significant contribution to EG in SAA nations but this finding contradicts the findings of Erataş-Sönmez and Sağlam's (2019) who show that FD increases real GDP per capita of Brazil, China, Mexico, Indonesia, Turkey, Egypt, and India, supporting the supply-leading hypothesis. However, IQI spurs growth implying that a good institutional framework is a necessary condition for economic growth in the BRICS nations. When FDI interacts with IQI, the BRICS nations' GDP decreases by a higher magnitude (-35) at a 10% level of significance. The insignificantly negative interactive effect is not consistent with Effiong (2015) who found an insignificantly positive interactive effect of IQ with FD on EG. The interactive result found in this study is not totally surprising given the negative effect of IQI on FDI as noted in the previous section. The finding is not consistent with Kassie (2021) who found a significant impact of FD on EG in 35 African countries when IQ is considered.

A positive relationship exists between GDP and Trade as well as GDP and Inflation. Considering the moderating effect, FDI reduces growth further when it interacted with institution at the 10% level of significance. Consequently, the supply leading hypothesis is not supported in the context of BRICS, even when institution quality is considered. This results

support supply following hypothesis in BRICS. Again, the macroeconomic variables drive GDP, as they drive FDI at 10% level of significance.

Table 3: GDP = F (FDI, IQI, TRADE, INFLATION AND FDI\*IQI)

Variable	Pooled OLS		Fixed effect		Random effect	
	Coefficient	P-value	Coefficient	P-value	Coefficient	P-value
Constant	-0.8211	0.034	-0.8404	0.033	-0.8211	0.034
FDI	-4.6343	0.588	-5.4305	0.538	-4.6343	0.588
IQI	15.4874	0.087	15.5137	0.093	15.4874	0.087
Trade	0.1054	0.101	0.1075	0.100	0.1054	0.101
Inflation	0.0860	0.087	0.0911	0.079	0.0860	0.087
FDI*IQI	-35.3496	0.089	-35.5241	0.097	-35.3496	0.089
R-squared	0.1111		0.1110		0.1111	
F-test	P-value = 0.0144		P-value = 0.0160		P-value = 0.0144	
Hausman	(P-value) 0.9950					

## 5. CONCLUDING REMARK

This study evaluates the effect of institutional development on the supply-leading and demand-following hypotheses in the BRICS nations for the 1996-2020 period. This study used Pooled OLS, Fixed effect and Random effect models to estimate the panel dataset of financial development index (FDI), gross domestic product (GDP), institutional quality index (IQI), inflation and trade. The panel analysis provides the following key findings. Firstly, GDP has a positive but insignificant effect on FDI and not *vice versa*. This suggests the applicability of the demand-following hypothesis as opposed to supply leading hypothesis in the BRICS economies. Secondly, IQI has an increasing effect on GDP and a reducing effect on FDI. Thirdly, IQI strengthens the positive effect of GDP on FDI. In order words, IQI is growth-inducing, while FDI is growth-induced. This study concludes that economic growth plays a leading role in the development of the financial system, particularly in the presence of a good institutional framework, thus supporting the demand-following hypothesis and rejecting the supply-leading hypothesis in the BRICS. In this context, expanding growth in the leading emerging markets resulted in increasing demand for financial supervises.

It is safe to conclude that several initiatives in the BRICS financial sector are driven by economic growth. Similarly, this study found that trade openness has resulted in the growth of the financial sector or services. This study contributes to the literature by establishing the moderating effect of institutional quality on the finance-growth nexus in BRICS. The study findings have significant implications for policy maker. The IQ components, namely control of corruption, rule of law, government effectiveness, voice and accountability, political stability and peace and regulatory quality must be enhanced in the BRICS nations. This effort is necessary to promote financial development in emerging economies and to strengthen the relationship between finance and growth.

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