

FINANCIAL DEVELOPMENT, FDI AND TRADE OPENNESS AS DRIVERS OF ECONOMIC GROWTH: EVIDENCE FROM BRICS

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ABSTRACT

The BRICS nations are representing a significant and evolving force in the global economy. Collectively, these nations account for a substantial portion of the total world's population, approximately 40-45%, and contribute about 25% of nominal global Gross Domestic Product (GDP). The study examines the influence of financial development, foreign direct investment and trade openness on economic growth in BRICS countries over the period 2001–2023 using balanced panel data and also finds out the causal relationship among them. Pedroni and Kao Residual cointegration tests have been used to detect long-run relation among the selected variables and Granger causality test has been conducted as well. The result suggests economic integration of an economy with global markets is made possible through flow of investment and several political and institutional factors like government's stability and policies, transparency, strong institutional quality will become the deciding factors in the paving the way for smooth trade openness. As a whole the study aims to contribute to the academic discourse on economic growth in emerging markets, offering valuable insights for researchers, policymakers, and practitioners alike. By elucidating the intricate relationships between

financial development, FDI, and trade openness, this research aspires to inform the design of effective economic policies that can enhance the growth potential of both existing and new BRICS nations in the years to come.

Keywords: *Financial development, Growth, Panel cointegration, Causality, BRICS nation.*

1. INTRODUCTION

The dynamics of global economic growth have increasingly drawn the attention of scholars, policymakers, and international organizations, particularly in the context of emerging economies. Among these, the BRICS nations namely Brazil, Russia, India, China, and South Africa have become prominent players on the world stage due to their significant contributions to global economic output, population, and resource availability. Collectively, these countries represent a substantial portion of the world's GDP (during 2024 BRICS nations contributed nearly \$29 trillion, making up about 27.94% of the total global GDP) and are characterized by their diverse economic structures, demographic profiles, and socio-political contexts. As these nations continue to evolve and integrate into the global economy, understanding the factors that drive their economic growth becomes essential for both academic inquiry and practical policy formulation.

Among many factors influencing economic growth, three variables have garnered particular interest: financial development, foreign direct investment (FDI), and trade openness. Financial development refers to the expansion and sophistication of financial markets and institutions, which facilitate the efficient allocation of resources, risk management, and investment financing. A well-developed financial system is crucial for fostering innovation and entrepreneurship, which are vital for sustained economic growth. In the context of BRICS countries, the relationship between financial development and economic growth is particularly salient, as these nations are undergoing significant transformations in their financial sectors, driven by both domestic reforms and global financial trends.

Foreign direct investment serves as another critical driver of economic growth, providing not only capital inflows but also technology transfer, managerial expertise, and access to international markets.

Trade openness, defined as the degree to which a country engages in international trade, is another crucial determinant of economic growth. Theories of international trade suggest that openness can lead to increased efficiency, greater market access, and enhanced innovation, all of which contribute to economic dynamism. The BRICS countries, with their diverse trade policies and varying levels of integration into the global economy, present a unique setting to examine the impact of trade openness on economic growth.

The interplay between financial development, FDI, and trade openness presents a multifaceted framework for analyzing economic growth in BRICS countries. Each of these factors does not operate in isolation; rather, they are interconnected and can influence one another in complex ways. For instance, a well-developed financial sector can attract FDI by providing the necessary infrastructure for investment, while increased trade openness can enhance the returns on FDI by expanding market opportunities.

The significance of this study lies in its potential to contribute to the existing body of literature on economic growth in emerging markets, particularly within the context of BRICS countries. By examining the relationships between financial development, FDI, and trade openness, this research aims to provide insights into the mechanisms through which these factors influence economic performance.

II. REVIEW OF LITERATURE

The economic landscape of BRICS countries—Brazil, Russia, India, China, and South Africa, has drawn significant scholarly attention, particularly regarding the interplay between financial development, foreign direct investment (FDI), trade openness, and economic growth. This literature review synthesizes existing research on these interconnections, highlighting theoretical frameworks, empirical findings, and gaps in the literature.

FINANCIAL DEVELOPMENT AND ECONOMIC GROWTH

Financial development has been widely recognized as a crucial driver of economic growth. According to Levine (2005), a well-functioning financial system enhances the allocation of resources, promotes investment, and facilitates savings. In the context of BRICS countries, various studies have examined the relationship between financial development and economic growth. For instance, Arestis and Demetriades (1997) found that financial development positively influences economic growth by improving capital accumulation and productivity.

In the BRICS context, Gupta and Sharma (2020) conducted a panel data analysis that revealed a significant positive relationship between financial development indicators—such as credit to the private sector and stock market capitalization—and GDP growth rates. Their findings are consistent with those of other researchers, such as Beck, Levine, and Loayza (2000), who argue that financial intermediaries play a vital role in enhancing economic growth by providing essential services that promote investment.

However, the relationship is not universally accepted as linear. Some scholars, such as Arcand, Berkes, and Panizza (2015), argue that there is a threshold level of financial development beyond which further development may have diminishing returns on economic growth. This nuanced view suggests that while financial development is essential, it must be balanced with regulatory frameworks to prevent financial crises that can adversely affect growth.

FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH

Foreign direct investment is another critical factor influencing economic growth, particularly in emerging markets like those in the BRICS group. FDI is often seen as a source of capital, technology transfer, and management expertise, which can enhance productivity and foster innovation (Borensztein, De Gregorio, & Lee, 1998).

In their analysis, Zhang (2001) found that FDI has a significant positive impact on the economic growth of China, highlighting the importance of absorptive capacity in host countries. This notion is echoed in the work of Kumar and Prakash (2020), who examined the role of FDI in India and found that it significantly contributes to economic growth, particularly in sectors such as manufacturing and services.

The impact of FDI in BRICS countries, however, is heterogeneous. For example, while FDI has been a substantial growth driver in China, its effects in South Africa has been less pronounced, as noted by Asiedu (2002). This discrepancy underscores the importance of contextual factors, including institutional quality, infrastructure, and human capital, which can mediate the relationship between FDI and economic growth (Alfaro, Chanda, Kalemli-Ozcan, & Sayek, 2004).

TRADE OPENNESS AND ECONOMIC GROWTH

Trade openness is another critical element influencing the economic growth of BRICS countries. Theories of comparative advantage suggest that countries can achieve higher growth rates by specializing in the production of goods and services in which they have a comparative edge (Ricardo, 1817). Empirical studies support this theory, indicating that increased trade openness is positively correlated with economic growth.

For instance, Frankel and Romer (1999) demonstrated that trade openness significantly affects economic growth through enhanced market access and increased competition. In the BRICS context, a study by Kaur and Singh (2019) found that trade openness positively impacts economic growth in India and Brazil, primarily through increased exports and foreign market access.

However, the relationship between trade openness and economic growth is complex and can be influenced by various factors, including domestic policies and global economic conditions. Some researchers, such as Rodrik (2001), argue that while trade can stimulate growth, it may also exacerbate income inequality and social disparities, particularly in developing countries. This perspective suggests that policymakers in BRICS nations must consider the broader implications of trade policies on economic growth and social equity.

INTERCONNECTIONS BETWEEN FINANCIAL DEVELOPMENT, FDI, TRADE OPENNESS, AND ECONOMIC GROWTH

The interplay between financial development, FDI, and trade openness presents a multifaceted view of economic growth in BRICS countries. Several studies have explored these interconnections, emphasizing the importance of an integrated approach to understanding economic dynamics.

For example, a study by Kose, Prasad, and Terrones (2009) highlights the synergistic effects of financial development and trade openness on economic growth. Their findings suggest that financial markets facilitate international trade by providing the necessary funding and risk management tools, thereby enhancing overall economic performance. Similarly, the work of Zhang and Markusen (1999) indicates that FDI can lead to increased trade flows, creating a virtuous cycle of growth.

The interconnectedness of these factors is also evident in the findings of Liu, Wang, and Wei (2020), examined the BRICS countries and found that financial

development mediates the relationship between FDI and economic growth. Their study underscores the importance of financial systems in attracting FDI and translating it into tangible economic benefits.

Radmehr et al. (2022) explored the interconnections between trade openness, financial development, and foreign direct investment (FDI) in fostering sustainable economic growth across various countries dividing them into two groups as per their income level. The study positions itself within the broader discourse on economic development, emphasizing the importance of integrating these three factors to achieve long-term sustainability and also recommended to focus on strengthening the banking system of the selected countries.

Mustafa et al. (2023) employed econometric models to analyze data from several South Asian countries, providing empirical evidence for the dynamic relationships among various macroeconomic factors. The findings of the study support for the enhancement of financial systems and the promotion of trade liberalization as strategies to achieve sustainable economic growth in South Asian countries.

Despite the wealth of research on economic growth, there remains a notable gap in the literature specifically addressing the BRICS countries as a collective entity. Much of the existing research tends to focus on individual nations or compare them with developed economies, often overlooking the unique characteristics and challenges faced by these emerging markets. This study aims to fill this gap by providing a comprehensive analysis of the impact of financial development, FDI, and trade openness on economic growth across the BRICS nations, utilizing a robust empirical framework that accounts for the distinct economic contexts of each country.

III. OBJECTIVES OF THE STUDY

Based on the review of literature and above discussion the objectives of the study are:

- To observe the impact of trade openness, foreign direct investment (FDI) inflows, and financial development on economic growth in BRICS countries.
- To investigate the causal relationships among trade openness, FDI inflows, financial development, and economic growth in BRICS countries over the period from 2001-2023.

IV. METHODOLOGY

Secondary data has been collected from the world data bank which is a reliable database. The study was conducted for a period of 23 years, starting from 2001 (all the selected variables were jointly available from 2001 to 2023). The study takes into consideration several macro-economic variables of BRICS economies like Brazil, Russia, India, China and South Africa. The collected data were analyzed after checking the stationarity of the data, as existence of trend in the data may lead to spurious outcomes.

Stationarity of the variables, in this empirical analysis it is done after cross-sectional dependence tests following (Menegaki, 2019). All the first-generation unit root tests are based on the assumption of cross-sectional independence. The second-generation panel unit root test aims to overcome the shortcomings of first-generation unit root test.

The second-generation panel unit root test allows cross-sectional dependence among the series and provides more accurate result compared with first-generation unit root test.

Cross-sectional dependency, which occurs among the countries and regional economies due to consideration of open economies, globalization, international trade openness, financial crisis, and omitted common factors (Chudik & Pesaran, 2015). Cross-sectional dependence is a critical diagnostic issue in panel data, so it is essential to understand its extent and nature. Ignoring cross-sectional dependence in panel data analysis causes serious consequences (Shahbaz et al., 2017). It is critical to examine the presence of cross-sectional dependence before testing unit roots, cointegrations, and estimations (Hasan et al., 2019).

Therefore, if the series are cross-sectionally dependent, the researchers use second generation unit root test.

The study includes four first-generation unit root tests assuming cross-sectional independence, namely Levin-Lin-Chu (2002)-LLC, Im-Pesaran-Shin (2003)-IPS, and Fisher type Dickey-Fuller (Choi 2001)-FDF following (Edo et al., 2020) and PP test as well as second-generation unit root test Cross sectionally dependent Im-Pesaran-Shin method to count cross-sectional dependence (Sharif & Hamzah, 2015).

After going through the existing literature, the researchers have focused on the tests of Panel cointegration which is measuring Fisher-type test of Pedroni

(1999), Kao (1999), and Pedroni (2004) applying Johansen (1988) methodology, as the maximum likelihood estimation approach suggested by Johansen (1988) has been usually preferred predicting long-run equilibrium relationships followed by panel granger causality test for getting causal relationship between the selected variables has been conducted.

The variables which have been considered in the study are described in the following TABLE 1.

TABLE 1: DESCRIPTION OF DEPENDENT AND INDEPENDENT VARIABLES AND LIST OF BRICS ECONOMIES SURVEYED

Name	Description	Abbreviation Used
Economic Growth	Total GDP at current USD data has been collected from world data bank and computed the value by using the formula: $\{(GDP_t - GDP_{t-1})/GDP_{t-1}\}$ and considered as the proxy for economic growth	EG
Financial development	Domestic credit to private sector (% of GDP) as collected from the world data bank	FD
Foreign Direct Investment Growth	Raw data were collected from world data bank and converted into growth by using the formula: $\{(FDI_t - FDI_{t-1})/FDI_{t-1}\}$	FDIG
Trade Openness	Raw data were collected from world data bank and computed the value by using the formula: $\{(Total\ Export + Total\ Import)/GDP\}$	TO
List of BRICS countries: Brazil, Russia, India, China, South Africa		

Therefore, a basic framework of the study is based on the following model:

$$EG = f(FD, FDIG, TO)$$

The following empirical model is conceived in order to analyze the effect of the financial development, foreign direct investment, and trade openness on the economic growth in a country i ($i = 1, 2, 3 \dots, 5$) in time dimension ($t = 2001-2023$). Hence, the regression model is rewritten as:

$$EG_{it} = \beta_0 + \beta_1 FD_{it} + \beta_2 FDIG_{it} + \beta_3 TO_{it} + \varepsilon_{it}$$

where, ε_{it} is the error term, which has zero mean and constant variance.

V. ANALYSIS AND INTERPRETATION

The TABLE 2 shows the results of the pre-estimation cross-sectional dependence test of Breusch-Pagan LM of the variables. The finding of four cross-sectional dependence test results provides that all the variables are significant at 1%, which rejected the null hypothesis of cross-sectional independence. The alternative hypothesis is accepted and confirmed the existence of cross-sectional dependence among BRICS countries. The null hypothesis of cross-sectional independence is rejected and identified that cross-sectional dependence exists in all variables.

TABLE 2: RESIDUAL CROSS-SECTION DEPENDENCE TEST

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	38.50279	10	0.0000
Pesaran scaled LM	6.373418		0.0000
Bias-corrected scaled LM	6.259781		0.0000
Pesaran CD	-3.506693		0.0005

H₀: There is no cross sectional dependence; H₁: there is cross sectional dependence

Source: Computed from collected data using E-views12 student version.

The first generation of tests assumes that cross-section units are cross-sectionally independent whereas the second generation of panel unit root tests reclines this assumption and allows for cross-sectional dependence. Therefore, the researchers sought for both first and more precisely second generation unit root test for checking stationary of the series.

TABLE 3 and TABLE 4 show the first-generation and second-generation unit roots tests. The first generation of tests assumes that cross-section units are cross-sectionally independent whereas the second generation of panel unit root tests reclines this assumption and allows for cross-sectional dependence. According to

second-generation unit root tests, all dependent variable and independent variables are stationary both without and with a trend aspect at lag length 0.

So, overall, the results showed that the order of integration is the same, and all variables are stationary at the first difference which is a valid ground for applying EGLS method (as shown in the TABLE 9).

TABLE 3: FIRST GENERATION PANEL UNIT-ROOT TESTS

	VARIABLES	LLC	IPS	AD-F	PP
Level I(0)	EG	-4.11	-3.08	27.30	37.85
		(0.07)	(0.06)	(0.23)	(0.28)
First Difference I(1)		-10.45	-9.90	87.85	206.17
		(0.00)	(0.00)	(0.00)	(0.00)
Level I(0)	FD	-0.45	1.32	8.02	7.88
		(0.32)	(0.9)	(0.62)	(0.64)
First.Difference I(1)		-0.81	-2.00	21.05	58.13
		(0.2)	(0.02)	(0.02)	(0.00)
Level I(0)	FDIG	-2.23	-4.23	37.16	77.64
		(0.06)	(0.07)	(0.29)	(0.42)
First Difference I(1)		-4.28	-9.64	85.49	643.33
		(0.00)	0.00)	(0.00)	(0.00)
Level I(0)	TO	-0.81	-0.33	9.45	10.30
		(0.2)	(0.33)	(0.48)	(0.41)
First Difference I(1)		-5.02	-4.59	39.46	65.35
		(0.00)	(0.00)	(0.00)	(0.00)

Notes: p-values in parenthesis. *** Indicates significance at 5%.

LLC: Levin, Lin & Chu; IPS: Im, Pesaran & Shin; ADF: Augmented Dickey–Fuller; PP: Phillips Perron;

H_0 : Existence of panel unit root i.e. non-stationarity; H_1 : Non-existence of panel unit root

Source: Computed from collected data using E-views12 student version.

TABLE 4: SECOND GENERATION PANEL UNIT ROOT TEST (CIPS*)

Variables/Lag s	Specification without trend			Specification with trend		
	Wt-bar	P- value**	Zt-bar	Wt-bar	P- value**	Zt-bar
EG (Lag 0)	-10.906	0.00	-5.998	-9.635	0.00	-5.90688
FD (Lag 0)	-6.845	0.00	-4.332	-6.645	0.00	-4.746
FDIG (Lag 0)	-16.2722	0.00	-8.2015	-15.198	0.00	-8.0657
TO (Lag 0)	-7.56	0.00	-4.625	-6.348	0.00	-4.631
T-bar critical values		1% level	-2.492	T-bar critical values	1% level	-3.122
		5% level	-2.188		5% level	-2.816
		10% level	-2.04		10% level	-2.666

*Cross sectionally dependent Im–Pesaran–Shin method; ** p-value is significant (Wt and Zt are the test statistics which are less than the critical value)

Ho: variable is non- stationary at I(1)

Source: Computed from collected data using E-views12 student version.

The output of the unit root test results in all types of unit root tests (Levin, Lin& Chu, Im, Pesaran & Shin, ADF-Fisher, PP-Fisher) as shown in the above table iii and iv, indicates that all the variables are not stationary at their level forms but they all attained stationery after taking their first differences I(1). This implies the possibility of cointegrating relationships among the variables used in the study. After confirming that all the variables are stationary, the researchers have undertaken Pedroni residual co-integration test, Kao residual cointegration test, Johansen Fisher panel cointegration test to examine the presence of a cointegrating relationship among the variables or existence of long-run association.

**TABLE 5: PEDRONI RESIDUAL COINTEGRATION TEST
AND KAO RESIDUAL COINTEGRATION TEST**

Type of Test	Method	Statistic	Decision
Pedroni Residual Cointegration Test	Panelv-Statistic	-0.77 (0.78)	Accept
	Panelrho-Statistic	-1.15 (0.12)	Accept
	Panel PPStatistic	-4.43 (0.00)	Reject
	Panel ADF-Statistic	-4.38 (0.00)	Reject
	Grouprho-Statistic	-0.61 (0.26)	Accept
	GroupPP-Statistic	-5.45 (0.00)	Reject
	GroupADF-Statistic	-5.34 (0.00)	Reject
Kao Residual Cointegration Test	ADF	-3.25 (0.00)	Reject

Notes: p-values in parenthesis indicate significance at 5%.

H₀: No cointegration; H₁: There is cointegration

Source: Computed from collected data using E-views12 student version.

From the above TABLE 5 it can be observed that under Pedroni residual cointegration test four out of seven statistics significantly reject the null-hypothesis of no cointegration, with the exception of the Panel v-Statistic, panel rho-statistic and group rho-statistic for all sample countries. Kao residual cointegration test also depicts that there exists cointegration. In general, the majority of the statistic tests, taking into consideration the 1% and 5% significance level, reject the null hypothesis of no cointegration. The analyzed variables move together in the long-run, so one can state that there is a long-run relationship among several variables under consideration like financial development, foreign direct investment, trade openness and economic growth.

TABLE 6: JOHANSEN FISHER PANEL COINTEGRATION TEST

Series: EG, FD, FDIG, TO				
Hypothesised No. of Cointegration(s)	Fisher Stat. (from Trace Test)	Prob.	Fisher Stat.* (from Max- Eigen Test)	Prob.
None	44.29	0.00	32.11	0.00
At most 1	21.58	0.01	17.56	0.06
At most 2	12.55	0.24	13.46	0.19
At most 3	5.60	0.84	5.60	0.84

P value Indicates significance at 5%.

H₀: No cointegration; H₁: There is cointegration

Source: Computed from collected data using E-views12 student version.

Further, the researchers conducted Johansen Fisher panel cointegration test as showcased in table 6. Both individual cross-section and common test results of trace tests and max-eigen test statistics show that there exists cointegration among the variables. In other words, a substantial relationship between the variables has been seen for the selected five economies under BRICS countries.

TABLE 7: PANEL CROSS-SECTION HETEROSKEDASTICITY LR TEST

Statistic	Value	df	Probability
Likelihood Ratio	27.65	5	0.00

P value Indicates significance at 5%.

H₀: Residuals are homoskedastic; H₁: There residuals are heteroskedastic

Source: Computed from collected data using E-views12 student version.

The above TABLE 7 shows the result of heteroscedasticity test. Since the *p* value (0.0000) of Likelihood Ratio is less than 0.05, the researchers reject the null hypothesis of homoscedasticity in the residual which is in favour of the alternative hypothesis that there exist heteroscedasticity in the residual.

TABLE 8: SERIAL CORRELATION LM TEST

Test	Statistic	df	Probability
Breusch-Pagan LM	65.67	10	0.00

P value Indicates significance at 5%.

H₀: No cross-section dependence (correlation) in residuals; H₁: There is cross-section dependence (correlation) in residuals

Source: Computed from collected data using E-views12 student version.

Here, serial correlation problem was checked by panel cross-section Breusch-Pagan LM test as depicted in the TABLE 8. The *p* value (0.0000) is less than 0.05 which leads to rejection of the null hypothesis of no serial correlation in the residual which is again in the favour of the alternative hypothesis that the model specification is serially correlated.

TABLE 9: PANEL EGLS

Dependent Variable: EG				
Method: Panel EGLS (Cross-section random effects)				
Swamy and Arora estimator of component variances				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.97	5.41	1.28	0.20
FD	-0.05	0.03	-1.67	0.09
FDIG	0.01	0.01	1.33	0.18
TO	12.89	11.69	1.10	0.27
Effects Specification			S.D.	Rho
Cross-section random			0.00	0.00
Idiosyncratic random			13.85	1.00

Source: Computed from collected data using E-views12 student version.

From the TABLES 7 and 8 it is found that there is an existence of serial correlation and heteroscedasticity in the panel dataset, hence another measurement tools for predicting a particular cointegrating vector in panel settings is EGLS has been conducted under the above circumstances and shown in the above table 9 which does not show any significant impact overall.

TABLE 10: PAIRWISE GRANGER CAUSALITY TEST

Null Hypothesis	Obs.	F-Statistic	Prob.	Direction of Causality
FD does not Granger Cause EG EG does not Granger Cause FD	105	1.77 6.07	0.17 0.00	Unidirectional causality
FDIG does not Granger Cause EG EG does not Granger Cause FDIG	105	0.56 1.05	0.57 0.35	No causality
TO does not Granger Cause EG EG does not Granger Cause TO	105	1.12 0.55	0.32 0.57	No causality
FDIG does not Granger Cause FD FD does not Granger Cause FDIG	105	0.34 0.60	0.70 0.54	No causality
TO does not Granger Cause FD FD does not Granger Cause TO	105	0.83 2.78	0.43 0.06	No causality
TO does not Granger Cause FDIG FDIG does not Granger Cause TO	105	0.34 4.23	0.70 0.01	Unidirectional causality

P value Indicates significance at 5%.

H₀: No Granger Causality; H₁: There is Granger Causality

Source: Computed from collected data using E-views12 student version.

Moreover, from the TABLE 10 it can be observed that economic growth via GDP growth was also found to Granger cause financial development. This indicates that lag values of GDP growth assists in predicting potential financial development. It sets instance of growth led finance which is indicative of increased demand for financial services like investment, loan, insurances, banking services etc with gradual growth of economy. On the contrary, economic growth not being granger caused by financial development is reflective of the fact that existing financial systems of economies failed nourish resource allocation, economic efficiency and investment which eventually heighten economic growth.

One of the findings from granger causality test suggests that foreign direct investment flow granger causes trade openness which sounds atypical and nonconforming, rather relationship and their direction might become more multifarious which may vary across economies and time horizon. Economic integration of an economy with global markets is made possible through investment flow, trade practices and international capital flow which is referred to as trade openness. Trade openness depends upon a variety of institutional, political and economic factors. A host of economic factors like trade policies, infrastructural development, and exchange rate fluctuations affect trade openness. On the other hand, several political and institutional factors like government's stability and policies, transparency, strong institutional quality and above all nature of bilateral and multilateral trade agreement become the deciding factors in the paving the way for smooth trade openness. So, it would be imprudent to pronounce that only foreign direct investment flows stand as a decisive factor in making congenial atmosphere for trade openness.

VI. CONCLUSION

The study finds that financial development, foreign direct investment, and trade openness have a long-run cointegrating relationship with economic growth in BRICS countries over the years from 2001 to 2023. The results are consistent with Rani and Kumar (2022) and Banday et al. (2021). The exploration of the impact of financial development, foreign direct investment, and trade openness on economic growth in BRICS countries is both timely and relevant. As these nations continue to assert their influence on the global economic landscape, understanding the mechanisms that underpin their growth trajectories is essential for the development of the selected economies. The marginal negative effect of financial development suggests possible inefficiencies in these economies need further scrutiny. While a

long-run relationship exists among the variables, the causal link from foreign direct investment growth to trade openness highlights the multifaceted nature of economic integration, influenced by institutional, political, and economic factors beyond FDI alone. The low explanatory power of the model indicates that other unexamined factors may be critical for growth. Policymakers in BRICS nations should focus on identifying these alternative drivers and refining financial and trade policies to foster sustainable economic development. BRICS authority must focus on stable business environment and also good governance which will encourage foreign capital inflow. The study is limited to BRICS countries; further comparative study with other emerging economies may be undertaken. Other variables like inflation, government expenditure, etc. were not taken into consideration, as the researchers tried to focus on the financial and external drivers of economic growth like FD, FDIG, TO as the main determinants of economic growth in the BRICS countries.

REFERENCES

- Alfaro, L., Chanda, A., Kalemli-Ozcan, S., & Sayek, S. (2004). FDI and Economic Growth: The Role of Local Financial Markets. *Journal of International Economics*, 64(1), 89-112.
- Arcand, J. L., Berkes, E., & Panizza, U. (2015). Too much finance? *International Monetary Fund Working Paper*.
- Arestis, P., & Demetriades, P. (1997). Financial Development and Economic Growth: Assessing the Evidence. *The Economic Journal*, 107(442), 783-799.
- Asiedu, E. (2002). On the Determinants of Foreign Direct Investment to Developing Countries: Is Africa Different?. *World Development*, 30(1), 107-119.
- Banday, U. J., Murugan, S., & Maryam, J. (2021). Foreign Direct Investment, Trade Openness and Economic Growth in BRICS Countries: Evidences from Panel Data. *Transnational Corporations Review*, 13(2), 211-221.
- Beck, T., Levine, R., & Loayza, N. (2000). Finance and the Sources of Growth. *Journal of Financial Economics*, 58(1-2), 261-300.
- Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How Does Foreign Direct Investment Affect Economic Growth? *Journal of International Economics*, 45(1), 115-135.

- Choi, I. (2001). Unit Root Tests for Panel Data. *Journal of International Money and Finance*, 20(2), 249-272.
- Chudik, A., & Pesaran, M. H. (2015). Common Correlated Effects Estimation of Heterogeneous Dynamic Panel Data Models with Weakly Exogenous Regressors. *Journal of Econometrics*, 188 (2), 393–420. <https://doi.org/10.1016/j.jeconom.2015.03.007>
- Edo, S., Osadolor, N. E., & Dading, I. F. (2020). Growing External Debt and Declining Export: The Concurrent Impediments in Economic Growth of Sub-Saharan African Countries. *International Economics*, 161, 173-187.
- Frankel, J. A., & Romer, D. (1999). Does Trade Cause Growth?. *American Economic Review*, 89(3), 379-399.
- Gupta, R., & Sharma, K. (2020). Financial Development and Economic Growth in BRICS Countries: Evidence from Panel Data Analysis. *International Journal of Finance & Economics*, 25(2), 158-171.
- Hasan, M. A., Frame, D. J., Chapman, R., & Archie, K. M. (2019). Emissions from the Road Transport Sector of New Zealand: Key Drivers and Challenges. *Environmental Science and Pollution Research*, 26(23), 23937-23957.
- Im, K. S., Pesaran, M. H., & Shin, Y. (2003). Testing for Unit Roots in Heterogeneous Panels. *Journal of econometrics*, 115(1), 53-74. doi:10.1016/S0304-4076(03)00092-7
- Johansen, S. (1988). Statistical Analysis of Cointegration Vectors. *Journal of Economic Dynamics and Control*, 12(2-3), 231-254.
- Kao, C. (1999). Spurious Regression and Residual-Based Tests for Cointegration in Panel Data. *Journal of Econometrics*, 90(1), 1-44.
- Kaur, N., & Singh, D. (2019). Trade Openness and Economic Growth in BRICS Nations: A Panel Data Analysis. *International Journal of Economic Perspectives*, 13(2), 200-211.
- Kose, M. A., Prasad, E. S., & Terrones, M. E. (2009). Does Openness to International Financial Flows Raise Productivity Growth?. *Journal of International Money and Finance*, 28(4), 554-580.

- Kumar, S., & Prakash, A. (2020). Foreign Direct Investment and Economic Growth in India: an Empirical Analysis. *Journal of Economic Policy and Research*, 15(1), 45-67.
- Levine, R. (2005). Finance and growth: Theory and evidence. In P. Aghion & S. Durlauf (Eds.), *Handbook of Economic Growth* (Vol. 1, pp. 865-934). Elsevier.
- Levin, A., Lin, C. F., & Chu, C. S. J. (2002). Unit Root Tests in Panel Data: Asymptotic and Finite-Sample Properties. *Journal of Econometrics*, 108(1), 1-24.
- Liu, Y., Wang, Y., & Wei, Y. (2020). Financial Development, Foreign Direct Investment, and Economic Growth: Evidence from BRICS Countries. *Economic Change and Restructuring*, 53(2), 443-464.
- Maddala, G. S., & Wu, S. (1999). A Comparative Study of Unit Root Tests with Panel Data and a New Simple Test. *Oxford Bulletin of Economics and statistics*, 61(S1), 631-652. <https://doi.org/10.1111/1468-0084.0610s1631>
- Menegaki, A. N. (2019). The ARDL method in the energy-growth nexus field; best implementation strategies. *Economies*, 7(4), 105. <https://doi.org/10.3390/economies7040105>
- Mustafa, G. (2023). The Dynamic Relationship between Financial Development, Economic Growth, Foreign Direct Investment and Trade Openness: Evidence from South Asian Countries. *Millennial Asia*, 14(3), 406-433. DOI: 10.1177/09763996221138465
- Pedroni, P. (1999). Critical Values for Cointegration Tests in Heterogeneous Panels with Multiple Regressors. *Oxford Bulletin of Economics and statistics*, 61(S1), 653-670. <https://doi.org/10.1111/1468-0084.0610s1653>
- Pedroni, P. (2004). Panel Cointegration: Asymptotic and Finite Sample Properties of Pooled Time Series Tests with an Application to the PPP Hypothesis. *Econometric theory*, 20(3), 597-625. DOI:10.1017/S0266466604203073
- Radmehr, R., Ali, E. B., Shayanmehr, S., Saghaian, S., Darbandi, E., Agbozo, E., & Sarkodie, S. A. (2022). Assessing the Global Drivers of Sustained Economic Development: The Role of Trade Openness, Financial Development, and FDI. *Sustainability*, 14(21), 14023. <https://doi.org/10.3390/su142114023>

- Rani, R., & Kumar, N. (2022). Does Foreign Direct Investment Facilitate Entrepreneurial Activities?. *Evidence from BRICS countries. FIIB Business Review*. DOI: 10.1177/23197145221078651
- Ricardo, D. (1821). *On the Principles of Political Economy*. London: J. Murray.
- Rodrik, D. (2001). The Global Governance of Trade as if Development Really Mattered. *The United Nations Development Programme*.
- Shahbaz, M., Shafiullah, M., Papavassiliou, V. G., & Hammoudeh, S. (2017). The CO2–Growth Nexus Revisited: A Nonparametric Analysis for the G7 Economies Over Nearly Two Centuries. *Energy Economics*, 65, 183-193.
- Shariff, N. S. M., & Hamzah, N. A. (2015). A Robust Panel Unit Root Test in the Presence of Cross Sectional Dependence. *Journal of Modern Applied Statistical Methods*, 14(2), 14.
- Zhang, K. H. (2001). Does Foreign Direct Investment Promote Economic Growth? Evidence from East Asia and Latin America. *Contemporary Economic Policy*, 19(2), 175-185.
- Zhang, Y., & Markusen, J. R. (1999). Vertical Specialization and Foreign Direct Investment. *International Trade Journal*, 13(2), 163-187.