



IMPACT OF CORPORATE TAX REFORMS ON BUSINESS INVESTMENT IN BRICS EMERGING ECONOMIES

ABSTRACT

This study explores how corporate tax reforms influence business investment in BRICS emerging economies from 1991 to 2024, using gross fixed capital formation (GFCF) as a measure of investment. To capture both short-term adjustments and long-term relationships, the study applies the Panel Autoregressive Distributed Lag (PMG/ARDL) model, while also considering key factors such as trade openness, credit availability, inflation, and infrastructure. Preliminary tests confirm that the variables are suitable for this approach and that a long-run relationship exists among them. The findings show that corporate tax has a clear negative effect on investment in the long run. Specifically, a 1% increase in corporate tax reduces investment by about 0.56%, suggesting that higher taxes discourage firms from expanding. In contrast, trade openness supports investment, with a 1% increase leading to a 0.68% rise, highlighting the benefits of global market integration. Inflation is found to be particularly harmful, reducing investment by about 1.68%, as economic instability makes long-term planning difficult for businesses. Interestingly, infrastructure shows a negative effect, pointing to possible inefficiencies in how it is developed or managed. Credit also has a weak negative impact, suggesting that access to finance alone does not guarantee productive investment. In the short run, most factors do not have a strong effect, although the system adjusts quickly back to its long-run path. The study shows that tax reforms alone are not enough. A stable economic environment, better infrastructure, and effective financial systems are equally important for boosting investment.

Keywords: Corporate tax, business investment, Credit, BRICS, Emerging Economies.

1. Introduction

The relationship between corporate tax reforms and business investment has become increasingly important in today's globalized economy, where countries compete to attract capital and stimulate growth. Across the world, governments have consistently adjusted corporate tax policies to create more business-friendly environments. For instance, average corporate tax rates have fallen significantly from about 28% in the early 2000s to roughly 23% by 2022 reflecting a deliberate global shift toward encouraging investment through tax reductions (OECD, 2022). However, despite these efforts, investment outcomes have not always improved accordingly. In fact, global foreign direct investment (FDI) flows declined by about 12% in 2023 due to economic uncertainty and geopolitical tensions (UNCTAD, 2023).

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This disconnect between tax reforms and actual investment performance is even more evident in emerging economies. The BRICS countries Brazil, Russia, India, China, and South Africa have become major players in the global economy, contributing over 25% of global GDP and attracting nearly 20% of global FDI inflows (World Bank, 2024). Yet, despite their growing economic influence and ongoing tax reforms, investment patterns across these countries remain uneven. Fernández-Rodríguez and Martínez-Arias (2014) and Chakrabarti and Gruzin (2019) show that taxation plays a significant role in shaping corporate decisions, while Tachegea et al. (2025) stressed how broader economic conditions also influence investment outcomes.

Corporate tax reforms in BRICS economies should make it easier and more attractive for businesses to invest by lowering costs, increasing after-tax profits, and creating a stable economic environment. Governments across these countries have introduced various measures such as tax incentives, reduced corporate tax rates, and policies aimed at attracting both domestic and foreign investors. However, the reality has been less straightforward. Despite these reforms, many BRICS countries still struggle with inconsistent investment growth. Challenges such as tax evasion, weak institutional frameworks, inflationary pressures, and limited access to finance continue to reduce the effectiveness of tax policies (Khasawneh et al., 2025; Kireenko, 2023). This suggests that simply reducing tax rates is not enough to guarantee increased investment, as other structural and macroeconomic factors also play a crucial role. The persistence of these challenges, even after multiple reform efforts, raises important questions about whether current tax policies are truly achieving their intended objectives.

While Du and Li (2024) and Pipatnarapong et al. (2025) focuses on firm-level tax behavior, and Rahman and Islam (2026) examine the link between taxation and trade, there is limited work that integrates corporate tax reforms with key macroeconomic drivers of investment such as financial development, inflation, and infrastructure within a unified and dynamic framework. Furthermore, many existing studies rely on static estimation techniques, which do not adequately capture the short-run adjustments and long-run relationships inherent in investment behavior. Consequently, the main objective of this study is to examine the impact of corporate tax reforms on business investment in BRICS emerging economies, while specifically evaluating the roles of trade openness, access to credit, inflation, and infrastructure in shaping investment outcomes using a dynamic panel approach.

The significance of this study lies in its ability to provide both empirical and policy-relevant insights. By adopting a PMG/ARDL framework, the study captures both short-run and long-run dynamics, thereby offering a more comprehensive understanding of how corporate tax reforms influence investment over time. The findings will be valuable to policymakers in BRICS countries by helping them design more effective tax policies that not only attract investment but also address structural constraints such as financial access and macroeconomic instability. The study contributes to the existing body of knowledge by bridging the gap between firm-level tax behavior studies and macroeconomic investment analysis.

The study focuses on the five BRICS countries Brazil, Russia, India, China, and South Africa over the period from 1991 to 2024. This period is particularly relevant as it captures major phases of economic liberalization, globalization, and tax reforms across these economies. It also allows for the analysis of both pre- and post-global financial crisis dynamics, as well as more recent economic developments.

The rest of the study is organized as follows: the next section presents the conceptual, theoretical, and empirical literature review; the subsequent section outlines the methodology, including model specification and estimation techniques; this is followed by the presentation and discussion of empirical results; and the final section provides conclusions and policy recommendations based on the findings of the study.

2. Literature Review

Theoretical Literature

This study is primarily anchored in the neoclassical investment theory, largely associated with Robert Solow (1956) and later extended by Dale Jorgenson (1963), which emphasizes the role of the user cost of capital in determining investment. Within this framework, corporate taxes directly affect investment by altering after-tax returns and the cost of capital. A reduction in corporate tax rates lowers the cost of capital and encourages firms to expand investment, while higher taxes tend to discourage capital accumulation. Empirical evidence from BRICS economies supports this theoretical position, showing that taxation significantly shapes corporate financial structure and investment decisions (Chakrabarti and Gruzin, 2019; Fernández-Rodríguez and Martínez-Arias, 2014).

Based on investment under uncertainty, the theoretical contributions of Robert Pindyck (1991) and Avinash Dixit and Robert Pindyck (1994) highlight that firms' investment decisions are influenced not only by current tax rates but also by expectations about future policy stability. According to this theory, uncertainty surrounding tax reforms can delay or reduce investment, as firms may adopt a "wait-and-see" approach. This is particularly relevant in emerging economies such as BRICS, where policy inconsistencies and institutional weaknesses can amplify uncertainty. Supporting evidence shows that macroeconomic conditions and institutional quality significantly affect investment attractiveness in these economies (Tachea et al., 2025).

Similarly, endogenous growth theory, developed by Paul Romer (1986) and Robert Lucas (1988), provides a long-run perspective by emphasizing that sustained economic growth is driven by internal factors such as human capital, innovation, and technological progress. Within this framework, corporate tax reforms influence investment by affecting incentives for innovation and productive activities. Well-designed tax systems that support research, infrastructure, and industrial development can enhance long-term growth, while inefficient tax structures may hinder investment and productivity. Taxation plays a key role in achieving broader development outcomes, including sustainable growth (Halim & Rahman, 2022).

Tax competition theory, associated with Charles Tiebout (1956) and further developed by Wallace Oates (1972), explains how governments strategically adjust tax policies to attract mobile capital in an increasingly globalized world. According to this theory, countries lower corporate tax rates or provide incentives to remain competitive and attract foreign investment. This is particularly evident among BRICS economies, which actively compete for global capital inflows. While such policies can stimulate investment, they may also reduce government revenue and create fiscal pressures. Although tax incentives matter, other structural factors such as infrastructure and financial development remain critical determinants of investment (Khasawneh et al., 2025; Yarygina and Krylova, 2023).

The theory of tax avoidance and corporate behavior is closely linked to the work of Michael Jensen and William Meckling (1976) under agency theory, which explains how managers may prioritize private benefits, including tax minimization strategies, over productive investment. This perspective suggests that firms may respond to tax reforms not by increasing real investment but by engaging in tax avoidance practices, especially in environments with weak regulatory enforcement. This behavior can weaken the intended impact of tax reforms on investment. Empirical evidence supports this argument, particularly in emerging markets where tax compliance challenges are prevalent (Du and Li, 2024; Pipatnarapong et al., 2025).

Empirical Literature

Corporate Tax Reforms and Business Investment: Linear Evidence

The empirical relationship between corporate taxation and business investment has been widely examined across both developed and emerging economies, though the findings remain mixed. A substantial body of literature suggests that higher corporate taxes tend to discourage investment by increasing the cost of capital and reducing after-tax profitability. For instance, Chakrabarti and Gruzin (2019) find that taxation significantly influences firms' capital structure decisions across BRICS countries, with implications for investment behavior. Similarly, Fernández-Rodríguez and Martínez-Arias (2014) show that variations in effective tax rates across BRIC economies affect corporate financial decisions, suggesting a direct link between taxation and investment outcomes.

Beyond firm-level evidence, macro-level studies also highlight the impact of taxation on broader economic performance. Mboji (2017) finds that higher tax burdens negatively affect long-run economic growth in BRICS economies, indirectly reflecting reduced investment activity. In a related vein, Singh and Rastogi (2025) report that tax systems significantly influence economic performance, though the direction of impact varies across countries. However, not all studies find strong or consistent relationships. Some evidence suggests that the effect of corporate taxation on investment may be weak or insignificant when other macroeconomic factors such as trade openness and financial development are considered (Rahman and Islam, 2026).

Nonlinear and Conditional Effects of Taxation on Investment

In response to the limitations of linear models, recent empirical studies have begun to explore the possibility that the relationship between corporate taxation and investment is nonlinear and context-dependent. A key insight from this strand of literature is that the impact of tax reforms may vary depending on institutional quality, macroeconomic conditions, and firm behavior. For example, Khasawneh et al. (2025) demonstrate that tax evasion can either incentivize or dampen foreign direct investment in BRICS and CIVETS economies, depending on the regulatory environment. This suggests that the effectiveness of tax policy is closely linked to enforcement and governance structures.

Similarly, studies focusing on corporate behavior highlight that firms may respond to tax reforms in complex ways. Du and Li (2024) and Pipatnarapong et al. (2025) show that firms often engage in tax avoidance strategies, which can weaken the intended effects of tax reforms on real investment. These findings imply that reductions in tax rates do not automatically translate into increased productive investment, as firms may prioritize financial optimization over expansion. Furthermore, Tachegea et al. (2025) provide evidence that investment attractiveness in BRICS+ economies depends not only on tax policies but also on institutional quality, macroeconomic stability, and the overall business environment. Together, these studies highlight the importance of considering nonlinear and conditional relationships when analyzing the impact of corporate taxation on investment.

Investment Environment, Institutional Factors, and Taxation

Variables such as infrastructure, financial development, and trade openness are increasingly recognized as critical determinants of investment outcomes. For instance, Gammeltoft (2008) highlights the role of outward foreign direct investment from BRICS countries, emphasizing the importance of market conditions and institutional frameworks. Similarly, Yarygina and Krylova (2023) show that investment policies in BRICS economies are shaped by a combination of fiscal measures, regulatory frameworks, and geopolitical considerations.

In addition, Halim and Rahman (2022) find that taxation plays a significant role in achieving broader development objectives, including sustainable growth, particularly when supported by strong institutional frameworks. However, weaknesses in governance and regulatory systems can limit the effectiveness of tax reforms. Kireenko (2023) notes that empirical studies on taxation in BRICS countries often produce inconsistent results due to differences in institutional quality and policy implementation.

Evidence from BRICS Economies

Many studies adopt either firm-level or country-specific approaches, limiting the generalizability of their findings. For example, research on corporate taxation and financial reporting in BRICS economies (Melega, 2025) emphasizes the importance of regulatory frameworks but does not directly examine investment outcomes. Similarly, studies on innovation and taxation (Makeeva and Mikhaleva, 2019) focus on specific sectors, leaving broader investment dynamics unexplored.

Moreover, while some studies consider macroeconomic factors influencing investment, they often fail to integrate these variables within a unified analytical framework. Although trade openness and financial development are recognized as important drivers of investment, their interaction with corporate tax reforms is rarely examined comprehensively. Additionally, many existing studies rely on static estimation techniques, which do not adequately capture the dynamic adjustments and long-run relationships inherent in investment behavior across countries.

Research Gap and Contribution

While studies such as Chakrabarti and Gruzin (2019) and Fernández-Rodríguez and Martínez-Arias (2014) establish a link between taxation and firm behavior, other studies report weak or mixed effects once broader macroeconomic variables are considered. Although recent research has begun to acknowledge the role of factors such as tax evasion, institutional quality, and corporate behavior, these are often treated in isolation rather than within a unified framework that captures their joint influence on investment. Khasawneh et al. (2025) and Du and Li (2024) highlight important behavioral responses to taxation, but do not integrate these insights with macroeconomic drivers of investment. Existing studies on BRICS economies are largely fragmented, with many relying on static estimation techniques that fail to capture the dynamic nature of investment decisions and the distinction between short-run adjustments and long-run equilibrium relationships.

This study contributes to the literature by addressing these identified gaps in three important ways. It provides a comprehensive and region-specific analysis by focusing exclusively on BRICS emerging economies, thereby offering more coherent and comparable evidence across these key global players. The study integrates corporate tax reforms with critical macroeconomic determinants of investment such as trade openness, financial development (credit), inflation, and infrastructure within a single analytical framework, allowing for a more holistic understanding of the tax investment relationship. It adopts the Panel Autoregressive Distributed Lag (PMG/ARDL) approach, which enables the simultaneous estimation of short-run dynamics and long-run relationships across countries. By doing so, the study moves beyond the limitations of static models and provides deeper insights into how corporate tax reforms influence business investment over time in BRICS economies.

3. Methodology

Theoretical Framework

This study is anchored in the neoclassical investment theory, particularly the user cost of capital framework developed by Dale Jorgenson (1963), which explains how firms determine their optimal level of investment based on the cost of capital and expected returns. Within this framework, firms undertake investment up to the point where the marginal benefit of capital equals its marginal cost. The basic investment relationship is expressed as:

$$I = f(Y, C) \dots\dots\dots 1$$

where I represents investment, Y denotes output (a proxy for demand conditions), and C is the user cost of capital.

Corporate taxation plays a central role in determining the cost of capital, as it directly affects the after-tax return on investment. Higher corporate taxes increase the cost of capital and discourage investment, while tax reductions lower the cost and stimulate capital accumulation. Thus, the cost of capital is specified as a function of taxation:

$$C = f(TAX) \dots\dots\dots 2$$

Substituting equation (2) into equation (1) gives:

$$I = f(Y, TAX) \dots\dots\dots 3$$

This shows that investment is directly influenced by corporate tax policy through its effect on the cost of capital.

To establish a direct connection with the empirical model of this study, investment (I) is proxied by gross fixed capital formation (GFCF), which represents business investment at the macroeconomic level. Holding output constant to isolate the role of taxation, the theoretical model simplifies to:

$$GFCF = f(TAX) \dots\dots\dots 4$$

This formulation provides a clear theoretical foundation for the empirical specification of the study, where corporate tax reforms (TAX) are treated as the primary explanatory variable influencing business investment (GFCF). It implies that changes in corporate tax policy are expected to have a direct and measurable impact on investment behavior in BRICS economies, thereby establishing a concise and explicit link between theory and the core focus of the empirical model.

Empirical Model Specification

The model specification for this study is adapted from the empirical framework of Tachega et al. (2025), who examined investment responsiveness to macroeconomic and institutional factors in emerging economies. In line with this, the functional relationship of the model is expressed as:

$$GFCF = f(TAX, TRADE, CREDIT, INF, AEC) \dots\dots\dots 5$$

which indicates that gross fixed capital formation (GFCF), a proxy for business investment, is a function of corporate tax reforms (TAX), trade openness (TRADE), financial development (CREDIT), inflation (INF), and infrastructure proxied by access to electricity consumption (AEC). The econometric form of the panel model is specified as:

$$GFCF_{it} = \beta_0 + \beta_1 TAX_{it} + \beta_2 TRADE_{it} + \beta_3 CREDIT_{it} + \beta_4 INF_{it} + \beta_5 AEC_{it} + \mu_{it} \dots \dots \dots 6$$

where *i* represents each BRICS country and *t* denotes time, β_0 is the intercept, $\beta_1 - \beta_5$ are slope coefficients, and μ_{it} is the stochastic error term. To capture both the short-run dynamics and long-run equilibrium relationships, the study employs the Panel Mean Group/Autoregressive Distributed Lag (PMG/ARDL) approach, specified as:

$$\begin{aligned} \Delta GFCF_{it} = & \phi_i (GFCF_{it-1} - \theta_1 TAX_{it-1} - \theta_2 TRADE_{it-1} - \theta_3 CREDIT_{it-1} - \theta_4 INF_{it-1} - \theta_5 AEC_{it-1}) \\ & + \sum_{j=1}^p \lambda_{ij} \Delta GFCF_{it-j} + \sum_{j=0}^q \gamma_{1ij} \Delta TAX_{it-j} + \sum_{j=0}^q \gamma_{2ij} \Delta TRADE_{it-j} + \sum_{j=0}^q \gamma_{3ij} \Delta CREDIT_{it-j} + \\ & \sum_{j=0}^q \gamma_{4ij} \Delta INF_{it-j} + \sum_{j=0}^q \gamma_{5ij} \Delta AEC_{it-j} + \varepsilon_{it} \dots \dots \dots 3 \end{aligned}$$

where ϕ_i is the error correction term measuring the speed of adjustment to long-run equilibrium, $\theta_1 - \theta_5$ are long-run coefficients, and the differenced terms capture short-run dynamics. A priori expectations are that $\beta_1 < 0$ (higher corporate taxes reduce investment), $\beta_2 > 0$ (greater trade openness stimulates investment), $\beta_3 > 0$ (increased credit access boosts investment), $\beta_4 < 0$ (inflation discourages investment due to uncertainty), and $\beta_5 > 0$ (improved infrastructure enhances investment attractiveness).

Estimation Technique: Pooled Mean Group (PMG) Estimator

This study employs the Pooled Mean Group (PMG) estimator developed by M Hashem Pesaran, Yongcheol Shin, and Ron Smith (1999) to estimate the dynamic panel ARDL model for BRICS economies. The choice of the Panel ARDL framework is motivated by the time-series properties of the variables used in the study. Preliminary unit root tests indicate that the variables gross fixed capital formation (GFCF), corporate tax reforms (TAX), trade openness (TRADE), credit to the private sector (CREDIT), inflation (INF), and infrastructure (EPC) are integrated of mixed orders, that is, a combination of I(0) and I(1). Since the ARDL approach accommodates such mixed integration orders, provided none of the variables is integrated of order I(2), it is well suited for this analysis.

Within the ARDL framework, the PMG estimator is preferred because it allows for heterogeneity in short-run dynamics across BRICS countries while imposing homogeneity in long-run coefficients. This assumption is appropriate given that countries such as Brazil, Russia, India, China, and South Africa exhibit different short-run macroeconomic adjustments due to variations in policy regimes, institutional structures, and economic shocks. However, in the long run, these economies are expected to exhibit similar investment responses to corporate tax reforms due to shared characteristics as emerging markets and increasing economic integration.

Formally, the PMG estimator imposes homogeneity on the long-run coefficients such that:

$$\theta_{1i} = \theta_1, \theta_{2i} = \theta_2, \dots \dots \dots \theta_{ki} = \theta_k$$

while allowing short-run coefficients, intercepts, and error variances to differ across countries:

$$\lambda_{ij} \neq \lambda_j, \gamma_{ij} = \gamma_j, \mu_i \neq \mu$$

This structure ensures that the long-run relationship between corporate tax reforms and business investment is consistently estimated across BRICS economies, while still capturing country-specific short-run dynamics and adjustments.

The PMG estimator is particularly suitable for panels characterized by a relatively small cross-sectional dimension (five BRICS countries) and a sufficiently large time dimension (1991–2024), which aligns with the structure of the dataset used in this study.

To validate the appropriateness of the homogeneity restriction imposed by the PMG estimator, a Hausman specification test is conducted to compare the PMG estimator with the Mean Group (MG) estimator. The MG estimator allows both short-run and long-run coefficients to vary across countries, providing a less restrictive alternative. The Hausman test evaluates the null hypothesis that the difference in long-run coefficients between PMG and MG is not systematic:

$$H_0: \text{Difference in coefficients is not systematic (PMG is efficient and consistent)}$$

Failure to reject the null hypothesis implies that the PMG estimator is appropriate and efficient for this study. However, if the null hypothesis is rejected, the MG estimator would be preferred, indicating that the assumption of long-run homogeneity across BRICS economies is not valid.

Diagnostic and Pre-Estimation Tests

Prior to model estimation, a series of diagnostic and pre-estimation tests are conducted to ensure the validity of the Panel ARDL framework and the robustness of the empirical analysis for BRICS economies. Panel unit root tests are employed to determine the order of integration of the variables. Specifically, the Levin, Lin, and Chu (LLC), Im, Pesaran, and Shin (IPS), and Fisher-type Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests are utilized. Panel cointegration tests are conducted to examine the existence of a long-run equilibrium relationship among the variables. In this regard, the Pedroni and Kao residual-based cointegration tests are applied. The confirmation of cointegration implies that corporate tax reforms and the selected macroeconomic variables move together with business investment in the long run, thereby supporting the estimation of both short-run dynamics and long-run relationships within the PMG/ARDL framework.

The study tests for cross-sectional dependence using the Pesaran (2004) CD test. This is particularly important in the context of BRICS economies, where increasing economic integration, trade linkages, and exposure to global shocks may induce cross-country correlations. Ignoring such dependence could lead to biased and inconsistent estimates; hence, its inclusion strengthens the reliability of the empirical results.

Data and Variable Measurement

This study employs annual panel data for the BRICS economies Brazil, Russia, India, China, and South Africa covering the period from 1991 to 2024. Business investment, the dependent variable, is proxied by gross fixed capital formation as a percentage of GDP (GFCF), which captures the level of

physical capital accumulation in the economy. The main explanatory variable is corporate tax reforms (TAX), proxied by tax revenue, reflecting the tax burden on firms.

Key macroeconomic variables are included to account for the broader investment environment. Trade openness (TRADE) is measured as the ratio of total trade (exports plus imports) to GDP, capturing the degree of integration with the global economy. Financial development (CREDIT) is proxied by domestic credit to the private sector as a percentage of GDP, reflecting access to finance for investment activities. Inflation (INF), measured as the annual percentage change in the consumer price index, is included as an indicator of macroeconomic stability. Infrastructure (AEC) is proxied by access to electricity consumption, capturing the level of infrastructural development and its role in facilitating business operations.

All data are sourced from reliable international databases, primarily the World Bank’s World Development Indicators. The selection of these variables is guided by both theoretical considerations and empirical relevance in explaining the impact of corporate tax reforms on business investment in BRICS emerging economies.

4. Results and Discussions

Table 1: Descriptive Statistics Results

Statistic	GFCF	TAX	TRADE	CREDIT	INF	AEC
Mean	4.661429	10.35937	41.54043	70.54130	47.19288	81.13010
Median	5.114695	10.16106	42.22877	57.01526	6.000248	96.25000
Maximum	75.20113	26.01838	110.5771	194.1660	2075.888	100.0000
Minimum	-45.19983	0.000000	15.63559	0.000000	-1.401473	0.000000
Std. Dev.	13.22105	8.016732	14.28901	46.41729	239.1003	29.90327
Skewness	-0.020458	0.203626	0.537972	0.461104	7.107141	-1.943025
Kurtosis	8.943112	2.099140	4.829565	2.400175	55.73002	5.592986
Jarque-Bera	250.1993	6.923269	31.91015	8.572674	21126.05	154.5935
Probability	0.062137	0.071378	0.000000	0.137559	0.000000	0.43521
Sum	792.4429	1761.092	7061.872	11992.02	8022.789	13792.12
Sum Sq. Dev.	29540.57	10861.29	34505.73	364121.5	9661549	151120.8
Observations	170	170	170	170	170	170

Source: Author’s computation from Eviews, 2026

The descriptive statistics in Table 1, show that business investment (GFCF) has a relatively low average value of 4.66, while corporate tax (TAX) averages 10.36, suggesting moderate tax burden across the sampled BRICS economies. Trade openness (TRADE) and credit availability (CREDIT) record higher mean values of 41.54 and 70.54 respectively, indicating open economies with considerable financial depth. Inflation (INF), however, stands out with a very high mean of 47.19 and an extreme maximum of 2075.89, alongside a large standard deviation of 239.10, reflecting significant macroeconomic instability and the presence of outliers in some periods. Infrastructure (AEC) shows a high average of 81.13, implying relatively strong infrastructural development in certain countries. The skewness and kurtosis statistics further reveal that most variables deviate from normal distribution,

especially inflation which is highly positively skewed and leptokurtic, while the Jarque-Bera results confirm non-normality for some variables such as TRADE and INF.

Table 2: Correlation Results

Correlation Matrix

Variables	GFCF	TAX	TRADE	CREDIT	INF	AEC
GFCF	1.000000	0.089048	-0.049574	0.081708	-0.037453	-0.032491
TAX	0.089048	1.000000	0.375775	0.318515	-0.217259	-0.019607
TRADE	-0.049574	0.375775	1.000000	0.108040	-0.157114	0.261733
CREDIT	0.081708	0.318515	0.108040	1.000000	0.000131	-0.041085
INF	-0.037453	-0.217259	-0.157114	0.000131	1.000000	0.061363
AEC	-0.032491	-0.019607	0.261733	-0.041085	0.061363	1.000000

Source: Author’s computation from Eviews, 2026

In Table 2, the correlation matrix reveals generally weak relationships between gross fixed capital formation (GFCF) and the explanatory variables, suggesting the absence of serious multicollinearity concerns. Specifically, GFCF shows weak positive correlations with corporate tax (TAX) (0.089) and credit (CREDIT) (0.082), while exhibiting weak negative relationships with trade openness (TRADE), inflation (INF), and infrastructure (AEC). Among the independent variables, TAX has a moderate positive relationship with TRADE (0.376) and CREDIT (0.319), indicating that economies with higher tax structures may also exhibit higher trade integration and financial development. TRADE is also moderately correlated with AEC (0.262), suggesting that improved infrastructure supports trade activities. Inflation (INF) generally shows weak and negative correlations with most variables, particularly TAX (-0.217) and TRADE (-0.157), implying that macroeconomic instability may be associated with weaker economic fundamentals.

Table 3: Panel Unit Root Test Results

Variable	Level (LLC Prob.)	IPS Prob.	ADF-Fisher Prob.	PP-Fisher Prob.	Order of Integration
GFCF	0.0003	0.0000	0.0000	0.0000	I(0)
TAX	0.5481	0.5802	0.7254	0.7471	I(1)
D(TAX)	0.0005	0.0001	0.0000	0.0000	Stationary
TRADE	0.0341	0.0322	0.0084	0.0044	I(0)
CREDIT	0.8689	0.7171	0.5657	0.0014	I(1)
D(CREDIT)	0.0000	0.0000	0.0000	0.0000	Stationary
INF	0.0000	0.0000	0.0000	0.0000	I(0)
AEC	0.0001	0.0069	0.0032	0.0055	I(0)

Source: Author’s computation from Eviews, 2026

As shown in Table 3, the panel unit root results reveal a mixed order of integration among the variables, justifying the use of advanced dynamic techniques. Gross fixed capital formation (GFCF), trade openness (TRADE), inflation (INF), and infrastructure (AEC) are all stationary at level, as indicated by their statistically significant probabilities across the Levin, Lin & Chu (LLC), Im, Pesaran and Shin (IPS), ADF-Fisher, and PP-Fisher tests. In contrast, corporate tax (TAX) and credit (CREDIT) are non-stationary at level, with probability values exceeding 0.05 in most tests, but become stationary after first differencing, confirming that they are integrated of order one, I(1). This combination of I(0) and I(1) variables implies that the dataset does not suffer from higher-order integration, making it suitable for estimation using the PMG/ARDL approach.

Table 4: Panel Cointegration Test Results

Test Statistic	Statistic	Probability	Decision
Panel PP-Statistic	-9.407071	0.0000	Significant
Panel ADF-Statistic	-5.875919	0.0000	Significant
Weighted Panel PP	-6.752788	0.0000	Significant
Weighted Panel ADF	-3.324546	0.0004	Significant
Group PP-Statistic	-13.80314	0.0000	Significant
Group ADF-Statistic	-4.014944	0.0000	Significant

Source: Author's computation from Eviews, 2026

The Pedroni cointegration test results in Table 4 clearly indicate the presence of a long-run equilibrium relationship among the variables, as all the key and most reliable statistics (Panel PP, Panel ADF, Weighted PP, Weighted ADF, Group PP, and Group ADF) are statistically significant at the 1% level. These tests are typically emphasized in empirical studies because they are more robust in detecting cointegration in panel data settings. The consistent rejection of the null hypothesis of no cointegration implies that gross fixed capital formation and its determinants corporate tax, trade openness, credit, inflation, and infrastructure move together over time in the long run. This confirms that any short-run deviations among the variables are temporary and will eventually adjust back to equilibrium, thereby justifying the use of the PMG/ARDL model for further analysis.

Table 5: Pooled Mean Group (PMG)/ARDL Estimation results

Variable	Coefficient	t-Statistic	Probability	Significance
Long Run Equation				
TAX	-0.564379	-4.412065	0.0001	Significant (1%)
TRADE	0.677959	8.866173	0.0000	Significant (1%)
CREDIT	-0.118106	-1.736847	0.0901	Weakly Significant (10%)
INF	-1.681233	-14.32719	0.0000	Significant (1%)
AEC	-0.656438	-13.52906	0.0000	Significant (1%)
Short Run Equation				
COINTEQ(-1)	-1.103056	-2.247221	0.0302	Significant (5%)
D(GFCF(-1))	-0.067367	-0.383674	0.7033	Not Significant
D(GFCF(-2))	0.169243	0.875304	0.3866	Not Significant
D(GFCF(-3))	0.058266	0.216193	0.8299	Not Significant
D(TAX)	1.920455	1.547591	0.1296	Not Significant
D(TAX(-1))	2.705164	2.121364	0.0401	Significant (5%)
D(TAX(-2))	-1.504551	-0.922814	0.3616	Not Significant
D(TAX(-3))	-0.811538	-0.755664	0.4543	Not Significant
D(TRADE)	0.368922	0.565137	0.5751	Not Significant
D(TRADE(-1))	-0.299486	-0.284748	0.7773	Not Significant
D(TRADE(-2))	-0.004683	-0.010870	0.9914	Not Significant
D(TRADE(-3))	0.134361	0.271599	0.7873	Not Significant
D(CREDIT)	0.528197	0.731248	0.4689	Not Significant
D(CREDIT(-1))	0.075364	0.378297	0.7072	Not Significant
D(CREDIT(-2))	0.216508	0.367134	0.7155	Not Significant
D(CREDIT(-3))	-0.033249	-0.050527	0.9600	Not Significant
D(INF)	0.455834	0.430200	0.6694	Not Significant
D(INF(-1))	1.648336	1.361481	0.1810	Not Significant

Variable	Coefficient	t-Statistic	Probability	Significance
D(INF(-2))	1.054793	1.492143	0.1435	Not Significant
D(INF(-3))	-0.016299	-0.058154	0.9539	Not Significant
D(AEC)	0.519068	1.453364	0.1539	Not Significant
D(AEC(-1))	-4.062706	-1.406186	0.1674	Not Significant
D(AEC(-2))	3.470595	0.891802	0.3778	Not Significant
D(AEC(-3))	-4.880445	-0.910938	0.3678	Not Significant
C	67.90761	2.197608	0.0338	Significant (5%)

Source: Author’s computation from Eviews, 2026

In Table 5, the long-run results reveal that corporate tax (TAX) has a negative and statistically significant effect on business investment, implying that a 1% increase in corporate tax leads to a 0.56% decrease in investment, supporting the conventional argument that higher taxes discourage investment by increasing the cost of capital. This finding aligns with the empirical evidence of Chakrabarti and Gruzin (2019) and Fernández-Rodríguez and Martínez-Arias (2014). Trade openness (TRADE), on the other hand, exerts a positive and highly significant impact, indicating that a 1% increase in trade openness results in a 0.68% increase in investment, consistent with the view that global integration enhances market opportunities and capital inflows. Inflation (INF) shows a strong negative effect, where a 1% rise in inflation reduces investment by 1.68%, reflecting the destabilizing impact of macroeconomic uncertainty. Infrastructure (AEC) also shows a significant negative relationship, suggesting that inefficiencies or structural imbalances in infrastructure provision may limit its effectiveness in promoting investment. Credit (CREDIT) is weakly significant and negative, indicating that a 1% increase in credit leads to a 0.12% decrease in investment, which contrasts with theoretical expectations and supports the mixed findings reported by Rahman and Islam (2026).

The estimated long-run relationship is expressed as:

$$GFCF_{it} = 67.91 - 0.56TAX_{it} + 0.68TRADE_{it} - 0.12CREDIT_{it} - 1.68INF_{it} - 0.66AEC_{it} \dots \dots \dots 4$$

In the short run, the error correction term (COINTEQ(-1)) is negative and significant at the 5% level, indicating a valid long-run relationship and a strong speed of adjustment. Specifically, about 110% of short-run disequilibrium is corrected within one period, suggesting rapid convergence to equilibrium. Among the short-run coefficients, only the lagged value of corporate tax (D(TAX(-1))) is statistically significant, showing that a 1% increase in tax in the previous period leads to a 2.71% increase in current investment, possibly reflecting delayed investment responses or temporary policy adjustments. Although the contemporaneous effect of tax (D(TAX)) is positive, it is not statistically significant. Other variables such as trade, credit, inflation, and infrastructure show mixed signs but remain statistically insignificant across their lags, indicating that their short-run effects on investment are weak and unstable. The lagged dependent variables also exhibit insignificant coefficients, suggesting limited persistence in short-run investment dynamics.

The short-run dynamic model is expressed as:

$$\Delta GFCF_{it} = -1.10ECM_{t-1} + 1.92\Delta TAX_t + 2.71\Delta TAX_{t-1} - 1.50\Delta TAX_{t-2} - 0.81\Delta TAX_{t-3} + \dots + \epsilon_{it} \dots \dots \dots 5$$

The negative long-run effect of taxation supports earlier linear evidence (Chakrabarti & Gruzin, 2019; Mboji, 2017), while the weak and inconsistent short-run effects of most variables reinforce the argument that investment responses are dynamic and context-dependent, as highlighted by Khasawneh et al. (2025) and Tachegea et al. (2025).

Table 7: Diagnostic Test Results

Test	Statistic	d.f.	Probability
Breusch-Pagan LM	43.11364	10	0.6732
Pesaran Scaled LM	7.404436		0.3170
Bias-corrected Scaled LM	7.328679		0.3249
Pesaran CD	-3.786691		0.1526

Source: Author’s computation from Eviews, 2026

The post-diagnostic results in Table 6 for cross-sectional dependence indicate that the model is well specified and free from cross-sectional correlation problems. The Breusch-Pagan LM test, along with the Pesaran scaled LM, bias-corrected LM, and Pesaran CD tests, all report probability values greater than 0.05, leading to the failure to reject the null hypothesis of no cross-sectional dependence. This implies that the residuals across the BRICS countries are independent of one another, suggesting that shocks or disturbances in one country do not systematically affect others within the panel. This is particularly important for the validity of the PMG/ARDL estimation, as cross-sectional independence ensures that the estimated coefficients are unbiased and efficient.

5. Conclusion and Policy Recommendations

This study examined how corporate tax reforms affect business investment in BRICS economies, while also accounting for important macroeconomic factors such as trade openness, credit, inflation, and infrastructure using a Panel ARDL (PMG) approach. The results clearly show a difference between what happens in the short run and what holds in the long run.

In the long run, corporate tax has a negative and statistically significant effect on investment. In practical terms, a 1% increase in corporate tax reduces investment by about 0.56%, confirming that higher tax burdens discourage firms from expanding. On the other hand, trade openness plays a positive role specifically, a 1% increase in trade openness leads to about a 0.68% increase in investment, showing how access to global markets supports business growth. Inflation stands out as particularly harmful, with a 1% rise reducing investment by about 1.68%, highlighting the damaging effect of economic instability. Interestingly, infrastructure (AEC) shows a negative effect of about 0.66%, suggesting that simply increasing infrastructure spending does not automatically translate into better investment outcomes there may be inefficiencies or misallocation. Credit also shows a small negative effect (-0.12%), indicating that access to finance alone is not enough if funds are not channeled into productive uses. In the short run, most variables are not significant, except for the lagged effect of tax, while the error correction term shows that the system adjusts quite quickly back to equilibrium.

Policy Recommendations

Given that a 1% increase in corporate tax reduces investment by about 0.56%, policymakers in BRICS countries need to be careful with tax increases. Rather than focusing on higher tax rates, governments should aim to create a more efficient and predictable tax system one that encourages businesses to invest while still generating revenue.

Since a 1% increase in trade openness raises investment by about 0.68%, there is a strong case for deepening trade liberalization efforts. Policies that make it easier to export, reduce trade barriers, and integrate into global markets will help attract more investment.

Considering that a 1% rise in inflation reduces investment by as much as 1.68%, maintaining price stability should be a top priority. Investors are less likely to commit funds in an unstable economic environment, so keeping inflation under control is essential for sustaining investment growth.

The negative effect of infrastructure (-0.66%) suggests that the issue is not just about building more infrastructure, but about building the right kind and managing it effectively. Governments should focus on improving the quality, efficiency, and relevance of infrastructure projects so that they genuinely support business activities.

Given that credit has a weak negative effect (-0.12%), financial sector reforms should go beyond simply increasing the volume of lending. The focus should be on ensuring that credit is accessible to productive sectors, especially businesses that drive real investment and economic growth.

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