FINANCIAL DEEPENING, GLOBAL EXPOSURE, AND ECONOMIC PERFORMANCE IN NON-OECD DEVELOPED ECONOMIES: EVIDENCE FROM DYNAMIC COMMON CORRELATED EFFECTS ESTIMATION

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Abstract: *This study investigates the dynamic relationships among financial development, globalization, foreign direct investment (FDI), investment rates, and economic performance in 27 non-OECD developed economies over the period 1995–2024. Anchored on the endogenous growth framework, the study employs panel econometric techniques including pooled ordinary least squares (POLS), fixed effects (FE), Pesaran Cross-sectional Dependence (CD) tests, and the Dynamic Common Correlated Effects (DCCE) estimator to account for heterogeneity and cross-sectional dependence. Descriptive statistics indicate relatively high levels of globalization and financial development across the sampled economies, while the Pesaran CD results confirm significant cross-sectional dependence among all variables at the 1% significance level. The POLS results reveal that investment rate, financial development, and globalization positively and significantly influence GDP per capita, whereas FDI exhibits a negative short-run effect. Under the fixed effects model, human capital and investment rate maintain significant positive effects on growth. However, the DCCE estimation shows that investment rate remains positively significant, while financial development exerts a weak negative effect after accounting for dynamic heterogeneity and common global shocks. The lagged GDP per capita coefficient (1.0115) further confirms strong growth persistence across countries. Sensitivity analysis demonstrates that the estimated relationships remain stable after excluding crisis periods, indicating robustness of the findings. The study concludes that financial deepening, productive investment, and globalization remain important determinants of economic performance, although their effects depend significantly on institutional quality, macroeconomic stability, and the capacity of economies to absorb external shocks. The study recommends stronger financial sector regulation, investment-friendly policies, institutional strengthening, and coordinated macroeconomic frameworks to sustain long-run growth in non-OECD developed economies.*

Keywords: *Financial Development; Foreign Direct Investment; Economic Growth; Cross-Sectional Dependence; Dynamic Common Correlated Effects.*

JEL Classification: *O16; E44; F43*

1. Introduction

The increasing interdependence of national economies through trade openness, foreign direct investment (FDI), and financial integration has intensified scholarly

interest in understanding the channels through which these factors influence growth outcomes. Early theoretical and empirical contributions established that globalization can stimulate productivity, capital accumulation, and technological diffusion, thereby enhancing long-run economic growth (Borensztein et al., 1998; Dreher, 2006a). More recent studies emphasize that financial development improves resource allocation efficiency and strengthens the absorptive capacity of economies to benefit from foreign capital inflows (Chen & Kim, 2023; He & You, 2024).

The relationship between FDI and economic growth has generated extensive empirical debate across different regions and income groups. Several studies argue that FDI contributes positively to economic growth through technology transfer, managerial spillovers, and increased productivity (Nguyen, 2020). Similarly, Makki and Somwaru (2004) contend that trade openness and foreign investment jointly stimulate economic expansion when supported by appropriate domestic investment conditions. However, empirical findings remain mixed, as some studies suggest that the benefits of FDI depend on the quality of financial institutions, human capital, and investment climate conditions (Abor et al., 2024; Yao et al., 2023). Although prior studies have concentrated largely on developing or emerging economies, limited attention has been devoted to non-OECD developed economies despite their increasing participation in global financial markets. This creates an important research gap concerning whether financial deepening and foreign capital inflows exert similar effects in relatively advanced but institutionally heterogeneous economies.

Globalization has also emerged as a significant determinant of economic performance through its influence on trade, capital mobility, and technological advancement. Dreher (2006a) demonstrates that globalization positively affects growth by facilitating economic openness and international integration, while Shittu et al. (2020) argue that governance quality mediates the growth effects of globalization. Contemporary evidence further suggests that globalization enhances competitiveness and financial efficiency when accompanied by sound institutional frameworks (Petrakos & Topaloglou, 2023; Qamruzzaman & Jianguo, 2023). Nonetheless, globalization may produce uneven economic outcomes due to structural disparities across countries, especially in economies exposed to external shocks and volatile capital movements. Existing literature has predominantly examined globalization-growth relationships using conventional panel estimation techniques that often ignore cross-sectional dependence and heterogeneity. There remains inadequate understanding of how global interconnectedness affects GDP per capita in non-OECD developed economies when cross-country interdependencies are properly accounted for.

Another important concern in panel macroeconomic analysis is the existence of cross-sectional dependence arising from global economic shocks, financial contagion, and interconnected trade structures. Economies integrated through financial and trade channels are likely to exhibit correlated disturbances, making traditional estimation methods potentially biased and inconsistent. Recent methodological advances recommend the use of dynamic common correlated effects (DCCE) estimators to address cross-sectional dependence and slope heterogeneity in panel datasets (Chen & Kim, 2023; He & You, 2024). Despite these developments, many studies on financial development and globalization continue

to rely on first-generation panel techniques that assume cross-sectional independence.

The present study seeks to achieve three major objectives. First, the study examines the impact of financial development, globalization, foreign direct investment, and investment rates on GDP per capita in non-OECD developed economies. Second, it investigates the presence of cross-sectional dependence and long-run dynamic relationships among macroeconomic and financial variables across the selected countries. Third, the study evaluates the robustness and sensitivity of the estimated growth relationships using alternative estimation techniques and crisis-period exclusions. These objectives are motivated by the need to provide more reliable evidence on the macroeconomic implications of global integration and financial deepening in economies that are often overlooked in comparative growth literature. By focusing specifically on non-OECD developed economies, the study contributes to the growing literature on heterogeneous growth experiences under globalization and financial openness.

2. Literature Review

The relationship between financial deepening and economic performance has remained one of the central discussions in development economics. Financial deepening refers to the expansion, efficiency, and accessibility of financial institutions and markets that facilitate productive investment and economic transactions. Qiu (2024) argues that financial deepening enhances growth by improving credit allocation efficiency and reducing financial frictions in emerging economies operating under currency board systems. Similarly, Oyadeyi (2024) finds that financial sector development strengthens monetary policy transmission and supports macroeconomic stability through improved capital mobilization. In high-income economies, Szücs and Tóth (2024) reveal that developed financial systems significantly attract foreign direct investment by reducing investment uncertainty and transaction costs. Ofori-Sasu et al. (2024) further demonstrate that financial globalization and digital financial systems contribute positively to wealth accumulation and economic productivity.

Foreign direct investment has equally received considerable attention as a catalyst for economic growth and structural transformation. Borensztein et al. (1998) maintain that FDI promotes economic growth through technology diffusion and managerial spillovers, especially where recipient countries possess sufficient absorptive capacity. Ben Mim et al. (2022) extend this argument by emphasizing the role of industrialization and institutional preparedness in maximizing the developmental benefits of FDI inflows. Likewise, Li and Tanna (2019) show that FDI contributes to productivity enhancement by facilitating innovation and technological upgrading in domestic industries. Contemporary evidence by Fazaalloh (2024) indicates that FDI positively affects economic growth in Indonesia through employment generation and industrial expansion. In addition, Chaplyuk et al. (2022) report that foreign investment significantly improved Algeria's economic performance through capital accumulation and increased productive activities. These studies collectively reinforce the argument that FDI serves as an important mechanism for stimulating economic growth and competitiveness.

Globalization has become increasingly important in explaining variations in economic growth across countries.

Several empirical studies have examined the nexus among globalization, financial development, and foreign investment within broader growth frameworks. Muhammad and Khan (2021) report that globalization and FDI jointly stimulate economic growth through increased trade integration and financial openness. Likewise, Qamruzzaman and Jianguo (2023) find that financial development strengthens the positive impact of globalization on FDI inflows and long-run economic performance. Taşdemir (2023) also demonstrates that financial globalization positively influences growth when supported by strong governance structures and efficient domestic financial systems. In another study, Tsimisaraka et al. (2023) establish that financial inclusion and globalization contribute significantly to sustainable economic growth through improved access to financial resources.

The relationship between trade openness, globalization, and foreign investment has also received growing scholarly attention. Rahman and Alam (2024) argue that trade openness encourages FDI inflows by improving market accessibility and reducing transaction barriers for multinational firms. Similarly, Kgomo and Zhanje (2024) find that trade liberalization significantly enhances South Africa's attractiveness to foreign investors by expanding export opportunities and improving market integration. Nguyen (2020) equally demonstrates that trade and FDI exert complementary effects on economic growth in Asian economies. Furthermore, Makki and Somwaru (2004) reveal that economies with higher levels of trade openness and investment integration experience stronger growth performance due to increased efficiency and technological transfer. Zhang et al. (2024) additionally observe that institutional quality moderates the relationship between globalization and FDI inflows, implying that openness alone may not guarantee sustainable economic outcomes.

Another important dimension in the literature concerns the environmental and sustainability implications of globalization and foreign investment. Ahmad et al. (2023) argue that globalization and information communication technology influence environmental sustainability through changes in industrial production and energy consumption patterns. Similarly, Gök et al. (2024) find that FDI inflows significantly affect carbon emissions depending on the environmental regulations and industrial structures of host economies. Rjoub et al. (2023) also identify a strong relationship among globalization, renewable energy investment, and foreign capital flows in promoting sustainable development. Yu et al. (2025) further maintain that FDI contributes to sustainable development when directed toward environmentally responsible sectors and innovation-driven industries. In Belt and Road economies, Jijian et al. (2021) reveal that trade and foreign investment increase environmental pressures while simultaneously supporting industrial modernization. These findings suggest that globalization and financial openness possess both developmental and environmental consequences that policymakers must balance carefully.

The determinants of globalization and foreign investment have equally generated substantial academic interest. Naz and Ahmad (2018) identify institutional quality, political stability, and technological advancement as major drivers of globalization across developing economies. Likewise, Faruq (2023) emphasizes that macroeconomic stability, market size, and infrastructural quality significantly influence FDI inflows in emerging Asian economies. Adeosun and Ajibola (2023) further show that FDI enhances economic complexity by promoting industrial diversification and technological upgrading in emerging economies. Kurniawati (2020) also finds that information communication technology strengthens the

positive effects of globalization on economic growth by facilitating digital connectivity and innovation. Okwu et al. (2020) report that foreign investment contributes positively to growth in integrated economies with favorable business environments. Methodological issues remain central to empirical debates on globalization, financial development, and economic growth. Traditional panel estimation techniques often assume cross-sectional independence despite increasing global interconnectedness among economies. He and You (2024) argue that financial convergence and growth dynamics are better captured through advanced panel methods that account for heterogeneity and interdependence. Chen and Kim (2023) similarly demonstrate that threshold effects and directional heterogeneity significantly influence the relationship between financial integration and growth.

3. Methodology

This study is grounded in the endogenous growth theory, which posits that long-run economic growth is driven by internal economic mechanisms such as financial development, investment accumulation, technological innovation, and human capital formation. The theory argues that globalization and foreign direct investment facilitate productivity enhancement through technology transfer and capital mobility across economies. Empirical studies by Borensztein et al. (1998), Li and Liu (2005), and Qamruzzaman and Jianguo (2023) support the view that financial openness and FDI stimulate growth when supported by efficient domestic institutions and financial systems. The theoretical relationship underlying the study is expressed through the augmented endogenous growth function:

$$GDPK_{it} = f(FNDV_{it}, NFDI_{it}, GLOB_{it}, INVR_{it}, HCAP_{it}, UPOP_{it}) \quad (1)$$

The estimable panel growth equation is subsequently specified as:

$$GDPK_{it} = \beta_0 + \beta_1 FNDV_{it} + \beta_2 NFDI_{it} + \beta_3 GLOB_{it} + \beta_4 INVR_{it} + \beta_5 HCAP_{it} + \beta_6 UPOP_{it} + \mu_i + \lambda_t + \varepsilon_{it} \quad (2)$$

where GDPKrepresents GDP per capita, FNDVdenotes financial development, NFDIcaptures net foreign direct investment inflows, GLOBmeasures globalization, INVRrepresents investment rate, HCAPdenotes human capital development, and UPOPcaptures urban population growth. The parameters μ_iand λ_trepresent country-specific and time-specific effects respectively, while ε_itis the stochastic error term. The selected variables are justified by previous empirical studies emphasizing their relevance in explaining growth performance across globally integrated economies (Makki & Somwaru, 2004; Ofori-Sasu et al., 2024; Szücs & Tóth, 2024).

The study utilizes balanced annual panel data covering 27 non-OECD developed economies over the period 1995–2024, yielding a total of 810 observations. Data for GDP per capita, investment rate, urban population, and net FDI inflows are sourced from the World Development Indicators database of the World Bank. Financial development indicators are obtained from the International Monetary Fund Financial Development Database, while globalization indicators are sourced from the KOF Globalization Index developed by the Swiss Economic Institute. Human capital data are extracted from the Penn World Table and Barro-Lee educational attainment datasets. These databases are widely used in empirical growth literature due to their consistency, reliability, and comparability across countries.

To determine stationarity properties, the Fisher-type Augmented Dickey-Fuller (ADF) panel unit root test is employed because it accommodates heterogeneous autoregressive structures across cross-sectional units. The Fisher ADF statistic is expressed as:

$$P = -2 \sum_{i-1}^{N} \ln (p_i) \quad (3)$$

where $p_i$represents the probability value of the individual unit root test for country i . The adoption of panel unit root testing is consistent with the approaches of Chen and Kim (2023) and He and You (2024), who emphasize the importance of stationarity testing in dynamic panel estimation.

To examine the presence of cross-sectional dependence arising from globalization and integrated financial markets, the study employs the Pesaran Cross-sectional Dependence (CD) test. The test is particularly appropriate because economic shocks in one country may spill over to other countries through trade, financial, and investment linkages. The Pesaran CD statistic is specified as:

$$CD = \sqrt{\frac{2T}{N(N-1)}} \sum_{i=1}^{N-1} \sum_{j=i+1}^{N} \hat{\rho}_{ij} \quad (4)$$

where $\hat{\rho}_{ij}$ denotes the pairwise correlation coefficient of residuals across countries. The results reported in

To estimate the growth model, the study initially employs pooled ordinary least squares (POLS) and fixed effects (FE) estimators as benchmark models. The pooled OLS estimator assumes homogeneous slope coefficients across countries, whereas the fixed effects estimator controls for unobserved country-specific heterogeneity that may bias the estimated relationships. The fixed effects model is represented as:

$$GDPK_{it} = \alpha_i + \beta_1 FNDV_{it} + \beta_2 NFDI_{it} + \beta_3 GLOB_{it} + \beta_4 INVR_{it} + \beta_5 HCAP_{it} + \beta_6 UPOP_{it} + \varepsilon_{it} \quad (5)$$

The DCCE model incorporates cross-sectional averages of the dependent and explanatory variables to control for unique shocks and interdependencies across economies. The DCCE specification is expressed as:

$$GDPK_{it} = \alpha_i + \phi_i GDPK_{it-1} + \beta_i X_{it} + \gamma_i \bar{Z}_t + \varepsilon_{it} \quad (6)$$

where $GDPK_{it-1}$denotes the lagged dependent variable, X_{it}represents the vector of explanatory variables, and $\bar{Z}_t$captures cross-sectional averages accounting for unobserved common effects. To ensure robustness and reliability of the estimated relationships, post-estimation diagnostic tests and sensitivity analyses are conducted. The Durbin-Watson statistic is employed to examine serial correlation, while the Jarque-Bera statistic evaluates the normality of residual distributions.

4. Results and Implications

4.1. Results

The descriptive statistics and panel unit root results reported in Table 1 provide important preliminary insights into the macroeconomic and financial characteristics of the sampled non-OECD developed economies. The mean value of GDP per capita indicates that the selected economies maintain relatively high income levels despite their exclusion from the OECD category. This supports the argument

advanced by Han (2025) that several non-OECD developed economies have achieved substantial economic advancement through export-oriented industrialization and financial openness. The average globalization index suggests strong integration into global trade and financial systems, reflecting increasing economic interconnectedness consistent with the findings of Cevik (2025) and Petrakos and Topaloglou (2023).

The Fisher ADF panel unit root results indicate that most variables are stationary at conventional significance levels, except GDP per capita and urban population, which initially appear non-stationary. The stationarity of financial development, globalization, investment rate, and FDI suggests stable long-run relationships among these variables, supporting the arguments of He and You (2024) and Chen and Kim (2023) regarding convergence dynamics in financially integrated economies. The non-stationary behavior of GDP per capita may reflect persistent growth trajectories and structural changes associated with globalization and long-term development processes.

Figure 1 presents the long-run trends of the principal variables used in the study between 1995 and 2024. The financial development index (FNDV) displays a generally upward trajectory, rising from approximately 0.42 in the mid-1990s to around 0.65 by the end of the sample period. This trend reflects the gradual deepening of financial systems and increased integration of non-OECD developed economies into global financial markets, consistent with the arguments of Ofori-Sasu et al. (2024) and Taşdemir (2023). GDP per capita (GDPK) also records sustained growth over time, increasing steadily despite temporary slowdowns around global crisis periods.

There is notable variation in foreign direct investment inflows (NFDI), investment rate (INVR), human capital (HCAP), and urban population (UPOP). NFDI fluctuates considerably across the sample period, with sharp increases during periods of stronger global capital mobility and abrupt declines during episodes of external instability. This volatility supports the findings of Khan et al. (2024), Yao et al. (2023), and Zhang et al. (2024), who emphasize that institutional quality and investment climates strongly influence the direction and stability of international capital flows. By contrast, HCAP and UPOP display smooth and persistent upward movements, indicating gradual improvements in educational attainment and urbanization across the sampled economies. Such trends reinforce the endogenous growth arguments of Li and Liu (2005), which identify human capital accumulation as a critical channel for productivity enhancement and technological absorption. The investment rate exhibits moderate cyclical fluctuations but remains relatively stable overall.

Table 1: Descriptive Statistics and Panel Unit Root Tests

Variable	Mean	Std. Dev.	Fisher ADF (χ^2)	p-value
FNDV	0.609	0.219	64.37	0.0000
GDPK	33818.0	18369.1	21.52	0.3672
NFDI	4.348	9.533	101.93	0.0000
GLOB	79.579	8.256	85.51	0.0000
INVR	22.727	3.839	46.49	0.0007
HCAP	3.132	0.437	37.77	0.0094
UPOP	74.796	10.967	14.33	0.8135

Source: Author (2026)

Table 2 strongly reject the null hypothesis of cross-sectional independence for all variables at the 1% significance level. The high CD statistics for globalization, financial development, and GDP per capita indicate that shocks affecting one economy are rapidly transmitted across other economies within the sample. This outcome reflects the increasing interconnectedness of global financial and trade systems emphasized by Wang et al. (2025) and Qamruzzaman and Jianguo (2023). Financial integration and capital mobility often create synchronized economic responses, particularly among countries exposed to common global market conditions and geopolitical risks.

Table 2: Cross-Sectional Dependence Test (Pesaran CD)

Variable	CD Statistic	p-value
FNDV	12.868	0.0000
GDPK	16.298	0.0000
NFDI	3.661	0.0003
GLOB	18.222	0.0000
INVR	3.139	0.0017
HCAP	17.375	0.0000
UPOP	8.762	0.0000

Source: Author (2026)

The pooled OLS results presented in Table 3 indicate that investment rate (INVR), financial development (FNDV), and globalization (GLOB) exert positive and statistically significant effects on GDP per capita. The positive coefficient of investment rate confirms the traditional growth theory proposition that higher domestic investment stimulates capital accumulation and productivity expansion. This finding supports the empirical evidence of Makki and Somwaru (2004), who argue that investment accumulation enhances productive capacity and long-run growth performance. Likewise, Nguyen (2020) and Dabwor et al. (2022) observe that economies characterized by higher investment intensity and trade openness tend to experience stronger growth outcomes. The significant positive relationship between globalization and GDP per capita also suggests that economic integration improves market access, technological diffusion, and productive efficiency. This result is consistent with Dreher (2006a), Muhammad and Khan (2021), and Kurniawati (2020), all of whom conclude that globalization stimulates economic expansion through enhanced trade and financial connectivity.

The positive and highly significant effect of financial development under the pooled OLS model demonstrates that financial deepening remains a critical determinant of economic performance in non-OECD developed economies. The magnitude of the coefficient suggests that improvements in financial systems significantly raise GDP per capita through enhanced access to credit, increased investment financing, and greater financial intermediation efficiency. This finding supports the arguments advanced by Qiu (2024), Oyadeyi (2024), and Orebiyi et al. (2025), who emphasize that financial sector expansion promotes growth by improving capital allocation and facilitating productive investments. Furthermore, Szücs and Tóth (2024) argue that developed financial systems strengthen investor confidence and attract foreign capital inflows, thereby reinforcing domestic growth processes.

The fixed effects estimation results provide additional insights by controlling for unobserved country-specific heterogeneity. Under the fixed effects model, human capital becomes strongly positive and statistically significant, indicating that improvements in education and skill development substantially enhance economic performance. This finding supports the endogenous growth perspective advanced by Li and Liu (2005), which identifies human capital as a crucial mechanism through which economies absorb technological spillovers and improve productivity. Similarly, Adeosun and Ajibola (2023) argue that human capital facilitates economic complexity and industrial diversification in globally integrated economies. The continued significance of investment rate under the fixed effects specification further reinforces the role of domestic capital accumulation in sustaining growth. Nevertheless, the coefficient of globalization loses statistical significance under fixed effects estimation, suggesting that the impact of globalization may vary considerably across countries depending on institutional structures and policy environments. Rodrik (2007) similarly contends that globalization does not automatically produce positive outcomes unless supported by appropriate domestic economic policies and governance quality.

The Dynamic Common Correlated Effects (DCCE) results provide the most robust estimates because they account for cross-sectional dependence and dynamic heterogeneity across countries. The inclusion of the lagged GDP per capita variable with a coefficient exceeding unity indicates strong persistence in economic growth trajectories among the sampled economies. This finding supports the convergence arguments of He and You (2024), who observe that growth dynamics in financially integrated economies exhibit substantial persistence due to structural interdependencies. The DCCE results further reveal that investment rate remains positively significant, indicating that domestic investment continues to stimulate growth even after controlling for common global shocks and heterogeneous country effects. However, financial development becomes weakly negative under the DCCE model, suggesting that excessive financial expansion may create inefficiencies or speculative distortions in certain economies. Similar concerns are raised by Taşdemir (2023) and Wang et al. (2025), who caution that rapid financial globalization without adequate regulatory frameworks may increase systemic vulnerabilities and reduce productive efficiency.

The DCCE estimates also indicate that foreign direct investment exerts a positive, though weakly significant, effect on GDP per capita after accounting for cross-sectional dependence. This outcome suggests that the adverse effects observed under pooled OLS may largely reflect omitted common shocks and heterogeneous structural conditions. The positive long-run contribution of FDI supports the findings of Fazaalloh (2024), Chaplyuk et al. (2022), and Yu et al. (2025), who argue that foreign investment enhances growth through technological transfer, employment generation, and industrial upgrading when macroeconomic conditions remain stable. The weak significance of globalization under the DCCE model may imply diminishing marginal returns to global integration among highly open economies. According to Cevik (2025), economies deeply integrated into global systems may become increasingly vulnerable to geopolitical disruptions and external financial volatility.

Table 3: Main Estimation Results – Dependent Variable: GDP per Capita (gdpk)

variables	Pooled OLS	Fixed Effects	DCCE
HCAP	-902.0032 (-0.67)	18529.1875*** (10.47)	-62.6834 (-0.90)
INVR	483.9145*** (4.04)	291.6063*** (5.64)	13.7268* (1.85)
FNDV	50851.3621*** (23.74)	11821.8482*** (5.28)	-449.7439* (-1.94)
GLOB	568.4075*** (9.89)	27.9920 (0.82)	9.9124 (1.52)
NFDI	-109.0744** (-2.07)	24.3949 (1.02)	20.8841 (1.65)
GDPK_LAG1			1.0115*** (254.72)
Constant	-50102.7089*** (-9.61)	0.0000 (0.00)	769.9594 (0.29)
R-squared	0.5807	0.5611	0.9973

Notes: t-statistics in parentheses. *** p<0.01, ** p<0.05, * p<0.1.
Source: Author's (2026)

The post-estimation diagnostic results reported in Table 4 provide important evidence regarding the statistical adequacy of the estimated models. The Durbin-Watson statistics for financial development and FDI are close to the benchmark value of two, indicating the absence of serious serial correlation problems within the residual structure. This suggests that the estimated coefficients are relatively stable and unbiased over time. However, the Jarque-Bera statistics indicate that the residuals deviate from normality at the 1% significance level, reflecting the presence of skewness and kurtosis within the data distribution. Such outcomes are not uncommon in macro-panel studies involving heterogeneous economies exposed to global shocks and financial crises. Ahmad et al. (2023) and Gök et al. (2024) similarly report non-normal residual distributions in globalization and investment-related studies due to structural asymmetries and external disturbances.

Table 4: Post-Estimation Diagnostics

Dependent Variable	Serial Correlation (DW)	Normality (JB)
FNDV	2.130	482.09***
NFDI	1.999	33833.03***
GDPK	1.392	10711.07***

Source: Author's (2026)

Figure 2 illustrates the quantile coefficient estimates for the explanatory variables across different points of the conditional GDP per capita distribution. The coefficients for financial development (FNDV) remain positive across all quantiles and increase substantially at higher quantiles, indicating that financial deepening exerts a stronger growth-enhancing effect among economies with relatively higher income levels. This outcome supports the findings of Qiu (2024) and Szücs and Tóth (2024), who argue that developed financial systems improve capital allocation efficiency and reinforce long-run productivity growth. Similarly, globalization (GLOB) demonstrates increasingly positive coefficients across higher quantiles, implying that economies with stronger structural and institutional capacity benefit more from global integration.

The quantile estimates for investment rate (INVR) and foreign direct investment inflows (NFDI) reveal additional heterogeneity in the growth process across the sampled economies. INVR coefficients become increasingly positive toward the upper quantiles, indicating that domestic investment contributes more strongly to growth among higher-performing economies with greater absorptive and productive capacity. This finding supports Makki and Somwaru (2004) and Dabwor et al. (2022), who argue that investment accumulation stimulates productivity and long-run output expansion. Conversely, NFDI coefficients are predominantly negative across most quantiles, particularly at higher quantiles, suggesting that foreign investment may generate uneven benefits or short-run adjustment costs in advanced non-OECD economies.

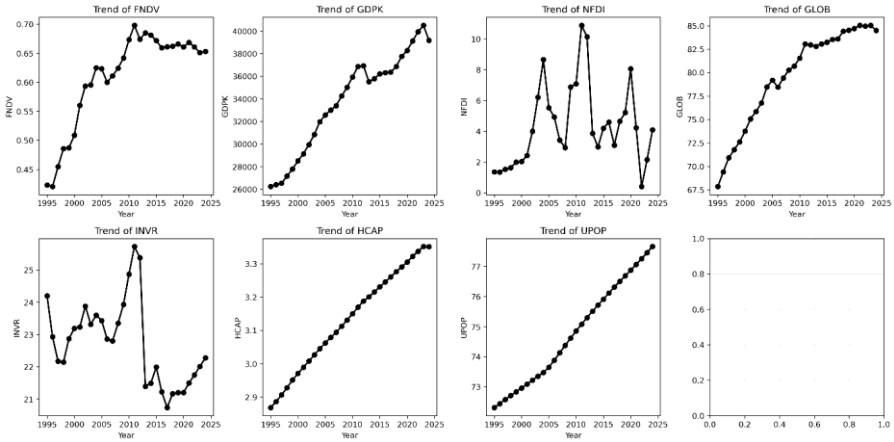

Figure 1: Long-run trends of the principal variables
Source: Author's plots (2026)

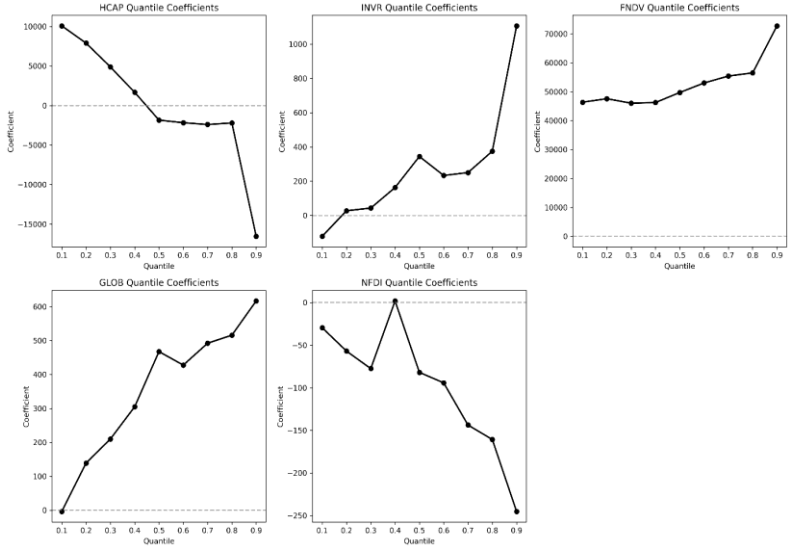

Figure 2: Quantile coefficient estimates for the explanatory
Source: Author's plots (2026)

4.2. Policy Implications

The findings of this study imply that policymakers in non-OECD developed economies should prioritize policies that strengthen financial sector efficiency and deepen domestic financial markets. The positive relationship between financial development and GDP per capita under the baseline estimations suggests that efficient financial systems enhance capital allocation, improve investment financing, and stimulate productive economic activities. Governments should therefore promote financial inclusion, strengthen banking sector supervision, and encourage innovation in digital financial systems to improve access to credit for productive sectors. Regulatory frameworks that enhance transparency, investor confidence, and financial stability are equally necessary to prevent excessive speculative financial expansion that may weaken long-run growth outcomes. These policy directions are consistent with the recommendations of Ofori-Sasu et al. (2024), Oyadeyi (2024), and Szücs and Tóth (2024), who emphasize that sustainable financial deepening requires balanced regulatory oversight and institutional strengthening to maximize growth-enhancing benefits within globally integrated economies.

The study also demonstrates that investment accumulation remains an important driver of economic performance across non-OECD developed economies. Consequently, governments should adopt investment-friendly macroeconomic policies capable of stimulating both domestic and foreign investment activities. Public investment in infrastructure, technology, energy systems, and industrial modernization can improve productivity and crowd in private sector investment. In addition, maintaining macroeconomic stability through prudent fiscal and monetary policies may reduce uncertainty and encourage long-term capital formation. Similar policy recommendations have been advanced by Makki and Somwaru (2004), Fazaalloh (2024), and Rahman and Alam (2024), who argue that stable investment environments and trade openness significantly improve productive efficiency and economic competitiveness in integrated economies.

The mixed findings regarding foreign direct investment suggest that policymakers should focus not only on attracting foreign capital but also on improving the absorptive capacity of domestic economies. The transition from negative to positive FDI effects across alternative estimation techniques indicates that the benefits of foreign investment depend heavily on institutional quality, human capital development, and industrial readiness. Governments should therefore implement policies that encourage technology transfer, workforce training, and linkages between multinational corporations and domestic firms. Strengthening governance institutions, reducing bureaucratic inefficiencies, and improving legal certainty may also increase the developmental impact of foreign investment inflows. These implications align with the arguments of Abor et al. (2024), Khan et al. (2024), and Yao et al. (2023), who maintain that economies with stronger institutional environments are better positioned to convert foreign capital inflows into sustainable productivity gains.

Finally, the robustness and sensitivity results indicate that the relationships among globalization, financial development, and economic performance remain relatively stable even during crisis periods. This finding suggests that non-OECD developed economies should continue pursuing outward-oriented development strategies while simultaneously strengthening institutional resilience and economic

diversification. Policies aimed at improving human capital, technological innovation, and digital transformation can further enhance the capacity of economies to adapt to global market fluctuations and technological changes. Moreover, governments should encourage sustainable development strategies that balance economic integration with environmental and social stability. Such approaches are increasingly important given the growing interaction between globalization, investment flows, and sustainability challenges. Similar conclusions are reached by Ahmad et al. (2023), Yu et al. (2025), and Petrakos and Topaloglou (2023), who argue that long-run economic competitiveness depends on the integration of innovation, institutional quality, sustainability, and globalization-oriented development policies.

5. Conclusions

This study examined the dynamic relationships among financial development, globalization, foreign direct investment, investment rates, and economic performance in non-OECD developed economies using advanced panel estimation techniques. The empirical findings revealed that financial deepening, investment accumulation, and globalization remain important determinants of GDP per capita, although the magnitude and direction of these relationships vary across estimation approaches. The DCCE estimator revealed that once cross-sectional dependence and heterogeneity are properly accounted for, the effects of financial development and globalization become more nuanced, reflecting the complex structural realities of globally integrated economies.

The results further showed that cross-sectional dependence is highly significant across all variables, indicating strong interconnections among non-OECD developed economies through trade, financial markets, and investment channels. This outcome confirms the increasing synchronization of macroeconomic dynamics under globalization and supports the assertions of Wang et al. (2025) and Cevik (2025) that global economic shocks are rapidly transmitted across countries through integrated financial and production systems. The positive contribution of investment rates to GDP per capita across all estimations also emphasizes the continuing importance of domestic capital formation in sustaining long-run growth. In addition, the eventual positive effect of foreign direct investment under the DCCE framework suggests that the developmental benefits of foreign capital inflows become more evident when unobserved common factors and heterogeneity are properly controlled for.

Despite these contributions, the study acknowledges certain limitations that provide opportunities for future research. Future research may also extend the analysis by incorporating environmental sustainability, digital transformation, and institutional governance indicators into the growth framework. Recent studies by Ahmad et al. (2023), Rjoub et al. (2023), and Gök et al. (2024) demonstrate that globalization and financial openness increasingly interact with environmental and technological dimensions of development. Consequently, understanding how digital financial systems, renewable energy transitions, and governance quality influence the finance-growth nexus may provide more comprehensive policy insights for non-OECD developed economies. Furthermore, comparative analyses between OECD and non-OECD developed economies could help identify structural differences in globalization outcomes, institutional resilience, and financial efficiency.

6. Acknowledgements
The author acknowledges Adedeji Gbadebo for his support throught the drafting of the article.

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