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The Impact of Foreign Direct Investment on Economic Development in South Asia and Southeastern Asia

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Abstract: This study examines the impact of inward foreign direct investment (FDI) on economic growth in South and Southeast Asia from 2006 to 2022, using a comprehensive panel dataset and multiple econometric techniques. The baseline estimation employs Feasible Generalized Least Squares (FGLS), with robustness checks using Fixed Effects with Driscoll–Kraay standard errors, the Common Correlated Effects Mean Group (CCEMG) estimator, and Two-Stage Least Squares (2SLS). The results consistently show that FDI and Gross Capital Formation (GCF) significantly promote growth, while the Human Capital Index (HCI), Trade Openness (TO), and Inflation (I) have limited or adverse effects. Government spending (GS) is negatively associated with growth, suggesting inefficiencies in public resource allocation. The findings underscore the importance of enhancing absorptive capacity through investments in education, institutional quality, and trade facilitation. Policy recommendations include adopting performance-based budgeting and independent audits, drawing on Malaysia's anti-corruption and audit reforms. To address the weak impact of human capital, this study advocates for expanding public–private partnerships in technical and vocational education, modelled on Singapore's SkillsFuture initiative. Additionally, digital investment platforms like Indonesia's Online Single Submission (OSS) system and infrastructure upgrades are recommended to reduce trade costs and improve the investment climate. Finally, the study calls for deeper regional integration through harmonized investment regulations under the ASEAN Comprehensive Investment Agreement (ACIA) and the development of cross-border special economic zones (SEZs). These recommendations are grounded in empirical evidence and tailored to the region's structural characteristics, offering actionable insights for policy-makers.

Keywords: FDI; Feasible Generalized Least Squares (FGLS); economic growth; Asia

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1. Introduction

Foreign direct investment (FDI) has long been regarded as a critical engine of economic development, particularly within emerging and developing economies. In the context of South and Southeast Asia, FDI has significantly contributed to the advancement of industrialization, the enhancement of technological capabilities, and the integration of domestic economies into global value chains. The region's strategic geographic positioning, favourable demographic trends, and progressively liberalized policy frameworks have collectively positioned it as an attractive destination for international investors. FDI inflows to developing Asia moderated in 2023, totalling approximately USD 621 billion, yet the region remained the largest global recipient, accounting for nearly half of worldwide FDI (WIR, 2024). Within the region, East and Southeast Asia continued to dominate,

although East Asia experienced a notable contraction, particularly in China, where a decade-long upward trend was reversed. In contrast, Southeast Asia maintained stable inflows, supported by resilient economic growth and strong integration into global value chains. South and Central Asia; however, witnessed significant declines, with India and Kazakhstan registering sharp reductions in FDI. Among the developing regions, the Association of Southeast Asian Nations (ASEAN) retained its position as the leading FDI destination, attracting 17% of global inflows in 2023 with an increase from 16.5% in 2022 continuing a steady upward trajectory since 2019 (AIR, 2024). The region's FDI stock expanded by 56% over the past decade, rising from USD 2.5 trillion in 2014 to USD 3.9 trillion in 2023, increasing its share of global FDI stock from 6.9% to 7.9%. This growth has been underpinned by consistently high annual inflows exceeding USD 200 billion since 2021.

An increasingly important component of South and Southeast Asia's economic growth plans is foreign direct investment (FDI). Over the last two decades, these regions have seen significant FDI inflows, which have been fuelled by trade openness, labour force expansion, and market size (Emako et al., 2022). In addition to finance, FDI provides technology, management know-how, and access to global markets which is critical for the development of the economy (Agrawal, 2015). This is especially important in emerging economies, where local businesses might not have sufficient resources to invest in innovative technologies. Asia has recently emerged as one of the world's fastest growing economic regions. The region's fast economic growth is frequently attributed to the implementation of outward-oriented policies, such as opening to FDI and expanding exports (Goh et al., 2017). This is backed by Bhujabal et al. (2024), who indicate that this region has one of the fastest expanding economies, with an annual growth rate of 6.67%. Over the last decade, FDI inflows to the Association of Southeast Asian Nations (ASEAN) have increased significantly. Since 2016, annual inflows have averaged USD 170 billion, substantially double the USD 92 billion recorded between 2006 and 2015 (UNCTAD, 2024). FDI averaged a staggering USD 220 billion annually between 2021 and 2023, securing ASEAN's place among the top developing economies in terms of FDI beneficiaries for three years in a row. ASEAN's proportion of worldwide foreign direct investment (FDI) increased from an average of 6% between 2006 and 2015 to 17% by 2023 (UNCTAD, 2024). The region's FDI stock increased from USD 1.7 trillion in 2015 to USD 3.9 trillion by 2023 because of this accelerated infusion.

Regretfully, many developing nations still experience the vicious cycle of underdevelopment, whereby poor productivity results in low income (Masoud, 2014; Welteji, 2018). Consequently, this results in poor savings, which in turn lead to low investment, and which in turn leads to low productivity. In addition, Emako et al. (2022) assert that rapid economic growth and increased output are required to alleviate poverty and ensure sustainable development. As a result, developing countries require external resources, such as FDI, to break the cycle of underdevelopment and maintain economic progress.

Recent empirical literature presents a nuanced understanding of the relationship between foreign direct investment (FDI) and economic growth, particularly in developing economies. Ghosh and Saha (2025) provide robust evidence from a panel of 135 developing countries (1996–2020), demonstrating that FDI positively and significantly contributes to economic growth, especially when institutional quality measured by government effectiveness, regulatory quality, and the rule of law is strong. In contrast, country-specific studies yield more mixed results. Obeng-Amponsah and Owusu (2025), focusing on Ghana, find no direct impact of FDI on growth or employment; however, they highlight the moderating role of technology in enhancing FDI's short-run effects. Similarly, Ozili (2025) reports that FDI inflows do not significantly influence economic growth in Nigeria between 2010 and 2019, with macroeconomic variables such as population size, interest rates, and inflation playing more critical roles. These findings underscore the importance

of contextual factors such as institutional frameworks in shaping the growth outcomes of FDI in developing economies.

Despite substantial inflows of foreign direct investment (FDI) into Asia, the region continues to exhibit uneven economic development, with heterogeneous outcomes across countries. While FDI is widely recognized as a catalyst for economic growth, facilitating capital accumulation, technology transfer, and managerial expertise—its effectiveness is contingent upon a range of structural and institutional factors, including political stability, regulatory quality, and infrastructure development (Borensztein et al., 1998; Dunning, 2001). This study focuses on South and Southeast Asia, subregions that have attracted significant FDI due to their large consumer bases, competitive labour costs, and relatively favourable investment climates. However, despite notable economic achievements, these regions continue to face disparities in income distribution, institutional quality, and human capital development. The objective of this research is to examine the differential impact of FDI on economic growth across these economies, with the aim of identifying the conditions under which FDI contributes to inclusive and sustainable development. By analysing the FDI–growth relationship in a regionally disaggregated context, this study seeks to inform both theoretical discourse and policy formulation. Understanding the mechanisms through which FDI influences development is essential for policymakers aiming to harness foreign investment as a driver of long-term, equitable growth.

Gap and Contribution

Although FDI is widely recognized as a catalyst for economic growth, its effectiveness remains highly context-dependent, particularly in developing regions. In South and Southeast Asia, FDI inflows have grown substantially since the early 2000s, driven by export-oriented strategies, demographic advantages, and liberalized investment regimes (Sjöholm, 2013). However, growth outcomes remain uneven, raising concerns about the absorptive capacity of host economies shaped by human capital, institutional quality, and trade openness (Borensztein et al., 1998; Alfaro et al., 2004). The region's heterogeneity in governance, infrastructure, and sectoral development presents a valuable opportunity for comparative analysis (Rao et al., 2023; Sahoo, 2006). Yet, existing studies often focus on single-country cases or overlook the mediating role of macroeconomic stability, public sector efficiency, and regulatory quality in shaping FDI-growth dynamics (Makiela & Ouattara, 2018; Iamsiraroj, 2016). Given these gaps, a region-specific empirical investigation is warranted. This study addresses this need by examining the impact of FDI on economic growth in conjunction with key institutional and policy variables, using robust panel econometric techniques to generate contextually relevant insights for South and Southeast Asia.

2. Literature Review

2.1. Theoretical Literature

The nexus between foreign direct investment (FDI) and economic development has been a focal point in both theoretical and empirical economic discourse. The analytical foundation of this study is grounded in both neoclassical and endogenous growth theory, which offers distinct but complementary perspectives on the role of FDI in economic development. Within the Solow–Swan (Solow, 1956), (Swan, 1956) neoclassical growth model, FDI is conceptualized as a component of capital accumulation that can enhance output in the short to medium term by augmenting the physical capital stock. However, due to the assumption of diminishing marginal returns to capital and exogenous technological progress, the long-run growth rate remains unaffected by FDI unless it contributes to technological advancement.

In contrast, endogenous growth models, particularly those developed by Lucas (1988) and Romer (1990), provide a more robust theoretical justification for the sustained impact of FDI on growth. Lucas emphasizes the role of human capital accumulation and learning-by-doing, suggesting that FDI can enhance labour productivity through skill transfer and workforce development. Romer, on the other hand, highlights the importance of knowledge spillovers and innovation, positing that FDI can serve as a conduit for new technologies and managerial practices that stimulate total factor productivity (TFP) growth. These models imply that the growth effects of FDI are conditional on the host economy's absorptive capacity, which is shaped by the quality of institutions, human capital, and openness to trade. Borensztein et al. (1998) further refine this perspective by asserting that the developmental dividends of FDI are contingent upon the host economy's absorptive capacity particularly the quality of human capital and institutional frameworks which mediate the extent to which FDI-induced externalities are internalized.

2.2. Empirical Literature

Empirical investigations into the FDI–growth nexus yield heterogeneous findings, often shaped by country-specific structural and institutional characteristics. A growing body of literature underscores the conditional nature of FDI's developmental impact. For instance, Agrawal (2015) and Olagbaju and Akinlo (2018) provide evidence that FDI contributes positively to economic growth, particularly in economies with well-developed financial systems that can efficiently allocate foreign capital. Similarly, Blomstrom and Kokko (2003) emphasize that the absorptive capacity of host countries determined by the quality of human capital and institutional robustness is pivotal in harnessing the productivity-enhancing spillovers associated with FDI.

Bhaskara-Rao and Hassan (2011), employing an autoregressive distributed lag (ARDL) model for Bangladesh, demonstrate that post-liberalization reforms in the 1980s, including trade openness and increased FDI inflows, have exerted a positive influence on economic growth. However, they also identify government expenditure and inflation as growth-inhibiting factors. Large-scale cross-country analyses by Makiela and Ouattara (2018) and Iamsiraroj (2016) further corroborate the positive association between FDI and growth, albeit with varying magnitudes across different institutional and macroeconomic contexts. Nonetheless, literature is not unequivocally optimistic. Aitken and Harrison (1999) reveal that, while FDI may enhance productivity in recipient firms, it can simultaneously displace domestic investment, resulting in ambiguous net growth effects. In the Asian context, Fatmawati et al. (2018) find that FDI significantly contributes to economic development through channels such as productivity enhancement, employment generation, technological advancement, and poverty alleviation.

The role of FDI in facilitating integration into global value chains and promoting technological diffusion is well documented. Chaudhury et al. (2021) distinguish between greenfield investments and mergers and acquisitions in South Asia, finding that the growth effects of FDI are contingent upon the mode of entry and host country characteristics. However, their analysis is limited in scope, both geographically and methodologically, as it does not account for cross-sectional dependence or broader regional heterogeneity. More recently, Hussain et al. (2024) explored the interplay between financial inclusion and economic growth across 21 Asian economies, highlighting the importance of inclusive financial systems in fostering long-term development. While their findings underscore the significance of financial flows, the study does not isolate the specific contribution of FDI, nor does it address the econometric complexities inherent in macro-panel data.

Trade openness and human capital development also emerge as recurrent themes in the growth literature. Empirical studies such as Malefane and Odhiambo (2019) and Chimobi (2010) report that increased trade liberalization is positively correlated with economic performance in both African and Asian contexts. Chang and Mendy (2012), analysing 36 African economies, identified positive associations between growth and variables such as labour force participation, exports, imports, and foreign aid, while noting negative correlations with FDI, domestic investment, and gross national savings—highlighting the nuanced and context-dependent nature of these relationships. Human capital, particularly in the form of higher education, is consistently identified as a critical determinant of long-run growth. Sabur et al. (2021) and Goczek et al. (2021) emphasized the importance of educational quality and equitable access, while Sairmaly (2023) advocates for targeted policy interventions to reduce educational disparities and enhance the productivity of human capital.

The existing body of empirical literature reveals that the influence of FDI on economic growth is context-dependent and significantly shaped by a range of structural and institutional variables. Key among these is the development of the financial sector, the quality of human capital, institutional effectiveness, and the degree of trade openness. Research consistently demonstrates that countries with strong absorptive capacities characterized by advanced educational systems, effective governance, and liberalized trade environments are more capable of translating FDI inflows into long-term economic gains. In contrast, where these foundational conditions are weak or absent, FDI may yield limited benefits or even exert detrimental effects, such as displacing domestic investment.

Despite the breadth of existing research, there remains a paucity of comprehensive, region-specific empirical analyses that systematically examine the joint effects of FDI, human capital, institutional quality, and trade openness within the context of South and Southeast Asia. Much of the current literature is either confined to single-country case studies or fails to employ econometric methodologies capable of addressing the complexities inherent in macro-panel data, such as cross-sectional dependence, endogeneity, and heterogeneity across units. This study seeks to address this empirical gap by investigating the interactive effects of FDI, human capital, institutional quality, and trade openness on economic growth across a panel of South and Southeast Asian economies. Utilizing advanced panel data estimation techniques, the analysis aims to generate nuanced, regionally tailored policy insights that can inform strategies for maximizing the developmental impact of FDI in these emerging markets.

3. Methodology

3.1. Methodology and Data Specifications

The contribution of FDI on economic growth is examined using econometric regression research. The panel data analysis approach is used to analyse the impact of the independent factors (FDI inflows, gross capital formation (GCF), human capital index (HCI), trade openness (TO), government spending (GS), and inflation (I)) on the dependent variable (GDP per capita) in South and Southeast Asia. This study's control variable selection is based on both theoretical considerations and empirical precedence in the literature on FDI growth. GCF accounts for domestic investment, which supports FDI in infrastructure development and capital accumulation in line with the Solow growth model. HCI indicates human capital quality, which is a crucial predictor of FDI absorptive ability and productivity spillovers, as stressed in endogenous growth models (Lucas, 1988; Romer, 1990). TO is used to account for the level of integration in global markets, which can affect both the volume and efficacy of FDI. GS is a proxy for fiscal policy and public investment, which can attract

or repel private and foreign investment. Inflation is incorporated in macroeconomic stability controls, which has an impact on investor confidence and long-term growth prospects.

This study investigates the influence of FDI on economic growth during the period 2006–2022 using data from the World Bank's World Development Indicators, UNCTAD (2025) for the human capital index, and Our World in Data (Ortiz-Ospina et al., 2016/2025) for the government spending index. The indices are based on World Bank (2025), and their metadata show that gross capital formation is made up of net changes in inventory levels as well as expenditures on adding to the economy's fixed assets. Trade openness is measured by the sum of commodities and services exported and imported as a percentage of GDP. The net inflow of foreign capital into the reporting economy, divided by GDP, is known as foreign direct investment. Government spending is the sum of all the money spent by the government on goods and services as a percentage of GDP. It includes the government's interest expense. The UNCTAD (2025) human capital index considers the population's education, skills, and health status, as well as the entire integration of research and development into society through the number of researchers and research expenditures. The percentage of GDP that the general government spends on education (current, capital, and transfers) is shown. It covers spending that is financed by money sent to the government from overseas sources. Local, regional, and national governments are typically referred to as general governments. This study uses GDP per capita as the dependent variable, and the independent factors that are expected to affect economic growth are carefully selected based on the available data and the literature for the relevant period.

This study's components are all based on secondary or quantitative data. The study focuses on ten South Asian and Southeast Asian countries: Bangladesh, Bhutan, Cambodia, India, Indonesia, Malaysia, Pakistan, the Philippines, Thailand, and Vietnam. The primary criteria used to choose the countries were the accessibility and dependability of the data across the course of the sample. The data could not be extended beyond 2022 due to a lack of data for key components.

3.2. Model Specification

$$GDPC_{it} = \alpha + \beta_1 FDI_{it} + \beta_2 HCI_{it} + \beta_3 GCF_{it} + \beta_4 I_{it} + \beta_5 TO_{it} + \beta_6 GS_{it} + \varepsilon_{it},\ i = 1, \ldots, 7;\ t = 2006, \ldots, 2022 \quad (1)$$

where

- $GDPC_{it}$ GDP per capita growth (annual %) index for country i at time t.
- All the independent variables are defined on the right side of the specification model as follows:
- FDI_{it} inflows is a percentage of GDP for country i at time t.
- HCI_{it} Human capital index for country i at time t.
- GCF_{it} Gross capital formation percentage of GDP (annual %) index for country i at time t.
- I_{it} Inflation, consumer prices (annual %) index for country i at time t.
- TO_{it} Trade openness (% of GDP) index for country i at time t.
- GS_{it} Government spending (% of GDP) index for country i at time t.
- ε_{it} Idiosyncratic term.

3.3. Estimation Strategy

To estimate the relationship between FDI and economic growth, the study employed the Feasible Generalized Least Squares (FGLS) estimator because of its capacity to deal with heteroskedasticity and autocorrelation in panel data, which are common in macroeconomic studies on FDI and economic growth (Baltagi, 2008). Furthermore, by integrating temporal fixed effects, the FGLS model accounts for unobserved time-specific shocks that may affect all countries concurrently, such as regional economic trends or policy changes

(Wooldridge, 2010). This approach generates more reliable and efficient estimates than common fixed-effects or random-effects models, which might not be relevant in FDI-growth research, making FGLS a more robust option (Baltagi, 2008; Greene, 2011). Furthermore, the FGLS model supports both cross-sectional and time-series variations, making it ideal for examining dynamic interactions over time in a diverse region such as South and Southeast Asia. This approach is consistent with the presence of heteroskedastic and correlated disturbances, which are common in macroeconomic panels involving multiple countries over time.

Diagnostic tests presented in subsequent sections reveal statistically significant cross-sectional dependence (CSD), suggesting that economic shocks or policy interventions in one country may exert contemporaneous effects on others within the region. This interdependence undermines the assumption of cross-sectional independence, which is critical for the validity of conventional panel estimators. Although FGLS with time-fixed effects can partially mitigate some forms of unobserved heterogeneity, it does not fully address strong cross-sectional dependence. In such contexts, standard errors may be biased, and coefficient estimates inefficient, thereby compromising the reliability of statistical inference. To address this limitation, the FGLS estimation is complemented by a fixed–effects model employing Driscoll–Kraay (FE-DK) standard errors (Driscoll & Kraay, 1998). The FE-DK estimator is robust to heteroskedasticity, serial correlation, and cross-sectional dependence, making it particularly well suited for macro-panel datasets characterized by regional spillovers and common shocks. Moreover, simulation evidence indicates that FE-DK standard errors perform reliably in small to moderately sized samples and in unbalanced panels (Hoechle, 2007). The consistency of results across both estimation strategies enhances the robustness of the empirical findings and mitigates the concerns regarding model misspecification due to cross-sectional dependence.

The common correlated effects mean group (CCEMG) model is also included to address slope heterogeneity in the presence of CSD as a robust exercise (Pesaran, 2006). The CCEMG estimator relaxes the restrictive assumption of slope homogeneity by permitting heterogeneous slope coefficients across cross-sectional units, while still yielding consistent estimates of the average effects (Eberhardt & Teal, 2011). This methodological flexibility is particularly pertinent in cross-country growth regressions, where structural, institutional, and economic heterogeneity may result in differential responses to explanatory variables such as FDI. By accommodating such heterogeneity, the CCEMG framework enhances the empirical robustness of growth models in diverse economic settings (Eberhardt & Presbitero, 2015).

The Two-Stage Least Squares (2SLS) model is included to address potential endogeneity due to omitted variable bias or reverse causality whereby higher economic growth may attract greater FDI inflows. The 2SLS estimator constitutes a widely employed instrumental variable (IV) methodology aimed at obtaining consistent parameter estimates in the presence of endogenous regressors that exhibit correlation with the structural error term (Wooldridge, 2010). Endogeneity may stem from various sources, including omitted variable bias, measurement error, or simultaneity, each of which violates the Gauss–Markov assumptions underpinning the consistency of ordinary least squares (OLS) estimators. In such contexts, OLS yields biased and inconsistent estimates, necessitating the use of IV techniques such as 2SLS to address these econometric challenges. The next section examines the results of the study.

4. Results

4.1. Descriptive Statistics

This section contains a descriptive data analysis of the data, followed by regression findings and discussion. To avoid misrepresenting study findings, a methodical approach must be used when publishing relevant descriptive and preliminary analyses. The data are described and condensed using these summary statistics to help identify underlying trends in the raw data. Although descriptive statistics alone cannot be utilized to draw significant conclusions, they are an essential first step in data analysis for data visualization and interpretation. The descriptive statistics are highlighted in Table 1 below.

Table 1. Descriptive statistics.

Variable	Observation	Mean	Std. Dev.	Min	Max
GDPC	170	3.854688	3.249526	−10.82261	14.76314
FDI	170	2.865923	2.650023	−0.8579895	11.15249
GCF	170	29.64181	10.49799	14.53469	69.44873
HCI	170	37.25706	8.271151	17.7	58.7
TO	170	86.16138	46.43332	24.70158	202.5771
I	170	5.419074	4.103842	−1.241718	24.09685
GS	170	22.18486	6.621323	9.626749	45.38908

With considerable variation across nations, the average GDP growth rate is 3.85%. While the maximum (14.76) indicates rapid growth in high-performing economies, the negative minimum value (−10.82) indicates that certain countries faced significant economic contractions, such as during financial crises or the COVID-19 pandemic. At 2.87% of GDP, the average FDI inflow suggests a moderate reliance on foreign capital. FDI increases in industrial hubs are in line with the maximum (11.15%), while the negative minimum indicates capital flight in certain years such as during political unrest.

4.2. Results of FGLS, Driscoll–Kraay FE, 2SLS and CCEMG

The baseline results show the FGLS model which is chosen based on the findings of the heteroscedasticity, autocorrelation, and cross-sectional dependence tests demonstrated in the next section. The findings highlighted in Table 2 below demonstrates a statistically significant positive correlation between FDI inflows and GDPC. On average, a 1% increase in FDI as a share of GDPC results in a 0.22% rise in yearly GDP growth. GCF shows a statistically significant positive association with GDPC. A 1% rise in GCF leads to a 0.12% increase in GDPC. The findings for GS indicate a statistically significant negative correlation with GDPC. There is an 0.11% drop in GDPC for every 1% increase in GS. HCI, TO, and I produced insignificant outcomes. The analysis included time-fixed effects. Time-fixed effects are incorporated into FGLS to account for unobserved temporal shocks that could skew the results, such as policy changes or global financial crises (Wooldridge, 2010). The findings of the secondary regressions the FE-DK estimator and CCEMG and 2SLS approach used for robustness are in line with those of the baseline FGLS model and highlight that FDI has a significant and positive effect on economic growth in the region. The FE-DK model and 2SLS approach have a strongly significant effect while the CCEMG model has a minimally significant positive effect on economic growth.

Table 2. FGLS, Driscoll–Kraay FE, 2SLS and CCEMG results.

	FGLS	FE-DK	CCEMG	2SLS
FDI	0.2193 *** (0.0787)	0.6478 *** (0.1452)	1.2479 * (0.6434)	1.413 ** (0.614)
GCF	0.1180 *** (0.0208)	0.1535 (0.1535)	0.3342 *** (0.1060)	0.417 *** (0.158)
HCI	−0.0374 (0.0325)	−0.0369 (0.0702)	0.3798 (0.3811)	0.205 (0.369)
TO	0.0007 (0.0063)	0.0409 * (0.0211)	0.0868 (0.1097)	0.0803 (0.0642)
I	−0.005 (0.0491)	−0.0612 (0.0755)	−0.0132 (0.1522)	−0.109 ** (0.0475)
GS	−0.1086 *** (0.0317)	−0.3203 * (0.1554)	−0.2888 (0.2176)	−0.617 ** (0.240)
Constant	4.2832 *** (1.131)	2.7350 (3.9862)	−19.8629 (22.228)	0.0165 (0.280)

Standard errors in parentheses *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

4.3. Diagnostic Tests

Table 3, highlighted below, shows the findings for heteroscedasticity, autocorrelation and cross-sectional dependence tests. The findings of the Breusch–Pagan/Cook–Weisberg heteroskedasticity test show that the regression model's error components violate the assumption of constant variance significantly. The null hypothesis of constant variance is rejected because the *p*-value is significantly lower than the customary significance level of 0.05. The test findings strongly suggest that the regression model is heteroskedastic. This indicates that the variance of the error components varies between observations, which can result in inaccurate estimates and skewed standard errors in ordinary least squares (OLS) regression.

Table 3. Residual diagnostic tests.

Test	Null Hypothesis	*p*-Value
Heteroscedasticity	No heteroscedasticity	0.0000 ***
Autocorrelation	No autocorrelation	0.2622
Cross-sectional dependence	Cross sectional independence	0.0000 ***

*** $p < 0.01$.

The findings of the Wooldridge test for panel data autocorrelation show that the model does not exhibit any signs of first-order autocorrelation (Wooldridge, 2010). Because the *p*-value is above the standard threshold of 0.05, the null hypothesis is not rejected. The test findings indicate that the panel data regression model does not show statistically significant evidence of first-order autocorrelation. This suggests that the premise of no autocorrelation is true and that the error terms have no relationship over time.

Pesaran's (2004) cross-sectional independence test is used in a data model panel to assess whether error terms across distinct cross-sectional units, such as countries, are independent. Cross-sectional dependence may emerge because of unobserved shared shocks, spatial effects, or global economic challenges affecting all units at once. The results of Pesaran's test demonstrate a considerable interdependence between the cross-sectional units in the panel data. The econometric model may provide biased standard errors and ineffective estimates if cross-sectional dependence is not appropriately handled. The findings of the diagnostics check highlight support for the FGLS model in the previous section.

5. Discussion

The substantial impact of FDI emphasizes how crucial it is to implement policies that draw in and support FDI to boost economic growth. This finding is consistent with theoretical assumptions and empirical evidence that FDI promotes economic growth by providing money, technology, and management knowledge (Borensztein et al., 1998). The findings are substantially compatible with the theoretical grounds for endogenous growth theories (Lucas, 1988; Romer, 1990). Furthermore, it is consistent with Agrawal (2015)'s conclusions that FDI brings technology, management expertise, and access to global markets, all of which are crucial for economic success. It also aligns with the conclusions of other researchers who think that FDI boosts economic growth, like Iamsiraroj (2016), Makiela and Ouattara (2018), and Emako et al. (2022).

The GCF results show how crucial domestic investment is to economic growth since increased capital formation boosts infrastructure development and productive capacity. This shows that more domestic investment benefits economic growth. This supports the traditional economic theory, which holds that physical capital investment is a major factor in growth (Solow, 1956). This is consistent with prior assumptions and findings, such as Fatmawati et al. (2018), who discovered that FDI had a major impact on economic growth by boosting total productivity, creating more job opportunities, developing technology, and lowering poverty. GCF's relevance emphasizes how crucial both local and foreign investments are to promoting economic growth.

The government spending (GS) results are surprising, which could indicate inefficiencies in government expenditure or the likelihood that more government spending is related with redistributive policies that do not instantly convert into stronger economic growth. Higher GS is linked to slower economic growth, according to this negative coefficient. Although the findings contradict a priori expectations, they are congruent with those of Bhaskara-Rao and Hassan (2011), who discovered a negative link between GS and economic growth. The negative and statistically significant coefficient associated with GS warrants a nuanced interpretation. While public expenditure has the potential to stimulate economic growth through investments in infrastructure, education, and health, its growth-enhancing effects that are contingent upon both its composition and efficiency. In many countries within the region, a substantial portion of government budgets is directed toward recurrent expenditures, generalized subsidies, and the support of inefficient state-owned enterprises. Such allocations may crowd out private sector investment and constrain fiscal space for productive, growth-inducing public investment. These findings highlight the critical importance of not only the scale but also the strategic allocation and institutional quality of public spending in fostering sustainable economic development.

The unexpected outcome for HCI could be attributed to measurement difficulties or the region's special environment, in which human capital is not yet fully leveraged to fuel progress. Alternatively, it could indicate the presence of additional unobserved factors that influence the relationship. As previously discussed, the statistically insignificant impact of the HCI may reflect a misalignment between educational outcomes and labour market demands in several South and Southeast Asian economies. Although human capital is a cornerstone of endogenous growth theory, its contribution to economic performance is contingent upon the quality, relevance, and applicability of education and training systems. In environments where educational institutions are under-resourced or curricula are poorly aligned with the skill requirements of key economic sectors, the anticipated productivity gains from human capital accumulation may fail to materialize. Moreover, limited absorptive capacity within the economy can further constrain the effective utilization of skilled labour, thereby diminishing the growth-enhancing potential of human capital investments.

The trade openness (TO) findings show that, while theoretically good, trade openness may not have a large direct impact on regional economic growth. This could be due to the disparate allocation of trade benefits or systemic limitations. The intricate relationship between trade policy and economic growth, which is subject to the effect of numerous external factors, may be the reason for the lack of relevance. The findings for I reveal that, within the observed range, there is no significant effect on economic growth in this context. One possible explanation for the insignificance of inflation is that different countries have different inflation rates and economic frameworks. The indeterminate effect of TO may reflect the underlying structural heterogeneity across countries. While trade liberalization is theoretically associated with efficiency gains and increased attractiveness to foreign direct investment, its growth-enhancing effects are not universally guaranteed. In economies characterized by limited export diversification or low international competitiveness, greater openness may increase the exposure to external shocks without yielding substantial developmental benefits. This concern is particularly salient for landlocked or resource-dependent countries, where the absence of adequate infrastructure and institutional capacity may hinder the translation of trade openness into sustained economic growth. Thus, the effectiveness of trade liberalization is contingent upon the presence of complementary structural reforms and enabling conditions.

In summary, the Driscoll–Kraay fixed effects (FE-DK) model, which accounts for cross-sectional dependence, reveals a substantially larger estimated impact of FDI on economic growth, while rendering gross capital formation (GCF) statistically insignificant. This suggests that spatial correlations may obscure the true contribution of domestic investment. The Common Correlated Effects Mean Group (CCEMG) estimator corroborates the positive average effect of FDI, while also uncovering significant cross-country heterogeneity in its impact, reflecting structural and institutional differences across economies. The Two-Stage Least Squares (2SLS) approach, which addresses potential endogeneity, yields even stronger FDI effects and identifies a negative association with government effectiveness (GE), indicating that institutional inefficiencies may undermine the growth-enhancing potential of public governance. Notably, across all model specifications, human capital consistently exhibits an insignificant effect on growth, challenging the predictions of endogenous growth theory. Similarly, trade openness demonstrates a limited role, while the counterintuitive negative coefficient on government effectiveness calls for a reassessment of institutional quality metrics and their functional relevance in growth models. These robust and convergent findings across diverse econometric techniques underscore the conditional nature of FDI's growth benefits, particularly in the context of governance quality. They also highlight the methodological sensitivity inherent in growth empirics, suggesting that the mechanisms through which FDI influence growth are more complex and context-dependent than standard theoretical models imply.

Limitations

While the adoption of a multi-method empirical strategy comprising FGLS with robustness checks via FE-DK, the CCEMG estimator, and 2SLS enhance the credibility of the analysis, several methodological limitations remain. First, although the FGLS baseline accounts for heteroskedasticity across panel units, it does not fully correct for contemporaneous correlation, which may lead to biased standard errors—a shortcoming partially mitigated by the FE-DK specification. Second, the application of the CCEMG estimator is constrained by its requirement for relatively long time series ($T \geq 20$); with T = 17 in this study, the precision of heterogeneous slope estimates may be affected. Third, the validity of the 2SLS results hinges on the strength and exogeneity of the lagged FDI instru-

ment, which may not fully satisfy the exclusion restriction, thereby raising concerns about instrument validity.

Moreover, all model specifications are subject to common data-related limitations. These include potential measurement errors in institutional quality indicators and aggregation bias arising from the use of national-level data, which may obscure important subnational heterogeneity. Consequently, while the direction of the estimated FDI effects appears robust across models, caution is warranted in interpreting their magnitude.

6. Conclusions

This analysis's main objective is to assess how inward FDI affects economic growth in the South and Southeast Asian region. The data were analysed over a 17-year period, from 2006 to 2022, from 10 countries across South and Southeast Asia. The goal of the study was to determine how important FDI is to economic growth. The study aimed to provide insights that will help governments and investors develop targeted strategies to increase FDI inflows. To account for the factors influencing economic growth, additional explanatory variables were added. The goal of this research was to provide empirical evidence on the role of FDI in regional economic development.

To provide a more nuanced view of these factors' roles, the study employs an econometric analysis that establishes the direct and indirect effects of these variables on GDPC utilising heteroscedasticity tests, autocorrelation tests, cross-sectional dependence tests, and the FGLS model. The results of the FGLS regression demonstrate that FDI and GCF play a major role in promoting economic growth in South and Southeast Asia, which is consistent with prior research and theory. However, the inconsequential or paradoxical results for HCI, TO, and I imply that these variables warrant further examination. The negative association between GS and GDPC necessitates further investigation to determine the underlying causes. This study emphasizes the crucial significance of FDI in driving GDP per capita in South and Southeast Asia, emphasizing the need for policies that encourage foreign investment. Government spending's detrimental effects raise questions about the quality of governance and emphasize the necessity of institutional reforms to guarantee that the effectiveness of the public sector is translated into meaningful economic gains.

While the empirical findings are broadly consistent with the established literature on the FDI–growth nexus, this study offers a novel contribution by providing region-specific policy insights tailored to the economic contexts of South and Southeast Asia. The results emphasize the critical role of enhancing absorptive capacity, particularly through targeted investments in human capital development, institutional quality, and trade facilitation, to fully leverage the developmental benefits of foreign direct investment.

The observed negative association between government effectiveness and growth, when public resources are inefficiently allocated, underscores the need for improved public sector governance. In this regard, the adoption of performance-based budgeting frameworks and the institutionalization of independent audits for large-scale public investment projects are recommended. Malaysia's experience with the Malaysian Anti-Corruption Commission (MACC) and its public audit reforms provides a relevant model for enhancing transparency and accountability. To address the limited impact of human capital observed in the analysis, the study advocates for the expansion of public–private partnerships in technical and vocational education and training (TVET). Singapore's SkillsFuture initiative serves as a best-practice example for aligning workforce competencies with the demands of FDI-intensive sectors. Policymakers should prioritize reforms that improve educational quality and labour market relevance, particularly in countries such as Vietnam and Thailand, where FDI is increasingly concentrated in high-technology manufacturing. Furthermore, the development and scaling of digital one-stop investment platforms—such

as Indonesia's online single-submission (OSS) system—can streamline administrative procedures and enhance transparency, thereby improving the investment climate. Complementary investments in transportation and logistics infrastructure are also essential for reducing trade costs and boosting regional competitiveness. Empirical evidence suggests that lowering non-tariff barriers and simplifying customs procedures can yield substantial economic gains.

Finally, to foster regional integration and promote cross-border investment, the study recommends accelerating the harmonization of investment and trade regulations under the ASEAN Comprehensive Investment Agreement (ACIA). The piloting of cross-border special economic zones (SEZs) along strategic trade corridors could further enhance regional connectivity and economic spillovers. These policy recommendations are grounded in the empirical results of the study, ensuring their contextual relevance and potential effectiveness for policymakers across the region.

Future research could extend the current analysis by exploring sector-specific effects of FDI, particularly in manufacturing, services, and technology-intensive industries, to better understand heterogeneous impacts across economic structures. Additionally, incorporating firm-level or subnational data could provide microeconomic insights into how FDI influences productivity, employment, and innovation at the local level. Furthermore, future studies could benefit from employing structural equation modelling or dynamic panel techniques such as system GMM to address endogeneity and capture long-run causal relationships more robustly. Finally, institutional and policy dynamics, particularly those shaped by electoral cycles and trade policy regimes, remain an underexamined yet potentially significant mediator of FDI effectiveness in developing Asian economies. These factors can influence the allocation, stability, and developmental outcomes of foreign investment, underscoring the need for more rigorous empirical inquiry within the regional context.

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References

Agrawal, G. (2015). Foreign direct investment and economic growth in BRICS economics: A panel data analysis. *Journal of Economics, Business and Management*, *3*, 421–424. [CrossRef]

AIR. (2024). *ASEAN investment report 2024: ASEAN economic community 2025 and foreign direct investment*. Jakarta and Geneva: ASEAN Secretariat and UNCTAD. AIR.

Aitken, B., & Harrison, A. (1999). Do domestic firms benefit from direct foreign investment? *American Economic Review*, *89*(3), 605–618. [CrossRef]

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. [CrossRef]

Baltagi, B. H. (2008). *Econometric analysis of panel data* (4th ed.). Wiley.

Bhaskara-Rao, R., & Hassan, G. (2011). Determinants of the long run growth rate of Bangladesh. *Applied Economics Letters*, *18*(7), 655–658. [CrossRef]

Bhujabal, P., Sethi, N., & Padhan, P. C. (2024). Effect of institutional quality on FDI inflows in South Asian and Southeast Asian countries. *Heliyon*, *10*(5), e27060. [CrossRef]

Blomstrom, M., & Kokko, A. (2003). *Human capital and inward FDI*. Working Papers Series, No. 167. The European Institute of Japanese Studies, Stockholm School of Economics.

Borensztein, E., De Gregorio, J., & Lee, J. W. (1998). How does foreign direct investment affect economic growth? *Journal of International Economics*, *45*, 115–135. [CrossRef]

Chang, C., & Mendy, M. (2012). Economic growth and openness in Africa: What is the empirical relationship? *Applied Economics Letters*, *19*(18), 1903–1907. [CrossRef]

Chaudhury, S., Nanda, N., & Tyagi, B. (2021). Green-field versus merger and acquisition: Role of FDI in economic growth of South Asia. In *Trade, investment and economic growth: Issues for India and emerging economies* (pp. 157–167). Springer.

Chimobi, O. P. (2010). The causal relationship among financial development, trade openness and economic growth in Nigeria. *International Journal of Economics and Finance*, *2*(2), 137. [CrossRef]

Driscoll, J. C., & Kraay, A. C. (1998). Consistent covariance matrix estimation with spatially dependent panel data. *Review of Economics and Statistics*, *80*(4), 549–560. [CrossRef]

Dunning, J. H. (2001). The Eclectic (OLI) Paradigm of international production: Past, present and future. *International Journal of the Economics of Business*, *8*(2), 173–190. [CrossRef]

Eberhardt, M., & Presbitero, A. F. (2015). Public debt and growth: Heterogeneity and non-linearity. *Journal of International Economics*, *97*(1), 45–58. [CrossRef]

Eberhardt, M., & Teal, F. (2011). Econometrics for grumblers: A new look at the literature on cross-country growth empirics. *Journal of Economic Surveys*, *25*(1), 109–155. [CrossRef]

Emako, E., Nuru, S., & Menza, M. (2022). The effect of foreign direct investment on economic growth in developing countries. *Transnational Corporations Review*, *14*(4), 382–401. [CrossRef]

Fatmawati, I., Suman, A., & Syafitri, W. (2018). The impact of FDI, human capital, and corruption on growth in Asian developed and developing countries. *International Journal of Scientific & Technology Research*, *7*(12), 216–221. Available online: https://www.ijstr.org/final-print/dec2018/The-Impact-Of-Fdi-Human-Capital-And-Corruption-On-Growth-In-Asian-Developed-And-Developing-Countries.pdf (accessed on 18 May 2025).

Ghosh, S., & Saha, S. K. (2025). Impact of foreign direct investment on economic growth in developing countries: The role of institutional quality. *Sustainable Economies*, *3*(1), 389. [CrossRef]

Goczek, L., Witkowska, E., & Witkowski, B. (2021). How does education quality affect economic growth? *Journal of Sustainability*, *13*(11), 6437. [CrossRef]

Goh, S. K., Sam, C. Y., & McNown, R. (2017). Re-examining foreign direct investment, exports, and economic growth in Asian economies using a bootstrap ARDL test for cointegration. *Journal of Asian Economics*, *51*, 12–22. [CrossRef]

Greene, W. H. (2011). *Econometric analysis* (7th ed.). Pearson.

Hoechle, D. (2007). Robust standard errors for panel regressions with cross-sectional dependence. *The Stata Journal*, *7*(3), 281–312. [CrossRef]

Hussain, S., Rehman, A. U., Ullah, S., Waheed, A., & Hassan, S. (2024). Financial inclusion and economic growth: Comparative panel evidence from developed and developing Asian countries. *Sage Open*, *14*(1), 21582440241232585. [CrossRef]

Iamsiraroj, S. (2016). The foreign direct investment–Economic growth nexus. *International Review of Economics and Finance*, *42*, 116–133. [CrossRef]

Lucas, R. E. (1988). On the mechanics of economic development. *Journal of Monetary Economics*, *22*(1), 3–42. [CrossRef]

Makiela, K., & Ouattara, B. (2018). Foreign direct investment and economic growth: Exploring the transmission channels. *Economic Modelling*, *72*, 296–305. [CrossRef]

Malefane, M. R., & Odhiambo, N. M. (2019). Trade openness and economic growth: Empirical evidence from Lesotho. *Global Business Review*, *22*(5), 1103–1119. [CrossRef]

Masoud, M. (2014). A contribution to the theory of economic growth: Old and new. *Journal of Economics and International Finance*, *6*, 47–61. [CrossRef]

Obeng-Amponsah, W., & Owusu, E. (2025). Foreign direct investment, technological transfer, employment generation and economic growth: New evidence from Ghana. *International Journal of Emerging Markets*, *20*(5), 2088–2109. [CrossRef]

Olagbaju, I. O., & Akinlo, A. E. (2018). FDI and economic growth relationship in Sub-Saharan Africa: Is the domestic financial system a significant intermediator? *Archives of Business Research*, *6*(5), 90–112. [CrossRef]

Ortiz-Ospina, E., Rohenkohl, B., Arriagada, P., & Roser, R. (2025). *Government spending*. Our World in Data. Available online: https://ourworldindata.org/government-spending (accessed on 18 February 2025). (Original work published 2016).

Ozili, P. K. (2025). Impact of foreign direct investment inflows on economic growth in Nigeria. In J. Martínez-Falcó, E. Sánchez-García, B. Marco-Lajara, & R. Fuentes-Fernández (Eds.), *Global economic interconnectedness: International trade and finance* (pp. 181–196). IGI Global Scientific Publishing. [CrossRef]

Pesaran, M. H. (2004). *General diagnostic tests for cross section dependence in panels*. Cambridge Working Papers in Economics 0435. Faculty of Economics, University of Cambridge.

Pesaran, M. H. (2006). Estimation and inference in large heterogeneous panels with a multifactor error structure. *Econometrica*, *74*(4), 967–1012. [CrossRef]

Rao, D. T., Sethi, N., Dash, D. P., & Bhujabal, P. (2023). Foreign aid, FDI and economic growth in South-East Asia and South Asia. *Global Business Review*, *24*(1), 31–47. [CrossRef]

Romer, P. (1990). Endogenous technological change. *Journal of Political Economy*, *98*(5), S71–S102. [CrossRef]
Sabur, A., Khusaini, K., & Ramdani, H. C. (2021). Education equality and economic growth in Indonesia. *Jejak*, *14*(1), 167–182. [CrossRef]
Sahoo, P. (2006). *Foreign direct investment in South Asia: Policy, trends, impact and determinants*. No. 56, ADBI Discussion Paper. ADBI.
Sairmaly, F. A. (2023). Human capital development and economic growth: A literature review on information technology investment, education, skills, and productive labour. *Jurnal Minfo Polgan*, *12*(1), 679–693. [CrossRef]
Sjöholm, F. (2013). *Foreign direct investments in Southeast Asia*. No. 987, IFN Working Paper. IFN.
Solow, R. M. (1956). A contribution to the theory of economic growth. *The Quarterly Journal of Economics*, *70*(1), 65–94. [CrossRef]
Swan, T. W. (1956). Economic growth and capital accumulation. *Economic Record*, *32*(2), 334–361. [CrossRef]
UNCTAD. (2024). *Southeast Asia: Foreign investments resilient despite global economic uncertainties*. United Nations Conference on Trade and Development. Available online: https://unctad.org/press-material/southeast-asia-foreign-investments-resilient-despite-global-economic-uncertainties (accessed on 18 February 2025).
UNCTAD. (2025). *UNCTADstat data centre*. United Nations Conference on Trade and Development. Available online: https://unctadstat.unctad.org/datacentre/ (accessed on 18 February 2025).
Welteji, D. (2018). A critical review of rural development policy of Ethiopia: Access, utilization and coverage. *Agriculture & Food Security*, *7*, 55. [CrossRef]
WIR. (2024). *World investment report 2024. Investment facilitation and digital government*. United Nations.
Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*. MIT Press.
World Bank. (2025). *World bank indicators*. World Bank. Available online: https://data.worldbank.org/indicator (accessed on 18 February 2025).

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