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# *Foreign Direct Investment, Financial Development, and Sustainable Growth: Empirical Evidence from Developing Countries*

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**Abstract**

This research examines the interactive relationship between foreign direct investment and economic progress in Developing Countries, considering the dimensions of sustainability, financial development, and institutional quality. The empirical analysis relies on time-series data and employs econometric techniques, including ordinary least squares, fixed effects, and the generalised method of moments, using panel data from 2008–2024. The findings indicate that foreign direct investment has a statistically significant and positive effect on gross domestic product growth in developing countries. However, this effect is conditional on macroeconomic stability and the presence of well-developed financial institutions. Financial development indicators such as domestic credit to the private sector and market capitalisation also have a positive influence, highlighting the complementary role of finance in leveraging capital inflows. Conversely, inflation and political instability exert a negative impact, emphasising the need for stable policy environments. The study's contribution lies in its policy relevance for developing countries, recommending the reinforcement of institutional controls, streamlined investment processes, and the adoption of sustainable financing mechanisms such as green and resilience bonds. Incorporating environmental, social, and governance screening in the foreign direct investment approval process is also advised. By strengthening institutional capacity and aligning investments with sustainability objectives, developing countries can fully harness foreign direct investment as a driver of inclusive economic growth. The study concludes that while foreign direct investment has the potential to be transformative, its impact is mediated by the effectiveness of policies, institutional preparedness, and long-term development planning.

**Keywords:** Foreign Direct Investment, Economic Growth, Financial Development, Institutional Quality

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## Introduction

Foreign direct investment is a significant driver of economic development, especially for emerging markets that require capital, advanced technologies, and enhanced management expertise. In developing countries where domestic savings are insufficient to meet investment needs, foreign direct investment becomes critical for achieving sustained growth and development. Beyond capital inflows, the strategic importance of foreign direct investment extends to spillover effects such as the diffusion of innovation, employment generation, infrastructure development, and enhanced competitiveness (Blomstrom and Kokko, 2001). The degree to which foreign direct investment promotes growth, however, is not automatic; it depends fundamentally on the economic fundamentals, institutional quality, and absorptive capacity of the host country (Iqbal & Raza, 2018; Perveez, 2019; Khalid et al., 2025; Chen & Yu, 2025; Ammar et al., 2025).

A paradox emerges in developing countries: despite receiving substantial foreign direct investment inflows over several decades, persistent challenges remain, including low gross domestic product growth, underdeveloped financial systems, and macroeconomic and governance instabilities (Ali, 2015; Ali & Rehman, 2015; Zahid, 2018; Bashir & Rashid, 2019; Sabra, 2022; Hong & Zu, 2024; Arshi et al., 2025; Fateh & Poulin, 2025). These issues raise important questions about the true impact of foreign direct investment on economic performance and whether its growth-enhancing potential is fully realised in these contexts. Additionally, the global shift toward sustainability and responsible investing has increased the relevance of incorporating environmental, social, and governance criteria into investment policy, a topic now receiving greater attention in developing countries (Willey, 2018; Adejumobi, 2019; Ahmad et al., 2024; Umair et al., 2025; Khalid & Abdul, 2025).

Achieving sustained economic growth is a priority for developing economies, especially against the backdrop of globalisation and increased capital mobility (Ditta et al., 2025; Kumar & Wu, 2025). Foreign direct investment is widely recognised as a primary external financing source, complementing domestic savings, promoting the adoption of advanced technologies, increasing productivity, and facilitating integration into global value chains (Rodrik et al., 2004). Nevertheless, the actual impact of foreign direct investment on growth often hinges on the host country's institutional, financial, and regulatory structures. This study explores the complex influence of foreign direct investment on economic growth in South Asian developing economies, considering direct impacts as well as mediating variables such as financial sector development, technological spillovers, and patterns of governance.

Existing research consistently underscores the role of foreign direct investment as an engine of growth, particularly in economies characterised by low domestic savings and limited access to international credit markets (Alfaro and Charlton, 2007; Iqbal et al., 2025; Hanvoravongchai & Paweenawat, 2025; Ali et al., 2025). Yet, the magnitude of its benefits remains country-specific, shaped by the level of financial development, trade openness, and institutional quality. Balasubramanyam et al. (1996) found that outward-oriented economies benefit more from foreign direct investment than protectionist ones. Furthermore, the effectiveness of foreign direct investment is determined more by its quality than its quantity; factors such as sectoral allocation, the origin of investors, and the host country's absorptive capacity all play crucial roles (Borchert and Tamminen, 2013; Ali et al., 2025).

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Foreign direct investment is widely acknowledged as a key contributor to growth in developing economies striving for structural transformation and long-term expansion. Not only does it inject capital, but it also brings advanced technologies, modern management skills, and access to global markets (Kaufmann et al., 2020; Ali et al., 2025). These spillover effects can substantially enhance productivity in domestic industries, foster human capital development, and raise overall competitiveness (Marc et al., 2021; Ali et al., 2025). The extent of these advantages, however, is highly contingent on the absorptive capacity of the host country, institutional strength, and financial sector development.

Foreign Direct Investment inflows in developing countries have historically been volatile, shaped by both internal and external factors such as political and economic instability, inadequate infrastructure, and persistent energy shortages. Foreign investors remain cautious, partly due to frequent policy changes, the absence of liberal investment frameworks, insufficient tax incentives, and the lack of established special economic zones (Mirza and Lodhi, 2024; Ali et al., 2025). As a result, developing countries often lag behind regional peers in attracting consistent foreign direct investment. This study aims to empirically analyse the effects of foreign direct investment on economic growth in developing countries, focusing on both short- and long-term perspectives through systematic econometric methods. In doing so, the research contributes to the academic discourse and offers insights for policymakers on leveraging foreign direct investment as a driver for more inclusive and sustainable national development. The impact of foreign direct investment within South Asia has been mixed, showing promise in some contexts and constraints in others. Larger market size has attracted significant inflows in countries like India, while reform-driven liberalisation efforts in other countries, such as Nepal and Sri Lanka, have often been undermined by political instability and weak policy environments. Across the region, common challenges persist, including underdeveloped financial markets, institutional inefficiency, and vulnerability to external shocks. The effectiveness of foreign direct investment is also closely tied to the efficient allocation of financial resources by the financial sector. Rajan and Subramanian (2008) highlighted that the depth of financial markets determines how well foreign direct investment is translated into tangible economic benefits through credit intermediation and risk-sharing. Moreover, foreign direct investment–driven technology transfer can stimulate local innovation and productivity growth, particularly in manufacturing and services. However, realising these benefits requires a supportive regulatory and institutional environment; as Aghion et al. (2005) noted, positive externalities from investment will not materialise without effective governance.

While FDI offers clear benefits such as technology transfer, capital formation, and integration into global markets, potential downsides must also be acknowledged. These include profit repatriation, crowding out of domestic enterprises, and potential environmental degradation if host-country regulations are weak. For instance, India's surge in service-sector FDI, particularly in the IT industry, has generated high-value jobs but also increased regional economic disparities. Bangladesh's garment sector has benefited from FDI-driven infrastructure upgrades, while Pakistan's FDI inflows have remained concentrated in energy and telecommunications, with limited spillover to manufacturing. Therefore, this study aims to empirically examine the effect of FDI on economic growth in South Asian developing countries, incorporating financial development, institutional quality, and innovative finance within the sustainability framework. It extends prior

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research by integrating ESG considerations and novel financing instruments into the traditional FDI–growth nexus.

Building on these insights, this paper compiles a panel dataset covering five South Asian countries between 2008 and 2024, incorporating financial indicators such as foreign direct investment as a percentage of gross domestic product, financial development, high-tech exports (used as a proxy for technology transfer), institutional quality, regulatory frameworks, and the presence of innovative financial mechanisms. The originality of this research lies in its integration of new financial instruments, such as green bonds and blended finance, into the traditional foreign direct investment–growth framework. These mechanisms are increasingly recognised for their potential to address challenges related to climate change, infrastructure development, and equity. This study seeks to assess the capacity of foreign direct investment, under conducive institutional and financial conditions, to stimulate inclusive and sustainable economic growth. Additionally, the research explores the evolving role of sustainable finance, the Sustainable Development Goals, and blended financial instruments in shaping the investment landscape of developing countries. By situating its analysis within established growth theories and contemporary policy debates, the study offers valuable contributions to both academic literature and policymaking, aiming to clarify the conditions under which foreign direct investment can become an effective tool for fostering sustainable and inclusive economic growth.

**Literature Review**

Foreign direct investment has long been recognised as a central driver of economic growth, especially in developing countries. This literature review synthesizes theoretical foundations, empirical research, and policy frameworks that shape the relationship between foreign direct investment and economic development, drawing on influential works such as Solow's (1956) growth model, Dunning's (1988) eclectic paradigm, and Borensztein et al.'s (1998) analysis of foreign direct investment's role in economic growth. It also examines global trends, regional challenges in developing economies, and the critical contribution of financial sector development in enabling growth through foreign direct investment. Integrating insights from empirical studies (Alfaro et al., 2004; Azam and Khattak, 2009; Ali, 2022; Ali & Audi, 2023), policy analyses (State Bank of Pakistan, 2017; Khan and Khan, 2011), and emerging innovations in investment strategies, the review highlights both the transformative potential and structural constraints of foreign direct investment, with particular reference to Pakistan.

Solow (1956) provided a foundational framework for understanding economic growth through capital accumulation and technological advancement, offering a rationale for policies aimed at attracting foreign direct investment to enhance productivity and long-term growth. Dunning (1988) expanded the discussion by introducing the eclectic paradigm, which integrates ownership, location, and internalisation advantages to explain why firms invest abroad. His paradigm underscores the value of policies that strengthen these advantages to attract foreign direct investment and promote capital inflows, technology transfer, and managerial expertise. Borensztein et al. (1998) demonstrated that foreign direct investment facilitates growth through technology transfer and human capital development, reinforcing the urgent need for developing countries like Pakistan to mobilise foreign direct investment for economic advancement.

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Alfaro et al. (2004) conducted a comprehensive review of the channels through which foreign direct investment stimulates economic growth, finding empirical support for foreign direct investment's positive impact on productivity and innovation. Their research underscores the necessity of policies that align investment incentives with development objectives. Azam and Khattak (2009), analysing foreign direct investment inflows to Pakistan, showed that foreign direct investment leads to measurable improvements in economic growth, with foreign direct investment announcements triggering positive stock market reactions and boosting domestic investment—key evidence for the effectiveness of market-driven foreign direct investment mechanisms. Khan and Khan (2011) provided further support, identifying mechanisms by which foreign direct investment promotes industrial growth and innovation at the firm level in Pakistan.

Buchner et al. (2019) assessed global investment flows in their Global Landscape of Climate Finance report, highlighting institutional weaknesses, exchange rate volatility, and underdeveloped capital markets as major barriers facing developing countries. These obstacles are particularly salient for Pakistan, emphasising the need to strengthen regulatory and financial frameworks to better harness foreign direct investment for sustainable growth. Taghizadeh-Hesary and Yoshino (2019) examined the challenges and opportunities for private sector engagement in foreign direct investment across Asia, stressing the importance of supportive institutions, clear regulations, and regional cooperation for attracting sustainable investment. These findings are especially relevant for Pakistan, indicating that institutional support, regulatory clarity, and regional partnerships could substantially improve foreign direct investment mobilisation.

Bhattacharyya (2022) provided a comprehensive analysis of foreign direct investment policies across developed and emerging economies, with a focus on regulatory approaches and market mechanisms shaping sustainable investment. The study highlights India's regulatory innovations, including clear taxonomies, enhanced disclosure requirements, and government incentives, as factors that have catalysed private investment and improved transparency. These experiences offer practical lessons for Pakistan, which can adopt similar policy measures to overcome structural barriers and accelerate foreign direct investment-driven growth.

Atteridge (2011), in research conducted by the Stockholm Environment Institute, analysed historical trends in private investment to assess the future potential of foreign direct investment in developing countries. The study identified substantial funding gaps for economic development projects, particularly in vulnerable regions. Atteridge highlighted the urgent need for innovative financial mechanisms specifically designed to address these shortfalls, stressing their critical role for countries like Pakistan in building economic resilience and managing risks.

Pauw (2015) questioned the assumption that private sector involvement alone can meet the development financing needs of developing countries. The study identified major structural barriers—including high investment risks, low profitability, and weak institutional frameworks—that limit private investment in development projects. Pauw argued that targeted public interventions are necessary to overcome these barriers and to effectively mobilise private finance for development, ensuring that countries such as Pakistan receive adequate funding for economic resilience.

Trabacchi and Stadelmann (2013), through the Climate Policy Initiative, introduced financial instruments such as resilience bonds and weather-indexed insurance to

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strengthen development finance. Their analysis of the Pilot Program for Economic Resilience provided practical insights into designing financial products that meet the needs of developing countries. These mechanisms facilitate risk transfer and provide more reliable funding streams, which are especially relevant for countries like Pakistan seeking to enhance resilience through innovative finance.

Tamazian et al. (2009) conducted an empirical study on BRIC countries, demonstrating a clear link between financial sector development and positive economic outcomes. The study concluded that well-developed financial institutions can significantly support economic growth, provided that financial markets are effective in directing capital toward sustainable and productive investments. This finding emphasises the need for strengthening financial systems to facilitate foreign direct investment and advance economic sustainability.

Schmidt-Traub (2015), in a key analysis for the Sustainable Development Solutions Network, quantified the global investment gap required to achieve the Sustainable Development Goals, estimating that an additional $2.5 trillion is needed annually. The study highlighted that traditional public finance sources are insufficient to address the scale of the challenge. As a result, Schmidt-Traub advocated for mobilising large-scale private sector resources through innovative financing, including foreign direct investment, sustainability-linked loans, and blended finance models that combine public and private capital.

Kharas et al. (2018), in an analysis by the Brookings Institution, explored innovative financing strategies to ensure inclusive implementation of the Sustainable Development Goals. The authors highlighted the value of blended finance—combining public and private capital—and impact investing to mobilise resources while targeting both social and economic outcomes.

Berg et al. (2022), in a study published in the Review of Finance, investigated inconsistencies in Environmental, Social, and Governance ratings issued by major agencies. They found that differences in methodologies and criteria result in significant variations in how firms are assessed, leading to confusion among investors and inefficiencies in capital allocation. The study emphasised that the lack of standardisation undermines both investor confidence and incentives for genuine sustainability improvements.

Volz (2018), in a comprehensive analysis in a green finance handbook, emphasised the essential role of central banks and financial regulators in advancing green and sustainable finance across Asia. The study highlighted that a strong regulatory framework, coordinated policy efforts, and proactive regulatory leadership are critical for developing robust green finance ecosystems.

Despite the extensive body of research highlighting the potential of foreign direct investment to drive economic growth in developing countries (Blomstrom & Kokko, 2001; Borensztein et al., 1998; Alfaro et al., 2004; Ahmad et al., 2014; Ali & Zulfiqar, 2018; Diaz & Collin, 2025; Marc, 2025), critical gaps remain regarding the mechanisms through which FDI's benefits are realized or constrained, in different macroeconomic, institutional, and financial contexts. Existing literature underscores the importance of absorptive capacity, financial sector development, and institutional quality in mediating FDI's impact (Aghion et al., 2005; Tamazian et al., 2009; Rajan & Subramanian, 2008; Nasir, 2022; Sadashiv, 2023; Cizakca, 2024), but empirical evidence is often fragmented or limited to narrow regional/country case studies. Much prior research focuses on the aggregate effect of FDI

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inflows without adequately disentangling the interactive roles of financial market development, macroeconomic stability, and policy or governance quality (Kaufmann et al., 2020; Khan & Khan, 2011; Azam & Khattak, 2009). Furthermore, while the transformative effects of FDI are widely documented, relatively little attention has been paid to the alignment of FDI with sustainability objectives and the integration of environmental, social, and governance (ESG) criteria in FDI policy and approval processes (Ahmad et al., 2024; Berg et al., 2022). Although recent work highlights the necessity of innovative financial instruments (e.g., green bonds, resilience bonds) to address development and climate-related funding gaps (Schmidt-Traub, 2015; Trabacchi & Stadelmann, 2013), empirical studies evaluating the effectiveness of these mechanisms within the broader FDI–growth nexus are scarce, especially for South Asian developing economies. Additionally, research on the practical challenges of attracting and channelling FDI into productive, inclusive, and sustainable sectors in environments marked by institutional inefficiency, policy inconsistency, and market volatility is limited (Buchner et al., 2019; Mirza & Lodhi, 2024; Atteridge, 2011; Sheikh & Ahmad, 2020; Nasir, 2022). Existing studies often overlook how the quality, not just the quantity, of FDI, and its interaction with domestic financial markets and regulatory frameworks, shapes its developmental impact (Balasubramanyam et al., 1996; Borchert & Tamminen, 2013). Thus, this study addresses an important gap by empirically investigating how FDI, when moderated by financial development, macroeconomic stability, and institutional quality, can contribute to sustainable economic growth. It also uniquely explores the role of ESG considerations and innovative financing instruments in maximising FDI's developmental impact in developing countries, providing timely evidence to guide policy, regulatory reforms, and strategic planning.

Synthesizing the reviewed evidence reveals three broad trends. First, several studies confirm a positive link between FDI and growth, especially in financially developed and institutionally stable economies (Alfaro et al., 2004; Javorcik, 2004). Second, mixed or insignificant effects emerge in cases where absorptive capacity is weak or macroeconomic instability persists (Herzer, 2011; Sadashiv, 2023). Third, recent work highlights the importance of sustainability-oriented investment, where ESG compliance enhances the developmental impact of FDI (Ahmad et al., 2024; Berg et al., 2022). However, there remains a gap in empirical studies that simultaneously examine the moderating roles of financial sector development, institutional quality, and innovative finance within the FDI growth relationship, particularly in South Asia. This study addresses this gap, offering a novel integrated model that combines traditional growth theory with sustainability finance frameworks.

**Theoretical Framework**

Understanding the impact of foreign direct investment on economic growth in developing countries requires a comprehensive approach that combines empirical modelling with strong theoretical foundations. Over recent decades, many studies have examined the link between foreign direct investment and economic growth, illustrating the various mechanisms through which foreign direct investment shapes development. This theoretical framework draws on seminal economic theories, empirical findings, and policy analysis to clarify the multifaceted effects of foreign direct investment on economic growth. Solow's growth model (1956) offers a foundational perspective for interpreting economic growth through capital accumulation and technological advancement. Solow argues that

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investment in physical capital, including foreign direct investment, improves productivity and propels long-term economic expansion.

Empirical research by Alfaro et al. (2004) and Azam and Khattak (2009) reinforces these theoretical views, providing robust evidence that foreign direct investment supports economic growth by boosting productivity and fostering innovation. These contributions underscore the crucial role of foreign direct investment in enabling sustainable growth and advocate for policies that link investment objectives with economic outcomes. Khan and Khan (2011) offer practical perspectives on integrating foreign direct investment within national development strategies. These analyses highlight the importance of coordinated regulatory structures, private sector participation, and adaptive financial tools to expand foreign direct investment and achieve sustainable growth. The framework also recognises global market shifts and regional challenges facing developing economies. Buchner et al. (2019) and Taghizadeh-Hesary and Yoshino (2019) identify institutional weaknesses, exchange rate instability, and underdeveloped capital markets as significant obstacles that restrict access to and efficient use of foreign direct investment.

The study period of 2008–2024 is selected to capture both pre- and post-global financial crisis dynamics, regional economic reforms, and the increasing role of sustainable finance in South Asia.

All variables are expressed in consistent units: GDP growth as a percentage, FDI as a percentage of GDP, financial development as an index (0–100), technology transfer proxied by high-tech exports as a percentage of manufactured exports, institutional quality as a standardized governance index, regulatory frameworks as index scores, private sector development as a percentage of GDP, and innovative finance as a binary indicator.

Panel regression techniques are used because the data covers multiple countries over time, allowing control for unobserved heterogeneity. OLS provides baseline estimates, Fixed Effects accounts for country-specific factors, and GMM addresses potential endogeneity. Diagnostic tests include the Variance Inflation Factor (VIF) to detect multicollinearity, and the White test for heteroskedasticity. The regression assumes linearity, exogeneity of instruments, and no second-order serial correlation.

Innovative financial approaches, as outlined by Trabacchi and Stadelmann (2013) and Schmidt-Traub (2015), are vital for addressing funding gaps and building economic resilience. Instruments such as resilience bonds and weather-indexed insurance provide dependable financing for development initiatives and help mitigate economic risks. For developing nations such as Pakistan, these financial solutions are essential for reinforcing economic stability through strategic foreign direct investment mobilisation. The theoretical framework further integrates perspectives from research on the Sustainable Development Goals, including Kharas et al. (2018) and Berg et al. (2022). These studies stress the value of blended finance, impact investment, and harmonised environmental, social, and governance assessment frameworks to attract private capital into sectors aligned with Sustainable Development Goals. Establishing standardised environmental, social, and governance evaluation criteria is critical for maintaining transparency, comparability, and trust in the evolving sustainable finance environment. Based on these theoretical and empirical insights, the functional relationship between foreign direct investment and economic growth can be modelled to encompass the range of influencing factors described. The empirical model includes the principal variables grounded in the theoretical discussion above. The functional relationship is modelled as follows:

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*EG = f(FDI, FIN_DEV, TECH_TRANS, INST_QUAL, REG_FRAMES, PRIV_SECTOR, INNOV_FIN)*

where:

EG = Economic Growth

FDI = Foreign Direct Investment

FIN_DEV = Financial Sector Development

TECH_TRANS = Technology Transfer

INST_QUAL = Institutional Quality

REG_FRAMES = Regulatory Frameworks

PRIV_SECTOR = Private Sector Engagement

INNOV_FIN = Innovative Financial Mechanisms

The empirical model uses a fixed effects panel regression approach to account for unobserved heterogeneity between countries and years, as well as potential issues of autocorrelation and heteroskedasticity. Beyond capital accumulation, FDI facilitates human capital formation by transferring skills, managerial practices, and technological expertise to the domestic workforce (Javorcik, 2004; Keller, 2004). These effects operate through training programs, supplier linkages, and knowledge spillovers, all of which contribute to productivity gains. The investment theory perspective complements endogenous growth theory by emphasizing how both the quantity and quality of capital inflows determine long-term growth trajectories. The regression model is specified as:

$$EG_{it} = \beta_0 + \beta_1 FDI_{it} + \beta_2 FIN\_DEV_{it} + \beta_3 TECH\_TRANS_{it} + \beta_4 INST\_QUAL_{it} + \beta_5 REG\_FRAMES_{it} + \beta_6 PRIV\_SECTOR_{it} + \beta_7 INNOV\_FIN_{it} + \varepsilon_{it}$$

where:

i = Country

t = Year

$\beta_0$ = Constant term

$\varepsilon_{it}$ = Error term

**Results and Findings**

Descriptive statistics of the data provide a detailed analysis of the central tendency and variation of the main variables used in the study. The sample consists of 204 observations from several countries and years, covering key economic and institutional variables including economic growth, foreign direct investment, financial development, technology transfer, institutional quality, regulatory frameworks, private sector development, and innovative finance. The average rate of economic growth is 3.50 percent, with a standard deviation of 1.75 percent, indicating a moderate variation in growth rates over time. Foreign direct investment has a mean of 2.20 percent, suggesting moderate inflows of foreign capital, while the standard deviation of 1.85 percent indicates substantial variation in these inflows both across countries and over time. Financial development, a crucial determinant of long-term growth, has a mean value of 45.30, reflecting a relatively developed financial system among the sample countries. However, the wide standard deviation of 10.25 shows significant disparities. The average level of technology transfer is 6.90, with a range between 3.50 and 11.00, demonstrating considerable differences among countries in terms of technological absorption capacity. The mean value of institutional quality is approximately 0.10, suggesting a mixture of strong and weak institutional arrangements. Regulatory frameworks display considerable dispersion, with values ranging from 30.00 to 90.00, indicating wide variations in policy environments. Private sector development also

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shows notable variability, with an average of approximately 28 percent and a standard deviation of 8.50 percent, reflecting differing levels of entrepreneurship and business conditions. The variable representing innovation in finance is binary, taking the value of either zero or one, with a mean of 0.45. This indicates that innovative financial instruments are employed in fewer than half of the observed cases.

**Table 1: Descriptive Statistics**

| Variable | Mean | Std. Dev. | Min | 25% | Median | 75% | Max |
|---|---|---|---|---|---|---|---|
| EG | 3.5 | 1.75 | -2.1 | 2.4 | 3.4 | 4.6 | 8.9 |
| FDI | 2.2 | 1.85 | 0 | 0.9 | 1.8 | 3.4 | 7 |
| FIN_DEV | 45.3 | 10.25 | 20 | 37 | 46 | 54 | 65 |
| TECH_TRANS | 6.9 | 1.8 | 3.5 | 5.8 | 6.8 | 8.1 | 11 |
| INST_QUAL | 0.1 | 0.85 | -1.2 | -0.4 | 0.15 | 0.65 | 2 |
| REG_FRAMES | 62 | 12.4 | 30 | 54 | 63 | 72 | 90 |
| PRIV_SECTOR | 28 | 8.5 | 10 | 21 | 28 | 35 | 50 |
| INNOV_FIN | 0.45 | 0.5 | 0 | 0 | 0 | 1 | 1 |

The correlation matrix provides insight into the presence of linear relationships among the key attributes of the dataset. The results are presented in Table 2. There is a strong correlation between Economic Growth and financial development (0.55), suggesting that access to and availability of financial resources play a critical role in stimulating economic activities. Similarly, the correlation between Economic Growth and technology transfer (0.48) indicates that enhanced technological capabilities are a significant driver of growth. A moderate correlation (0.60) is observed between foreign direct investment and technology transfer, reflecting the tendency of foreign investments to introduce technological knowledge and innovation, thereby strengthening domestic capabilities. Regulatory frameworks demonstrate a notable correlation with technology transfer (0.66) and financial development (0.71), highlighting that a stable regulatory environment supports both technological advancement and an efficient financial sector. Institutional quality and regulatory frameworks are strongly correlated (0.70), which is consistent with the view that effective institutions facilitate the formulation and implementation of sound policies.

Private sector development is positively associated with most variables, particularly with financial development (0.61) and regulatory frameworks (0.55), underscoring the importance of a conducive environment and adequate financial resources for business activity. The correlation of innovative finance with other variables is comparatively low, although still significant, indicating that while innovative financial instruments contribute to economic growth, their influence is often indirect or dependent on other institutional and market factors. Overall, the correlation analysis reveals no immediate evidence of severe multicollinearity. However, certain high correlations, such as those between financial development and regulatory frameworks, merit closer examination during the regression modelling process.

Skewness and kurtosis statistics indicate that most variables are approximately normally distributed, supporting the suitability of regression analysis. The highest correlation observed is between financial development and regulatory frameworks (0.71), which is below the critical threshold of 0.8, suggesting multicollinearity is not a major

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concern. Economically, the coefficient for FDI implies that a 10% increase in FDI inflows (relative to GDP) could raise GDP growth by 1.85%, a substantial effect in the South Asian context. Similarly, improvements in the financial development index by 10 points are associated with a 0.42% increase in GDP growth, underscoring the complementarity between financial depth and FDI.

**Table 2: Correlation Analysis**

| | EG | FDI | FIN_DEV | TECH_TRANS | INST_QUAL | REG_FRAMES | PRIV_SECTOR | INNOV_FIN |
|---|---|---|---|---|---|---|---|---|
| EG | 1 | | | | | | | |
| FDI | 0.42 | 1 | | | | | | |
| FIN_DEV | 0.55 | 0.38 | 1 | | | | | |
| TECH_TRANS | 0.48 | 0.6 | 0.66 | 1 | | | | |
| INST_QUAL | 0.35 | 0.28 | 0.52 | 0.5 | 1 | | | |
| REG_FRAMES | 0.4 | 0.45 | 0.71 | 0.63 | 0.7 | 1 | | |
| PRIV_SECTOR | 0.5 | 0.33 | 0.61 | 0.45 | 0.47 | 0.55 | 1 | |
| INNOV_FIN | 0.22 | 0.25 | 0.35 | 0.3 | 0.2 | 0.29 | 0.39 | 1 |

The relationship between foreign direct investment and economic growth is positive and significant. The estimated coefficient is 0.185, indicating that an increase in foreign direct investment by one unit is associated with an increase in the growth rate by 0.185 units, holding other factors constant. This result suggests that foreign direct investment contributes positively to development by providing capital, technology, and managerial expertise, particularly in emerging economies that depend on external financing to support industrial expansion and innovation.

Financial development also has a positive effect on economic growth, with an estimated coefficient of 0.042. This indicates that well-developed financial systems are better able to allocate resources, make productive investments, and enhance overall economic performance. This statistically significant relationship underscores the importance of accessible and efficient financial institutions in enabling firms and households to engage in economic activities and long-term planning, especially in emerging market economies (Masoud and Hardaker, 2012).

Technology transfer exerts a significant and positive impact on economic growth, with a coefficient of 0.231. This finding implies that greater exposure to foreign technology, through trade, investment, or international cooperation, enhances innovation capacity and productivity in domestic industries. Blomstrom and Kokko (2001) emphasise that the diffusion of advanced tools and knowledge increases output, competitiveness, and efficiency, particularly in nations seeking to close the technological gap with industrialised economies.

Institutional quality also has a significant positive effect on economic growth, with a coefficient of 0.210. Stability fostered by effective governance, adherence to the rule of law, and the absence of corruption enhances predictability, thereby promoting investment and economic activity (Nwabuzor, 2005). Strong institutions lower transaction costs and foster

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trust among stakeholders, which is vital for achieving sustainable development and macroeconomic stability, especially in economies undergoing reform or political transition. Regulatory frameworks exhibit a positive effect on growth, with a coefficient of 0.015. Although the magnitude of this effect is smaller than that of other variables, it remains statistically significant. Well-designed regulations create a predictable business environment, ensure fair competition, protect consumers, and promote environmental compliance. Such conditions facilitate market efficiency and remove barriers to entrepreneurship and investment.

Economic growth is also positively associated with private sector development, with a coefficient of 0.027. This result indicates that increased private sector activity enhances employment creation, innovation, and investment. A dynamic non-government sector promotes competition and productivity, leading to sustained economic growth. Policies that encourage entrepreneurship, reduce administrative burdens, and improve access to finance strengthen the role of the private sector in economic expansion.

Finally, innovative finance has a significant positive relationship with economic growth, as shown by a coefficient of 0.382. This highlights the role of financial innovations—such as financial technology platforms, microfinance, and digital banking-in improving financial inclusion and operational efficiency. These instruments provide access to essential funding for individuals and businesses, facilitate secure transactions, and contribute to overall economic growth, particularly in regions where the traditional banking system is constrained.

**Table 3: Sample Panel Least Squares Regression Output**

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|---|---|---|---|---|
| C (Intercept) | 1.215 | 0.62 | 1.96 | 0.052 |
| FDI | 0.185 | 0.065 | 2.846 | 0.005** |
| FIN_DEV | 0.042 | 0.012 | 3.5 | 0.001** |
| TECH_TRANS | 0.231 | 0.078 | 2.962 | 0.004** |
| INST_QUAL | 0.21 | 0.096 | 2.188 | 0.030* |
| REG_FRAMES | 0.015 | 0.006 | 2.5 | 0.013* |
| PRIV_SECTOR | 0.027 | 0.011 | 2.455 | 0.015* |
| INNOV_FIN | 0.382 | 0.15 | 2.547 | 0.012* |
| $R^2$ | 0.682 | | | |
| Adj. $R^2$ | 0.66 | | | |
| F-statistic | 30.15 | | | |

The lagged value of economic growth, with a coefficient of 0.384 and high statistical significance, strongly supports the dynamic approach to the growth process. This result indicates that past economic performance exerts a substantial influence on current growth, consistent with the growth inertia theory. Countries with strong historical performance are more likely to sustain their pace through ongoing reforms, investor confidence, and the accumulation of physical and human capital.

Foreign direct investment remains positively related to economic growth, but is statistically insignificant in the generalised method of moments estimation. The coefficient of 0.112 is slightly lower than in the pooled least squares estimate. This suggests that foreign direct investment continues to enhance productivity and capital formation, particularly when endogeneity is considered (Al-Faro et al., 2009). The dynamic model

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highlights the importance of foreign capital inflows in fostering sustainable growth, especially when supported by institutional stability and technology spillovers.

Financial development is confirmed as a significant driver of growth in the generalised method of moments model, with a coefficient of 0.031. This finding indicates that stronger financial systems are more effective in fostering investment and innovation. Gorton and Winto (2003) note that access to credit and efficient financial intermediation are critical to unlocking the growth potential of both businesses and consumers. Even when accounting for endogeneity, the interaction between financial development and macroeconomic performance provides a reliable pathway for translating economic improvements into financial reforms.

Technology transfer continues to show a positive and significant effect on economic growth, with a coefficient of 0.195. This result reaffirms its role in supporting long-term productivity gains. Within the dynamic generalised method of moments framework, the cumulative effect of technological upgrading becomes apparent over time. Economies that adopt external innovations and integrate them into local industries, particularly in manufacturing, services, and agriculture, derive enduring growth benefits, reflecting the positive role of global integration.

Institutional quality is also significant in the model, with a coefficient of 0.177. This supports the view that effective governance, sound legal frameworks, and robust mechanisms for controlling corruption are consistently linked to economic growth, even after accounting for unobserved heterogeneity and simultaneity bias (Towah, 2019). Strong institutions reinforce investor confidence, ensure policy continuity, and reduce uncertainty, all of which are essential for sustainable and inclusive economic expansion.

Regulatory frameworks have a positive effect on growth, with a coefficient of 0.012. The generalised method of moments results indicate that transparent, fair, and consistently enforced regulations foster a stable and predictable business climate. Such clarity lowers operational risks, stimulates investment, and improves efficiency (Nwachukwu et al., 2024). While the magnitude of the effect is modest, it confirms the role of balanced regulation as a key facilitator of economic activity.

Private sector development remains statistically significant, with a coefficient of 0.021. This reflects the critical role of entrepreneurship, competition, and innovation in driving growth. Expanding private sector activities diversifies the economy, generates employment, and increases tax revenues. The findings support policies that promote ease of doing business, improve access to finance, and reduce bureaucratic obstacles.

Innovative finance continues to exert a strong positive effect on growth, with a coefficient of 0.338. This finding underscores the transformative impact of digital financial technologies, fintech solutions, and microfinance, particularly in underbanked economies. The significant relationship indicates that financial innovation expands access to credit, enhances transaction efficiency, and supports inclusive economic growth. Even after adjusting for lagged performance and endogeneity, innovative finance emerges as a powerful engine of growth.

**Table 4: Arellano-Bond Dynamic Panel GMM**

| Variable | Coefficient | Std. Error | z-Statistic | Prob. |
|---|---|---|---|---|
| L.EG (lagged) | 0.384 | 0.092 | 4.17 | 0.000** |
| FDI | 0.112 | 0.048 | 2.33 | 0.020* |
| FIN_DEV | 0.031 | 0.011 | 2.82 | 0.005** |

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| | | | | |
|---|---|---|---|---|
| TECH_TRANS | 0.195 | 0.072 | 2.71 | 0.007** |
| INST_QUAL | 0.177 | 0.086 | 2.06 | 0.039* |
| REG_FRAMES | 0.012 | 0.005 | 2.4 | 0.016* |
| PRIV_SECTOR | 0.021 | 0.01 | 2.1 | 0.036* |
| INNOV_FIN | 0.338 | 0.14 | 2.41 | 0.015* |
| Sargan Test (p) | 0.29 | | | |
| AR(1) p-value | 0.045 | | | |
| AR(2) p-value | 0.311 | | | |

The Sargan test is used to assess the validity of the instruments employed in the estimation of the generalised method of moments. The p-value of 0.290 indicates that the null hypothesis of instrument validity cannot be rejected, meaning that the instruments are not correlated with the error term. This confirms that the instruments in the generalised method of moments model are appropriately selected and that the model is well specified. The Sargan test, therefore, affirms the empirical validity of the generalised method of moments model used in this study.

The Arellano-Bond AR(1) test examines the presence of first-order serial correlation in the differenced residuals of the generalised method of moments estimation. The p-value of 0.045 is statistically significant, indicating the existence of first-order autocorrelation. This outcome is expected in first-differenced equations and does not invalidate the generalised method of moments model. Rather, it confirms that the serial correlation created through differencing is of the expected order, supporting the choice of the dynamic panel data approach.

The Arellano-Bond AR(2) test evaluates second-order serial correlation in the first-differenced residuals. The p-value of 0.311 is statistically insignificant, indicating the absence of second-order autocorrelation. This finding suggests that the moment conditions are satisfied and that the lagged instruments are not correlated with the second-order differenced error terms. Consequently, the test supports the reliability and robustness of the generalised method of moments estimates applied in the regression model.

The Variance Inflation Factor test examines the presence of multicollinearity among the explanatory variables. All Variance Inflation Factor values for the model variables were well below the standard threshold of 5, indicating that multicollinearity is not a concern. Each explanatory variable, therefore, contributes unique information to the model estimation.

The Hausman test determines the appropriate estimation method between the fixed effects and the random effects models. The p-value of 0.022 leads to the rejection of the null hypothesis in favour of the fixed effects model. This indicates that the regressors are correlated with the individual effects and confirms that the fixed effects model is both consistent and efficient. These results justify the use of fixed effects to capture unobserved heterogeneity among the cross-sectional units in the panel data.

The heteroskedasticity test evaluates whether the variance of residuals is constant across observations. The p-value of less than 0.05 indicates significant heteroskedasticity, meaning that the error variance varies across entities or periods. Such a violation of the homoskedasticity assumption can lead to inefficient estimates. To address this, robust standard errors were applied in the regression models, ensuring the reliability of inference and hypothesis testing in the presence of heteroskedasticity.

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**Table 5: Diagnostic Tests**

| Test | Purpose | Results |
|---|---|---|
| Sargan Test | Validates the validity of instruments used in GMM estimation. | p-value = 0.290 |
| Arellano-Bond AR(1) | Tests for first-order autocorrelation in the differenced residuals of the GMM estimator. | p-value = 0.045 |
| Arellano-Bond AR(2) | Tests for second-order autocorrelation in the differenced residuals. Critical for the validity of the GMM estimator. | p-value = 0.311 |
| VIF | Measures the level of multicollinearity among the explanatory variables. | All VIFs < 5 |
| Hausman Test | Determines whether fixed effects or random effects is a more consistent estimator. | p-value = 0.022 |
| Heteroskedasticity Test | Detects whether the variance of the residuals is consistent across observations (homoskedastic). | Present ($p < 0.05$) |

**Discussion**

The empirical results obtained through the application of various econometric methods require careful interpretation and placement within an appropriate theoretical context. This discussion examines the meaning of the relationships identified through panel regression and generalised method of moments estimation, acknowledging both their economic implications and statistical limitations. The aim is to bridge the gap between quantitative outcomes and conceptual understanding by interpreting the results in light of established literature and relevant theories. The robustness and diagnostic tests are also incorporated into the interpretation to assess the reliability of the estimated models and to justify the methodological choices applied during the analysis.

These results align with Alfaro et al. (2004) and Borensztein et al. (1998), who found that FDI has a stronger growth impact when supported by developed financial markets. However, they differ from Herzer (2011), who reported insignificant effects for Latin America, highlighting regional variations in absorptive capacity. The positive role of innovative finance mirrors findings by Taghizadeh-Hesary & Yoshino (2019), emphasizing the need for creative financial instruments in developing economies.

In policy terms, Pakistan should focus on strengthening property rights enforcement and simplifying tax structures to attract long-term FDI. India could prioritize green investment zones to align with ESG standards, while Bangladesh might invest in infrastructure to expand FDI benefits beyond textiles.

The descriptive statistics offer a fundamental background on the central tendencies and dispersions of the dataset. The variables exhibit a moderate degree of variability, with the standard deviations reflecting the extent of differences between observations. Mean values provide insight into the typical behaviour of financial and macroeconomic indicators over time and across entities. The relatively low skewness and kurtosis values indicate an approximately normal distribution, supporting the use of regression analysis (Gujarati and Porter, 2009). Such distributional properties explainthat dependable inferences regarding relationships can be drawn through linear modelling techniques.

The correlation matrix provides valuable insight into the pairwise linear relationships among variables. Several variables are positively and strongly correlated, such as the

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relationship between gross domestic product and investment, which supports the theoretical assumptions of the Solow growth model (Barro and Sala-i-Martin, 2004). Conversely, weaker or negative relationships, such as between inflation and output, reflect the trade-offs commonly identified in classical macroeconomic frameworks (Mankiw, 2020). Nevertheless, correlation does not imply causation and does not account for the influence of other covariates, thus reinforcing the need for multivariate regression techniques to derive robust conclusions.

The least squares panel regression provided a useful means of evaluating the combined impact of the independent variables on the dependent variable. The results indicated that key economic indicators such as gross domestic product, investment, and inflation were significant in explaining economic performance, consistent with macro-financial theory. For example, the positive coefficient on investment aligns with neoclassical growth theory, which emphasises capital accumulation as a key determinant of output (Romer, 2012). Similarly, the negative impact of inflation reflects its distortionary effect on real income and its dampening effect on investment incentives. However, certain variables, such as the exchange rate or interest rate, produced insignificant coefficients, potentially indicating model misspecification or omitted variable bias (Wooldridge, 2010). The R-squared value suggested a reasonable explanatory capacity for the model, while the F-statistic confirmed the joint significance of the regressors.

The estimation using the generalised method of moments was undertaken to address potential endogeneity and the dynamic nature of the relationships between variables. This method is particularly suited for panel data settings where simultaneity bias and unobserved heterogeneity are likely to occur (Arellano and Bond, 1991). The generalised method of moments estimation largely reinforced the earlier findings, with variables such as investment and inflation remaining significant, indicating that their relationships with the dependent variable persisted after accounting for endogeneity. Lagged variables were used as instruments to mitigate the effects of endogeneity. The Sargan test results confirmed the validity of the chosen instruments, as they were uncorrelated with the error term, satisfying a core requirement of the generalised method of moments estimation (Baum et al., 2003). The Arellano-Bond test indicated no evidence of second-order autocorrelation, thereby supporting the reliability of the model. Overall, the diagnostic tests confirmed the suitability of the generalised method of moments framework for estimating the dynamic panel structure.

The statistical robustness of the model was confirmed through a series of diagnostic tests. The Sargan test of overidentifying restrictions indicated that the instruments used in the Generalised Method of Moments model were valid, as the p-value exceeded 0.05. Consequently, the null hypothesis could not be rejected, implying that there was no instrument overidentification and that the instruments were orthogonal to the error term (Roodman, 2009). The Arellano-Bond test of autocorrelation, essential for dynamic panel models, further verified the validity of the model. The p-value for the AR(2) test exceeded 0.05, confirming the absence of second-order serial correlation in the residuals—an essential condition for obtaining reliable generalised method of moments estimates.

The Hausman test was employed to determine whether the fixed effects or random effects model was more appropriate. The resulting high p-value led to the rejection of the null hypothesis, confirming that the fixed effects model was a valid estimation approach. This outcome indicates that the regressors are correlated with entity-specific effects,

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justifying the use of fixed effects to avoid bias from omitted variables (Greene, 2012). The Variance Inflation Factor test was applied to detect multicollinearity, with all values remaining below the threshold of 10. This demonstrates the absence of multicollinearity, ensuring the stability of coefficient estimates and confirming that none of the explanatory variables is a near-linear combination of others (Kennedy, 2008). This is particularly relevant to macroeconomic data, in which correlations between variables may arise due to economic cycles or policy linkages.

The heteroskedasticity test, conducted using the White test, revealed the presence of heteroskedasticity, contrary to one of the key assumptions of the ordinary least squares method. To address this issue, robust standard errors were applied, enabling valid inference even in the presence of non-constant residual variance (White, 1980). Such adjustments are critical in panel data settings, where residual variance may vary across entities or over time. Overall, the findings indicate that investment is one of the principal drivers of output in the panel, supporting classical and neoclassical theoretical assumptions. The adverse impact of inflation illustrates the detrimental effects of price instability on economic performance. Gross domestic product also emerged as a significant variable, underscoring the role of macroeconomic scale and structure in shaping financial indicators. These results are consistent with previous empirical findings that highlight the importance of macroeconomic stability, capital formation, and sound economic policy for growth (Levine and Renelt, 1992). Other variables, such as the exchange rate and government expenditure, were statistically insignificant, which may reflect lagged or indirect effects that are not fully captured by the current specification. Future research could address these gaps by incorporating interaction terms, non-linear transformations, dynamic panel threshold modelling, or system generalised method of moments estimation. From a policy perspective, the results explainthat decision-makers should prioritise macroeconomic stability and create favourable conditions for investment. Expansionary monetary policies and inflation-targeting strategies may serve as effective tools for enhancing economic performance. For investors, these findings provide insights into the economic factors that influence long-term returns and performance.

The research is strengthened by its rigorous methodological framework, which integrates traditional regression estimation with dynamic modelling and comprehensive diagnostic testing. Nonetheless, certain limitations should be acknowledged. The dataset may be constrained by its time coverage or by the quality of the underlying data. Furthermore, although panel data methods help to mitigate some econometric challenges, issues such as measurement error, omitted variable bias, and dynamic feedback effects may persist. Therefore, findings should be interpreted with caution, and future work should include sensitivity analyses and additional robustness checks. In conclusion, this study offers a comprehensive examination of the determinants of financial and economic performance using descriptive statistics, regression analysis, generalised method of moments estimation, and diagnostic testing. The results not only align with established economic theory but also provide practical guidance for economic policy design and modelling. Moreover, the use of advanced econometric methods adds depth to the analysis and establishes a strong basis for further empirical research.

**Conclusion**

Foreign direct investment has the potential to exert a transformational effect on the economic growth of developing countries, but its impact depends on several critical factors.

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Empirical evidence confirms that foreign direct investment positively and significantly influences gross domestic product growth rates, provided there is macroeconomic stability, financial development, and strong institutional quality. The complementary relationship between foreign direct investment and financial development implies that the inflow of capital alone is insufficient; a well-functioning financial system is required to channel this inflow into productive investments. However, high inflation and political instability can erode the benefits of foreign direct investment by creating uncertainty and undermining investor confidence. The theoretical foundation, drawing from the Solow and Romer growth models, supports the view that knowledge transfer, absorption, and innovation are particularly important over the long term in determining the effects of foreign direct investment, while capital accumulation remains essential. The limited success of developing countries in fully realising the benefits of foreign direct investment underscores the need for policy coherence, clarity in regulatory processes, and a focus on sustainable development. Furthermore, the study highlights the growing importance of environmental, social, and governance criteria and the Sustainable Development Goals in shaping contemporary investment strategies. As the global economy moves towards responsible investing, developing countries must not only attract capital but also ensure that these investments are aligned with green, inclusive, and resilient development objectives. Key policy implications emerging from this research include strengthening institutional frameworks, streamlining foreign direct investment procedures, and adopting investment policies that are compatible with environmental, social, and governance principles. Innovative financial instruments such as blended finance, green bonds, and resilience bonds represent promising approaches to attracting sustainable investment. Additionally, institutions responsible for regulatory oversight should be reinforced, and laws protecting investors should be enhanced to foster a favourable investment climate. In short, foreign direct investment remains a vital driver of economic progress in developing countries, yet its transformative potential can only be realised through strategic shifts towards sustainability. This study is limited by its reliance on aggregate country-level data, which may mask sector-specific effects. Additionally, while the five-country panel offers regional insights, results may not be generalizable to all developing economies. Future research could disaggregate FDI by sector, explore firm-level dynamics, and examine climate-related FDI flows. Redirecting investment flows to align with national development priorities and international sustainability goals will enable developing countries to convert capital inflows into inclusive and enduring economic gains.

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