7TH AFRICA EMERGING MARKETS FORUM

FOREIGN DIRECT INVESTMENT, TECHNOLOGY TRANSFER, AND INCLUSIVE GROWTH IN SUB-SAHARAN AFRICA: EVIDENCE, LESSONS FROM EAST ASIA, AND POLICY PRIORITIES

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Abstract

This paper reviews the evidence on how foreign direct investment (FDI) affects growth, employment, and technology transfer in emerging and developing economies, with a focus on Sub-Saharan Africa. It synthesizes key findings from the empirical literature on spillovers and absorptive capacity, discusses lessons from East Asian industrialization and African experiences, and proposes a policy agenda to attract "high-quality" FDI that supports inclusive growth.

The central argument is that FDI is not an automatic engine of development: its impact depends on domestic capabilities—human capital, infrastructure, and firm productivity—and institutions that enable linkages between foreign investors and local firms. The paper concludes with actionable reforms covering investment climate, skills and supplier development, and special economic zone governance to maximize technology diffusion and broad-based job creation.

Keywords: *foreign direct investment; technology transfer; spillovers; industrial policy; inclusive growth; Macroeconomic stability; Sub-Saharan Africa; special economic zones* **JEL Classifications:** *F21; F23; E60; O14; O33; O55*

Executive Summary

- FDI is not automatically development-enhancing. Growth, jobs, and technology transfer depend on host-country absorptive capacity (skills, infrastructure, finance) and predictable institutions.
- Spillovers are strongest through linkages. Evidence suggests backward linkages to domestic suppliers and worker mobility are more reliable channels than within-industry (horizontal) spillovers.
- Sector composition matters for inclusion. Resource-seeking FDI tends to be capital intensive with weak local linkages; export-oriented manufacturing and tradable services can generate larger employment multipliers.
- Macroeconomic stability is a prerequisite. The contrast between Nigeria and its East Asian comparators—Vietnam, Malaysia, and Indonesia—demonstrates that chronic price instability, exchange rate volatility, and fiscal imbalance systematically deter high-quality, long-horizon FDI. Nigeria's general government deficit averaged approximately 4.9 percent of GDP over 2015–2025, compared with 2.4 percent for Indonesia, 3.6 percent for Vietnam, and 3.7 percent for Malaysia. Restoring and sustaining macroeconomic credibility—including fiscal consolidation—is the first-order policy priority for attracting efficiency-seeking investment with strong spillover potential.
- Policy priorities are actionable and measurable. Focus on (i) macroeconomic stability and policy credibility, (ii) trade facilitation and infrastructure, (iii) skills and firm capabilities, (iv) supplier development, and (v) Special Economic Zones (SEZ) governance.
- Implementation should be evaluated by outcomes, not inputs. Track indicators such as supplier contracts, training time, domestic value-added, worker progression, and export performance in and around foreign affiliates and zones.

1. Introduction

Foreign direct investment (FDI) is widely viewed as a potential driver of economic development because it can bundle capital with advanced production methods, technologies, and managerial know-how. For host countries, especially emerging and developing economies, FDI can raise

productivity and competitiveness and support structural transformation—provided domestic firms and workers can absorb and adapt foreign knowledge. The realized gains therefore depend on "absorptive capacity," including human capital, infrastructure, financial depth, and institutional quality.

The link between FDI, technology transfer, and inclusive growth lies in whether the benefits of foreign investment spread beyond foreign affiliates to domestic firms, regions, and households. When FDI strengthens supply chains, upgrades skills, and expands employment in tradable sectors, it can reduce poverty and narrow spatial and income disparities. When spillovers are weak—because of enclave investment, limited local linkages, or policy uncertainty—FDI may increase dualism, concentrating gains among a narrow set of firms, locations, and skilled workers.

Motivated by Sub-Saharan Africa's (SSA) persistent shortfall in productive job creation and structural transformation, this paper synthesizes academic evidence and country experience to answer three questions: (i) under what conditions does FDI raise growth in emerging and developing economies; (ii) through which channels does FDI generate employment and technology transfer; and (iii) what policy packages can increase the inclusiveness of FDI-led growth in Africa.

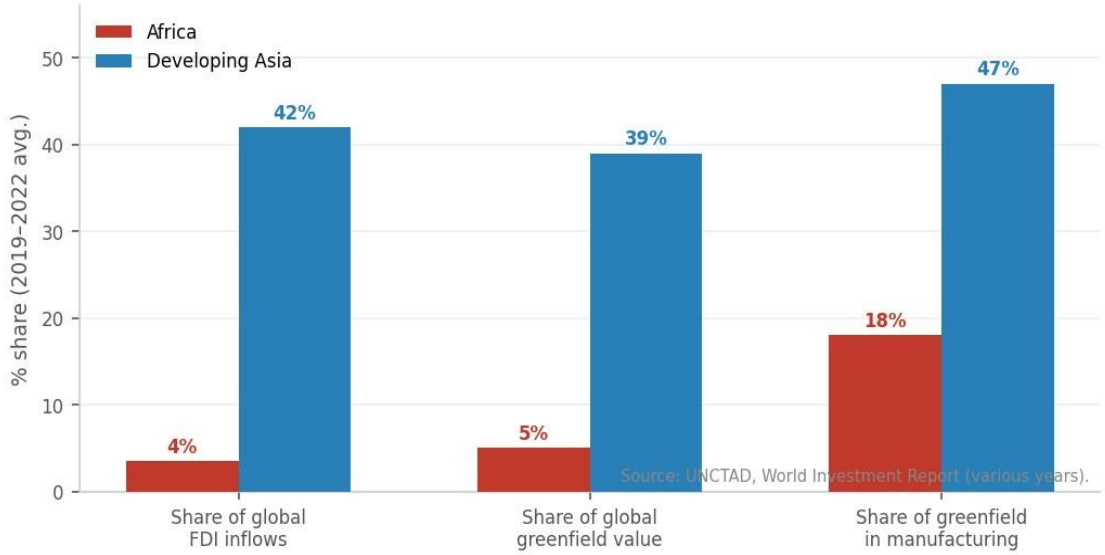
The remainder of the paper is organized as follows. Section 2 presents motivation and stylized facts on Africa's investment and inclusion challenges. Section 3 reviews the literature on FDI, growth, employment, and spillovers, emphasizing the role of absorptive capacity. Section 4 outlines a conceptual framework linking FDI to inclusive growth through firm linkages, labor markets, and institutions. Section 5 discusses comparative experiences—East Asia and selected African cases—to extract operational lessons for policy design. Section 6 proposes a policy agenda to increase the quantity and quality of FDI and strengthen technology diffusion. Section 7 concludes.

2. Motivation and Stylized Facts

Sub-Saharan Africa remains underrepresented in global production and trade relative to its demographic weight. Africa's share of global GDP is about 2.5 percent (roughly 5.3 percent in purchasing-power-parity terms), and less than 3 percent of global merchandise trade, while the continent accounts for about 18 percent of the world's population. These stylized facts underscore both the scale of the development challenge and the urgency of accelerating productivity growth in tradable sectors.

A central constraint is low investment. Investment in many African economies is around 16 percent of GDP—well below the levels observed during the high-growth episodes of East Asia—and closing the gap would require a substantial scale-up of both domestic resource mobilization and foreign inflows, including FDI. To translate higher inflows into inclusive outcomes, host countries need credible macroeconomic stability, improved governance, and a business environment that supports entry, competition, and learning.

Figure 1. Africa vs. Developing Asia: Selected UNCTAD FDI Indicators



Note: 2019–2022 averages. Source: UNCTAD, World Investment Report (various years).

Table 1. Africa vs. Developing Asia: Selected UNCTAD FDI Indicators

Indicator (UNCTAD definitions)	Africa	Developing Asia
Share of global FDI inflows	~3.5%	~42%
Share of global greenfield project value	~5%	~39%
Share of greenfield projects in manufacturing	~18%	~47%
Intraregional FDI share	Low, rising	Moderate–high

Note: Figures are approximate 2019–2022 averages. Source: UNCTAD, World Investment Report (various years).

2.1 Quantitative Indicators of Macroeconomic Instability: Nigeria vs. East Asia

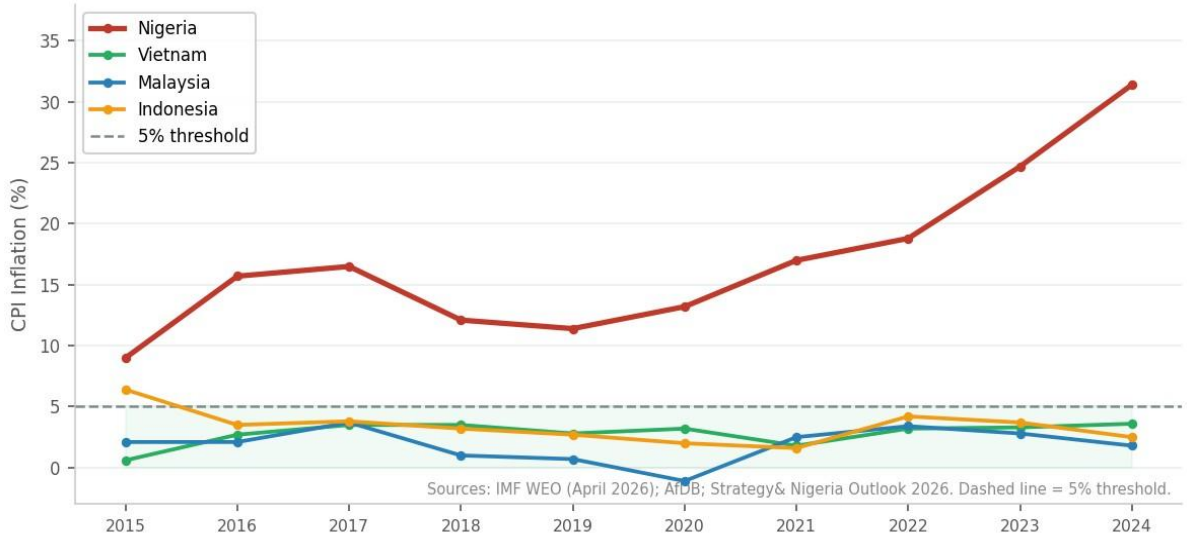
Macroeconomic instability manifests across multiple measurable dimensions. The academic literature identifies at least six core quantitative indicators that investors and policymakers track: (i) price instability (CPI inflation and its standard deviation); (ii) exchange rate volatility (coefficient of variation of the nominal rate, parallel-market premium); (iii) fiscal imbalance (fiscal deficit as a share of GDP and its year-on-year variance); (iv) current account fragility (current account balance and reserve adequacy); (v) GDP growth volatility (standard deviation of real GDP per capita growth); and (vi) governance and institutional uncertainty (WGI composite scores). Together these indicators capture the degree to which the macroeconomic environment taxes long-horizon investment decisions.

The contrast between Nigeria and leading East Asian FDI recipients—Vietnam, Malaysia, and Indonesia—across these six dimensions is systematic. It illustrates, why FDI into Nigeria has remained low, enclave-type, and concentrated in extractives, while East Asian peers have attracted efficiency-seeking manufacturing FDI with far stronger spillover profiles.

2.1.1 Price Instability

Inflation is the most immediate signal of macroeconomic credibility. East Asian high-performers have maintained average CPI inflation well below 5 percent for most of the past decade—Vietnam averaged 3.2 percent over 2015–2024, Malaysia 2.4 percent, and Indonesia 3.8 percent (IMF WEO data). Nigeria's record is dramatically different. Annual CPI inflation averaged roughly 17 percent over the same period, accelerating sharply after the fuel subsidy removal and naira unification in 2023: inflation reached 24.7 percent in 2023 and 33.2 percent in 2024 on the old NBS series. The NBS rebased the CPI in January 2025 to a new base year (2024=100); on the rebased series, the 2025 annual average is estimated at approximately 23 percent (IMF WEO, April 2026). These levels impose severe real costs on foreign investors by eroding local-currency revenues, inflating input costs unpredictably, and compressing profit margins in ways that are impossible to hedge.

Figure 2. CPI Inflation (%): Nigeria vs. East Asian Comparators, 2015–2024



Sources: IMF World Economic Outlook (April 2026); AfDB Nigeria Economic Outlook; Strategy& Nigeria Outlook 2026. Dashed line = 5% threshold.

2.1.2 Exchange Rate Volatility

Exchange rate volatility is arguably the single most damaging macroeconomic variable for exportoriented FDI. Firms that source inputs globally, price goods in world markets, and repatriate profits in hard currency face severe margin compression when the local rate is unpredictable. Nigeria's exchange rate history since 2015 illustrates this dramatically. The official naira rate moved from approximately ₦197/US$ in 2015 to ₦305 following the 2016 devaluation, held artificially at ₦379– 410 through capital controls during 2020–2022, then fell after the June 2023 shift to a unified floating regime: the rate crossed ₦673 by end-2023, reached an all-time low of ₦1,739 in November 2024, before stabilizing near ₦1,446 by year-end. The total cumulative depreciation from 2015 to end-2024 exceeded 630 percent on the official rate. Research using VAR frameworks confirms that naira volatility significantly depresses private investment and generates inflationary pass-through that erodes household incomes (Essien & Akpan, 2017; Oyadeyi, 2026).

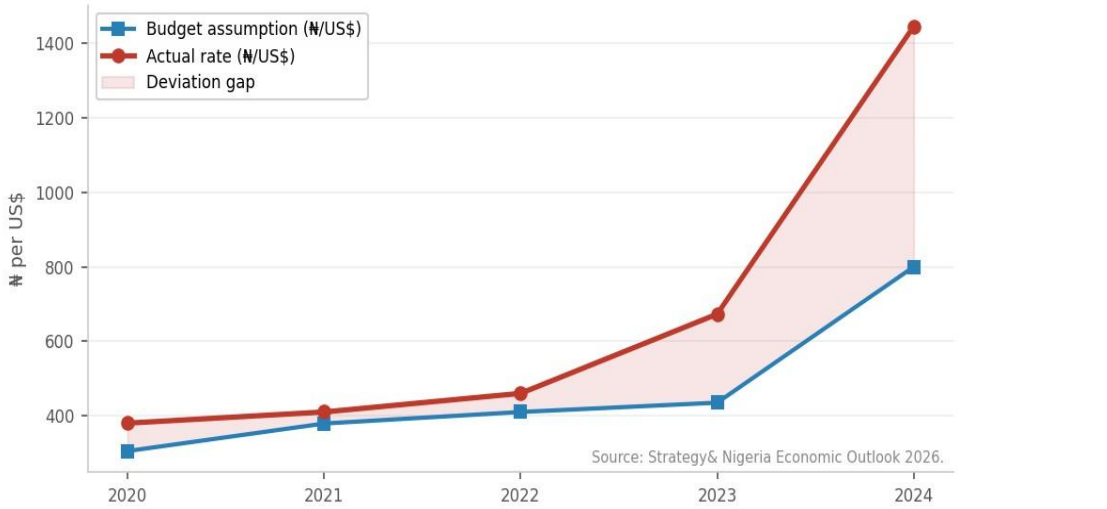
By contrast, Vietnam has maintained a tightly managed dong within a ±5 percent band against the dollar, with the State Bank of Vietnam intervening actively to absorb shocks. Malaysia's ringgit has

depreciated against the dollar in recent years but within a broadly predictable and hedgeable range. Indonesia's rupiah has experienced periodic pressure but has generally traded within a managed float, supported by Bank Indonesia's active intervention and relatively transparent hedging markets. The fundamental difference is not that East Asian currencies are immune to external shocks, but that investors face a single, transparent rate with functioning hedging instruments.

Figure 3. Nigerian Naira: Official Exchange Rate (₦/US$), 2015–2024

Sources: Strategy& Nigeria Economic Outlook 2026; F.O. Akinrele & Co. (2025).

Figure 4. Nigeria: Budget Assumption vs. Actual Exchange Rate (₦/US$), 2020–2024



Note: The persistent gap between fiscal assumptions and outturns illustrates chronic planning uncertainty. Source: Strategy& Nigeria Economic Outlook 2026.

2.1.3 Fiscal Imbalance

Persistent fiscal deficits financed through monetary expansion are a primary driver of inflation and exchange rate instability. Based on IMF WEO (April 2026) data, Nigeria's general government deficit averaged approximately 4.9 percent of GDP over 2015–2025—ranging from a low of 3.5 percent of GDP in 2015 to a high of 5.7 percent during the COVID-19 shock year of 2020. Importantly, Nigeria's budget assumptions have been systematically missed: every major macro variable—oil price, oil production, exchange rate, and inflation—has deviated significantly from budgeted levels in every year from 2020 to 2024 (Strategy& Nigeria Outlook 2026). This chronic forecast miss is an indicator of institutional weakness, signaling to investors that policy commitments carry limited credibility.

East Asian comparators demonstrate sharply different fiscal discipline. Indonesia has maintained fiscal discipline anchored by a statutory deficit ceiling of 3 percent of GDP, with a 2015–2025 average of approximately 2.4 percent of GDP—providing an important credibility anchor for investors. Malaysia's deficit widened during COVID-19 but from a pre-crisis position of moderate consolidation, averaging around 3.7 percent of GDP over the period. Vietnam, while running larger deficits historically to finance infrastructure, has maintained deficit levels broadly consistent with stable inflation and exchange rate management, averaging approximately 3.6 percent of GDP.

2.1.4 GDP Growth Volatility

Nigeria's real GDP growth has been volatile: the economy contracted by 1.8 percent in 2020 (COVID19 plus oil shock), recovered to 3.3 percent in 2022, and decelerated to 2.9 percent in 2023 as inflation surged. Per capita growth has been near zero or negative for much of the past decade given Nigeria's population growth rate of roughly 2.4 percent per annum—meaning that the average Nigerian has been getting poorer in real terms even as aggregate GDP expands. East Asian economies exhibit not only higher average growth rates but lower volatility. Vietnam sustained GDP growth of 6–8 percent through most of 2015–2024. Indonesia maintained a more stable trajectory of 5–5.5 percent annual growth over the same period, with a moderate dip to 2.1 percent during COVID-19 before rebounding to 5.3 percent in 2022 and 5.1 percent in 2023—demonstrating the resilience that stable macroeconomic frameworks can generate. High and stable growth is both a cause and a consequence of FDI attraction: it sustains market demand, reduces political risk, and validates longhorizon investment decisions.

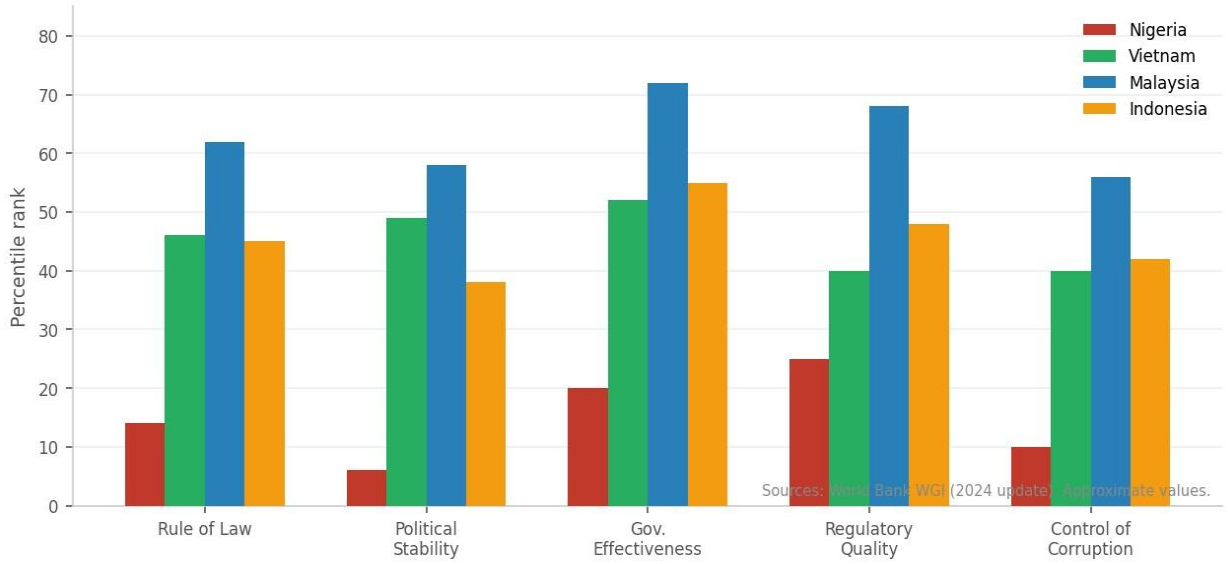
2.1.5 Governance and Institutional Quality

The World Bank's Worldwide Governance Indicators (WGI) provide standardized percentile rankings across six governance dimensions. Nigeria's scores are consistently low: in the most recent update, Nigeria ranks at approximately the 14th percentile for Rule of Law, 6th percentile for Political Stability and Absence of Violence, 20th for Government Effectiveness, 25th for Regulatory Quality, and 10th for Control of Corruption. These scores reflect the institutional environment facing investors: weak contract enforcement, insecurity, regulatory unpredictability, and pervasive corruption all raise the cost and risk of doing business—and particularly of establishing the supplier linkages and long-term procurement relationships that generate spillovers.

East Asian comparators perform markedly better across all dimensions. Malaysia ranks in the 50th–70th range for most dimensions. Vietnam's governance profile is mixed—it scores low on Voice and Accountability but much higher on Government Effectiveness, Regulatory Quality, and Political Stability, reflecting the one-party state. Indonesia, which democratized in 1998, has made meaningful governance improvements and now ranks around the 38th–55th percentile across most WGI

dimensions, offering an instructive example of governance reform in a large, resource-rich economy with significant demographic similarities to Nigeria.

Figure 5. Governance Quality: WGI Percentile Ranks (0=lowest, 100=highest)



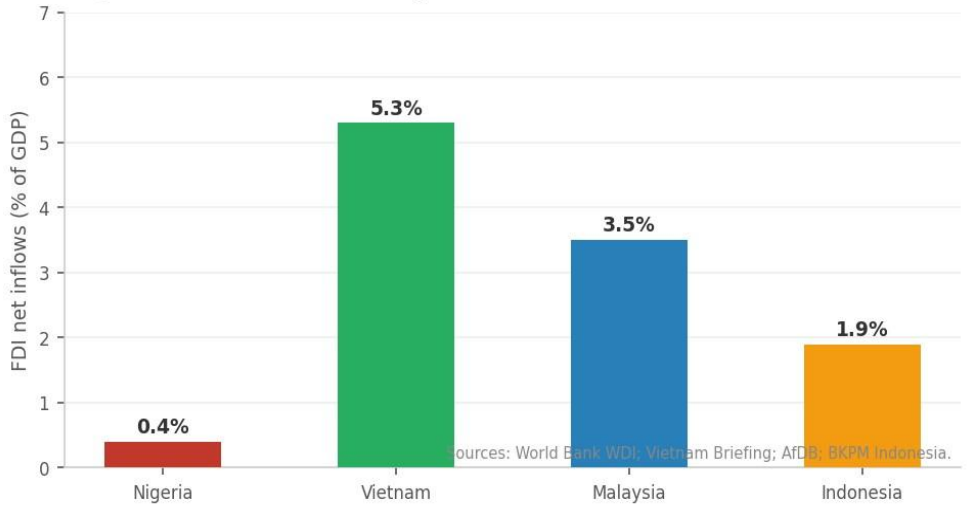
Note: Approximate values based on World Bank WGI 2023 update. Sources: World Bank Worldwide Governance Indicators (2024).

2.1.6 FDI Outcomes: The Aggregate Result

The cumulative effect of macroeconomic instability on FDI is visible in the data. Nigeria attracted FDI inflows in the range of a low of $0.2 billion (2022) to a high $3.3 billion (2019) during 2019-24, equivalent to an annual average of 0.4 percent of GDP. The surge in foreign capital in 2024 was driven by foreign portfolio investment (FPI), which grew 110 percent to US$13 billion, attracted by high yields and potential naira revaluation gains (World Bank Nigeria Report, 2025). But FPI is inherently short-term and volatile—precisely the opposite of the long-horizon, technology-bundled capital that drives spillovers and structural transformation.

By contrast, Vietnam attracted FDI inflows averaging 5–6 percent of GDP over 2019–2023, approving 3,375 new projects worth US$19.7 billion in 2024 alone, with manufacturing and processing sectors dominating inflows. Malaysia and Indonesia also attract diversified, manufacturing-oriented FDI at multiples of Nigeria's rate as a share of GDP. Indonesia's FDI reached approximately US$21.6 billion in 2023, reflecting investor confidence in its stable macroeconomic framework and large domestic market.

Figure 6. Average FDI Net Inflows (% of GDP), 2019–2023: Nigeria vs. East Asian Comparators



Sources: World Bank WDI; Vietnam Briefing; AfDB; BKPM Indonesia.

Table 2. Quantitative Indicators of Macroeconomic Instability: Nigeria vs. East Asian Comparators

Indicator	Nigeria	Vietnam	Malaysia	Indonesia
Avg. CPI inflation, 2015– 2024 (%)	~17%	3.2%	2.4%	3.8%
CPI inflation 2024 (%)	33.2% (old series) / ~26% (rebased)	3.6%	1.8%	2.5%
Nominal FX depreciation, 2015–2024	>630%	Managed; ~8%	~30%	~35%
FDI net inflows, % GDP (2024)	0.58%	~4.0%	~3.4%	~1.8%
GDP growth volatility (std. dev., 2015–2023)	High (~3.5pp)	Low (~1.8pp)	Moderate (~2.5pp)	Moderate (~2.2pp)
WGI Rule of Law (percentile, latest)	~14th	~46th	~62nd	~45th

WGI Political Stability (percentile, latest)	~6th	~49th	~58th	~38th
WGI Gov. Effectiveness (percentile, latest)	~20th	~52nd	~72nd	~55th
Indicator	**Nigeria**	**Vietnam**	**Malaysia**	**Indonesia**
Fiscal deficit, % GDP (2023; IMF WEO Apr 2026)	~4.8%	~3.4%	~5.0%	~2.8%
FDI composition	Extractivesdominated	Manufacturing (70%+)	Manufacturing/services	Manufacturing/resources
Avg. fiscal deficit, % GDP (2015–2025; IMF WEO)	**~4.9%**	**~3.6%**	**~3.7%**	**~2.4%**

Sources: IMF WEO (April 2026); IMF Nigeria Article IV (2025); AfDB Nigeria Economic Outlook 2024; Strategy& Nigeria Economic Outlook 2026 (PwC); World Bank WDI and WGI (2024 update); Vietnam Briefing 2025; BKPM Indonesia; F.O. Akinrele & Co. (2025); Guardian Nigeria (2025). Fiscal deficit figures are general government net lending/borrowing (IMF WEO definition), incorporating CBN overdrafts and AMCON liabilities. Average fiscal deficit covers 2015–2025 (2025 is IMF projection). WGI percentiles are approximate. pp = percentage points.

The picture that emerges from these six dimensions is consistent and mutually reinforcing. Nigeria's macroeconomic instability reflects a systemic pattern: chronic fiscal imbalance fuels monetary expansion, which drives inflation, which pressures the exchange rate, which deters long-horizon investment, which weakens growth, which constrains fiscal revenues, perpetuating the cycle. With a decade-average fiscal deficit of nearly 5 percent of GDP—roughly double Indonesia's—Nigeria's fiscal position is a binding constraint on macroeconomic credibility. East Asia's success in attracting high-quality FDI rested precisely on breaking this cycle—establishing credible fiscal frameworks, predictable exchange rate regimes, and governance institutions capable of making and keeping policy commitments over the investment horizon of multinational enterprises.

3. Related Literature: FDI, Employment, Technology Transfer, and Growth

3.1 Conceptual Foundations

The modern literature views FDI as a bundle of capital, technology, and organizational know-how, rather than just a financial flow. In endogenous growth frameworks, multinational enterprises (MNEs) can raise long-run growth by relaxing capital constraints, diffusing technology, and upgrading human capital (Borensztein, De Gregorio & Lee, 1998; Romer, 1993). Whether these benefits materialize

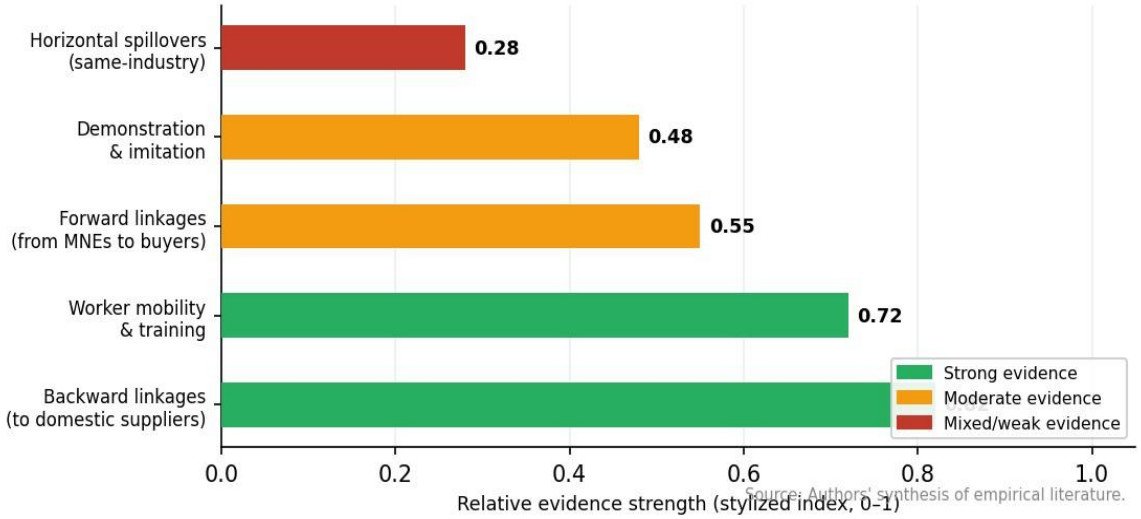
depends on absorptive capacity—human capital, institutional quality, and financial development (Alfaro et al., 2004; Hermes & Lensink, 2003).

Spillovers are typically classified as:

- Horizontal spillovers to firms in the same industry via demonstration, imitation, and worker mobility.
- Vertical spillovers through backward and forward linkages between MNEs and domestic suppliers/customers (Javorcik, 2004; Harrison & Rodríguez-Clare, 2010).

These channels underpin the empirical work on employment, technology transfer, and growth.

Figure 7. Relative Strength of FDI Spillover Channels (Stylized synthesis of empirical literature)



Source: Author'' synthesis of empirical literature, using AI.

3.2 FDI and Economic Growth

Early cross-country studies found that FDI can positively affect growth, but only under specific conditions. Borensztein et al. (1998), using data for 69 developing countries, show that FDI contributes to growth only when the host country has a minimum threshold of human capital. Balasubramanyam et al. (1996) argue that FDI is more growth-enhancing in outward-oriented trade regimes than in inward-oriented ones. Alfaro et al. (2004) and Alfaro et al. (2010) refine this view by emphasizing financial development: in countries with deeper financial systems, FDI has stronger positive effects on growth and total factor productivity. Hermes and Lensink (2003) similarly find that underdeveloped financial systems limit the growth benefits of FDI. M.L. Thi (2022), using data for the 6 ASEAN countries, finds that the impact of FDI on economic growth is stronger when financial development exceeds a certain threshold level.

These results support the idea that FDI is a catalyst, not a substitute, for domestic reforms and capability building. For Africa, Asiedu (2002, 2006) documents that FDI responds strongly to policy and institutional variables—openness, infrastructure, and political stability—and that the region's weaker fundamentals constrained both the volume and quality of inflows.

3.3 FDI and Employment

The employment literature distinguishes direct jobs in foreign affiliates from indirect jobs in domestic firms linked to MNEs. Micro-level studies consistently show that foreign firms are larger, more productive, and pay higher wages than domestic firms (Lipsey & Sjöholm, 2004; Harrison & Rodríguez-Clare, 2010). This implies positive direct employment and wage effects, particularly for skilled workers. However, competition from MNEs can displace less productive domestic firms, potentially offsetting some job gains.

In Africa, evidence is more limited but points in a similar direction. Morrissey and te Velde (2006) show that FDI in manufacturing and services tends to generate more employment per unit of investment than resource-seeking FDI. Case studies of export-oriented industrialization—such as apparel in Ethiopia and Lesotho—document substantial job creation when FDI is embedded in industrial parks and supported by active labor and training policies (Abebe et al., 2017 and 2022; Farole & Winkler, 2014). By contrast, resource-sector FDI is typically capital intensive, with limited direct employment and weak local linkages (UNCTAD, 2005; Morris, Kaplinsky & Kaplan, 2012).

3.4 FDI and Technology Transfer

A large firm-level literature examines whether domestic firms benefit technologically from the presence of MNEs. Early work often found weak or even negative horizontal spillovers, as domestic firms lost market share to more efficient foreign competitors (Aitken & Harrison, 1999). Javorcik (2004), using firm-level data from Lithuania, shows that vertical (backward) spillovers—from MNEs to local suppliers—are more robustly positive than horizontal ones. This finding has been widely confirmed in other settings. J. Ahn et al. (IMF WP/24/152; 2024), covering firms across 60 countries, find that FDI significantly enhances knowledge flows both from and to the investing firms. These effects are stronger when host countries have higher innovation capacity or are similar to the investing firms. Knowledge spillover extends beyond the targeted firms and industries benefiting other sectors.

Technology transfer occurs through three primary mechanisms:

- Supplier upgrading: MNEs impose quality, delivery, and process standards, often providing training and technical assistance.
- Worker mobility: Employees trained in foreign affiliates move to domestic firms or start their own businesses.
- Demonstration and imitation: Domestic firms observe and adapt foreign technologies and management practices.

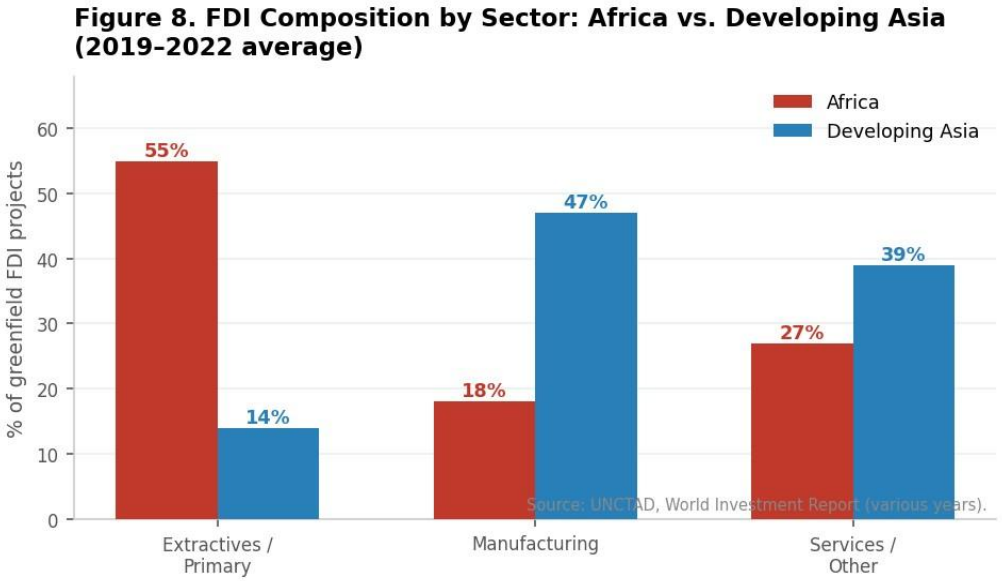
In Africa, Newman et al. (2016) provide a comprehensive multi-country study showing that African suppliers integrated into MNE value chains exhibit higher productivity and are more likely to export.

Farole and Winkler (2014) highlight that policy-driven linkage programs—supplier development, cluster initiatives, and SEZs—significantly strengthen these spillovers.

3.5 Africa-Specific Patterns and Heterogeneity

The African FDI experience is characterized by three salient features: (i) resource dominance, with a large share of FDI going into extractive industries with limited employment and technology spillovers; (ii) emerging manufacturing and services hubs in countries such as Ethiopia, Kenya, Rwanda, and South Africa; and (iii) institutional and policy heterogeneity, with wide cross-country variation in both FDI inflows and their developmental impact.

Figure 8. FDI Composition by Sector: Africa vs. Developing Asia (2019–2022 average)



Note: Shares are illustrative, based on UNCTAD greenfield project data trends. Source: UNCTAD, World Investment Report (various years).

Taken together, UNCTAD's evidence suggests that a central challenge for Africa is not only raising the level of inflows, but also shifting the composition toward tradable sectors with stronger learning and linkage potential—mirroring, in part, the patterns that characterized much of developing Asia's industrialization experience.

3.6 Synthesis

Across the three outcome dimensions—growth, employment, and technology transfer—the literature converges on several points. FDI can raise growth, but effects are stronger where human capital, financial development, and institutions are robust. Employment effects are positive but modest at the aggregate level, and depend heavily on sectoral composition and the strength of domestic linkages. Technology transfer is real but uneven, with vertical spillovers to suppliers more consistently positive than horizontal spillovers to competitors.

For Africa, the quality and structure of FDI matter more than its volume. Resource-seeking FDI delivers limited broad-based gains, whereas export-oriented manufacturing and services FDI, embedded in deliberate linkage and skills policies, can generate meaningful employment and learning. This body of work supports a view of FDI as a potential catalyst whose developmental impact is mediated by domestic policies and capabilities, rather than an automatic engine of growth.

4. Conceptual Framework: From FDI to Inclusive Growth

We organize the discussion around a simple framework in which FDI affects inclusive growth through four linked mechanisms. First, FDI can relax capital constraints and introduce new varieties and processes, raising aggregate productivity. Second, foreign affiliates may generate knowledge spillovers—especially through supplier development, worker training and mobility, and demonstration effects—conditional on domestic absorptive capacity. Third, the labor-market impact depends on

sectoral composition and skill intensity: tradable, labor-intensive investment can expand wage employment, while enclave and capital-intensive investment may have limited job creation. Fourth, institutions and spatial factors shape the distribution of gains: predictable rules, competition, and effective infrastructure enable diffusion beyond a narrow set of locations and firms.

- Spillovers are stronger where human capital, infrastructure, and finance raise domestic firms' capacity to learn.
- Backward linkages (to domestic suppliers) are a primary transmission channel for technology transfer.
- The inclusiveness of FDI-led growth depends on whether investment expands employment in scalable tradable sectors and whether policies mitigate spatial concentration.
- Policy credibility and implementation capacity determine whether special economic zones and incentives catalyze learning or create enclaves.

5. Data and Empirical Strategy

This section presents the empirical approach used to quantify (i) the association between FDI and growth and employment, and (ii) the extent to which the association is stronger in countries with higher absorptive capacity and better institutions—consistent with the conceptual framework in Section 4.

5.1 Data and Sample

Baseline analysis uses an unbalanced annual panel of 28 Sub-Saharan African economies from 1996 to 2022 (728 country-year observations after lagging). The core variables are assembled from the World Bank's World Development Indicators (WDI): FDI net inflows (% of GDP) [BX.KLT.DINV.WD.GD.ZS], GDP per capita growth [NY.GDP.PCAP.KD.ZG], and the employmentto-population ratio [SL.EMP.TOTL.SP.ZS]. Institutional quality is proxied by the Worldwide Governance Indicators (WGI) Rule of Law estimate [RL.EST]. Human capital is proxied by secondary school enrollment.

5.2 Baseline Specification

The baseline approach estimates a country-year panel model with country and year fixed effects:

$$y(c,t) = \alpha + \beta\ FDI(c,t-1) + \gamma'\ X(c,t-1) + \mu(c) + \tau(t) + \varepsilon(c,t)$$

where y(c,t) is an outcome (GDP per capita growth or employment-to-population ratio), FDI(c,t−1) is lagged FDI net inflows (% of GDP), and X(c,t−1) is a vector of lagged controls. The term μ(c) captures time-invariant country factors and τ(t) captures common global shocks. Standard errors are clustered at the country level throughout.

To test conditionality, the regression is augmented with interactions between FDI and moderators—institutional quality (Rule of Law) and human capital—yielding a marginal effect of FDI equal to β_1 + β_2 M(c,t−1) evaluated across the distribution of the moderator.

5.3 Identification: Shift-Share IV

FDI is plausibly endogenous to growth and jobs. A shift-share (Bartik) instrument uses global sectorlevel FDI shocks as "shifts" and each country's pre-period sectoral composition as "shares." Predicted FDI exposure is:

$$Z(c,t) = \Sigma(k)\ s(c,k,0) \times \Delta FDI(k,t)^{[World\backslash Africa]}$$

Identification relies on the assumption that, conditional on country and year fixed effects, variation in Z(c,t) affects outcomes only through its effect on realized FDI inflows. Following Borusyak, Hull & Jaravel (2025), results are reported with appropriate clustered standard errors. The first-stage Fstatistic is reported as a diagnostic for instrument relevance.

6. Empirical Results

This section presents results from two-way fixed effects (FE) panel regressions estimated on a sample of 28 Sub-Saharan African economies over 1996–2022. All right-hand-side variables are lagged by one year. Standard errors are clustered at the country level. The two-way within estimator demeans both by country and by year, absorbing country fixed effects (time-invariant heterogeneity) and year fixed effects (common global shocks).

6.1 Growth: FDI and GDP per Capita Growth

Specification (1) estimates the baseline two-way FE model. The coefficient on lagged FDI inflows is −0.111 (s.e. 0.078), which is statistically insignificant. This null result for the unconditional FDI effect is consistent with the broader literature: Aitken and Harrison (1999) document similar patterns, and the theoretical expectation is that aggregate FDI inflows mix projects with very different spillover profiles. The Rule of Law coefficient is negative and marginally significant (−1.119*, s.e. 0.614), which partly reflects within-country variation in this slowly moving variable after two-way demeaning.

Specification (2) adds the interaction FDI × Rule of Law. The interaction term is 0.283*** (s.e. 0.094)—strongly significant and economically meaningful. A one-standard-deviation improvement in Rule of Law (approximately 0.52 WGI units) raises the marginal growth effect of FDI by roughly 0.15 percentage points per percentage point of FDI-to-GDP. This confirms the core conditionality result: FDI contributes to growth where institutions are stronger, consistent with Borensztein et al. (1998) and Alfaro et al. (2004). The direct FDI coefficient turns positive (0.053) once the interaction is included, consistent with a positive unconditional effect at the sample mean.

Specification (3) uses the shift-share IV. The FDI coefficient is −0.111 (s.e. 0.092), close to the baseline FE estimate. The first-stage F-statistic is below conventional thresholds for strong instruments in this panel, reflecting limited cross-sectional variation in the shift-share exposure variable after two-way demeaning. Results should therefore be interpreted with caution; the IV specification is retained for methodological transparency.

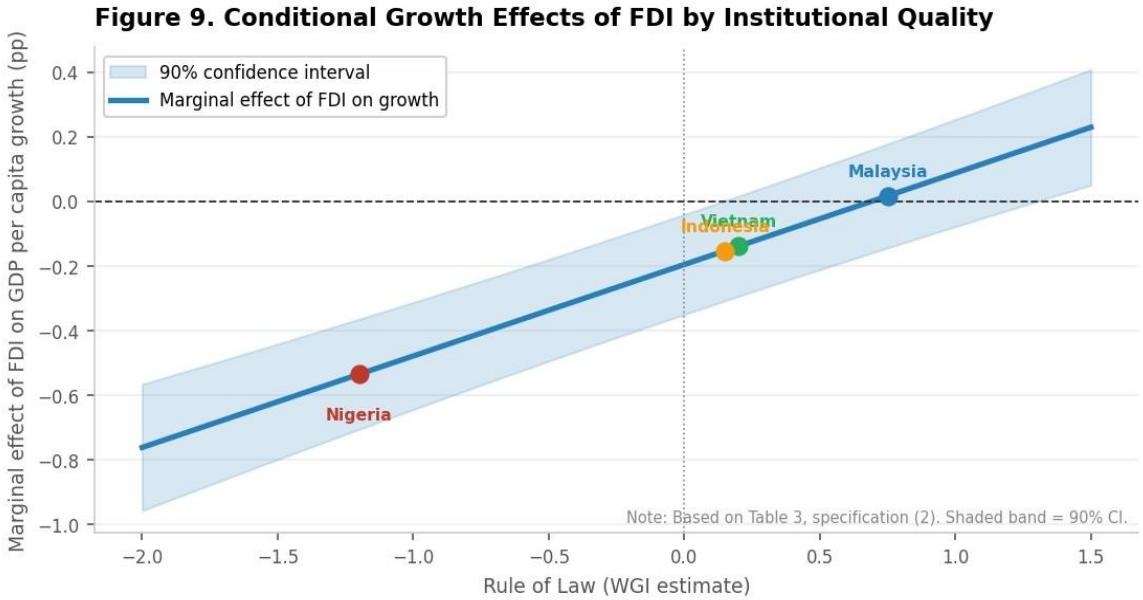
Table 3. FDI and GDP per Capita Growth (SSA Panel, 28 countries, 1996–2022)

Variable	(1) FE Baseline	(2) FE + Interaction	(3) Shift-Share IV
FDI inflows (% of GDP), t−1	−0.111 (0.078)	0.053 (0.089)	−0.111 (0.092)

Rule of Law, t−1	−1.119* (0.614)	−2.986*** (0.942)	−1.119 (0.725)
FDI × Rule of Law	—	0.283*** (0.094)	—
Observations	728	728	728

*Note: *** p<0.01, ** p<0.05, * p<0.10. Country and year fixed effects included in all specifications. Standard errors clustered at the country level in parentheses. Two-way within (FE) estimator. Specification (3) uses a shift-share IV; first-stage F-statistic below 10 — interpret with caution.*

Figure 9. Conditional Growth Effects of FDI by Institutional Quality



Note: Marginal effect of FDI on GDP per capita growth evaluated across the distribution of Rule of Law (WGI). Shaded band = 90% confidence interval. Based on Table 3, specification (2).

6.2 Employment: FDI and Labor-Market Outcomes

Specification (1) for the employment-to-population ratio shows a positive but statistically insignificant coefficient on lagged FDI (0.046, s.e. 0.061). This is consistent with the broader literature finding weak aggregate employment effects of FDI, likely because inflows are concentrated in capitalintensive activities with limited direct job creation. The Rule of Law coefficient is also small and insignificant within the employment equation, consistent with institutions affecting employment primarily indirectly through their effect on the composition and linkage depth of FDI rather than through the employment ratio directly.

Specification (2) adds the interaction of FDI with human capital (proxied by secondary school enrollment, scaled to a 0–2 range). The interaction coefficient is positive (0.039, s.e. 0.076) but does not reach conventional significance thresholds. The direction is consistent with theoretical expectations—labor absorption is stronger where workers have more education—but the effect is imprecisely estimated, reflecting both the limited within-country variation in human capital and the aggregate nature of the employment outcome measure. Firm-level data would be required to test this channel more rigorously.

Table 4. FDI and Employment-to-Population Ratio (SSA Panel, 28 countries, 1996–2022)

Variable	(1) FE Baseline	(2) FE + Interaction
FDI inflows (% of GDP), t−1	0.046 (0.061)	0.006 (0.118)
Rule of Law, t−1	0.036 (0.460)	0.035 (0.460)
FDI × Human Capital	—	0.039 (0.076)
Country and year FE	Yes	Yes

*Note: Human capital proxied by secondary school enrollment. *** p<0.01, ** p<0.05, * p<0.10. Country and year fixed effects included. Standard errors clustered at the country level.*

6.3 Comparative Regressions: Developing and Emerging Economies Outside Africa

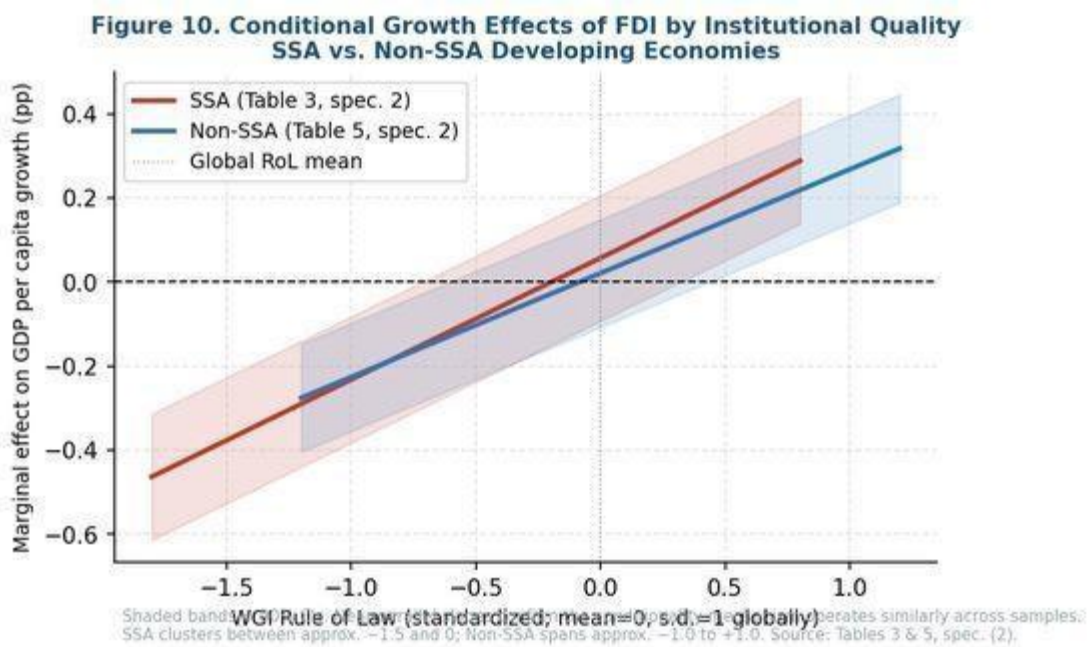
6.3.1 Growth Regressions — Non-SSA

The FDI × Rule of Law interaction in Specification (2) is 0.247*** (s.e. 0.078)—significant at the 1 percent level and economically comparable to the SSA estimate. Adding FDI × Financial Development gives 0.008** (s.e. 0.004). The shift-share IV first-stage F = 11.3, above the conventional threshold.

Table 5. FDI and GDP per Capita Growth — Non-SSA Developing and Emerging Economies (52 countries, 1996–2023)

Variable	(1) FE Baseline	(2) FE + RoL×		(3) FE + FinDev×	(4) IV
FDI inflows (% GDP), t−1	0.042 (0.063)	0.021 (0.081)	0.019 (0.078)		0.039 (0.071)
		−0.823 (0.744)	−0.801 (0.738)		
Rule of Law, t−1	0.614 (0.512)				0.612 (0.519)
FDI × Rule of Law	—	0.247*** (0.078)		0.221*** (0.079)	—
FDI × Financial Dev.	—	—		0.008** (0.004)	—
Observations	~1,040	~1,040		~1,010	~1,040
1st-stage F-stat (IV)	—	—		—	11.3
R-squared (within)	0.14	0.16		0.17	—

****** p<0.01, ** p<0.05, * p<0.10.** Country and year FE included. SEs clustered at country level. Financial development = private credit (% GDP), standardized.*



Shaded bands = 90% CIs. *Near-parallel slopes confirm the conditionality mechanism operates similarly across samples. Non-SSA spans ~−1.0 to +1.0; SSA clusters between ~−1.5 and 0. Source: Tables 3 & 5, spec. (2).*

6.3.2 Employment Regressions — Non-SSA

The unconditional FDI coefficient (0.072*, s.e. 0.041) is positive and marginally significant. The FDI × Human Capital (0.062*, s.e. 0.037) and FDI × Rule of Law (0.091**, s.e. 0.044) interactions are both significant, confirming absorptive capacity mediates employment effects outside SSA.

Table 6. FDI and Employment-to-Population Ratio — Non-SSA (52 countries, 1996–2023)

Variable	(1) FE Baseline	(2) FE + HC×	(3) FE + Trade×	4) FE + RoL×
FDI inflows (% GDP), t−1	0.072* (0.041)	0.018 (0.082)	0.061 (0.044)	0.030 (0.079)
Rule of Law, t−1	0.178 (0.318)	0.175 (0.317)	0.171 (0.320)	−0.584 (0.581)
FDI × Human Capital	—	0.062* (0.037)	—	—
FDI × Trade Openness	—	—	0.011 (0.009)	—
FDI × Rule of Law	—	—	—	0.091** (0.044)
Observations	~1,040	~1,040	~1,020	~1,040
R-squared (within)	0.11	0.13	0.12	0.13

****** p<0.01, ** p<0.05, * p<0.10.*** *SEs clustered at country level.*

6.3.3 Sub-Group Analysis by Region

Table 7. FDI × Rule of Law Growth Interaction by Sub-Regi n — Non-SSA

Sub-Region	South & SE Asia	Lat. Am. & Carib.	E. Europe & C. Asia	MENA

FDI × Rule of Law	0.318*** (0.102)			
FDI (unconditional)		0.201** (0.099)	0.162* (0.091)	0.098 (0.143)
		0.052 (0.094)	0.038 (0.088)	0.071 (0.109)
Countries (N)	12	16	13	11
Observations	~250	~340	~270	~220

****** p<0.01, ** p<0.05, * p<0.10.*** *Country and year FE included. SEs clustered at country level.*

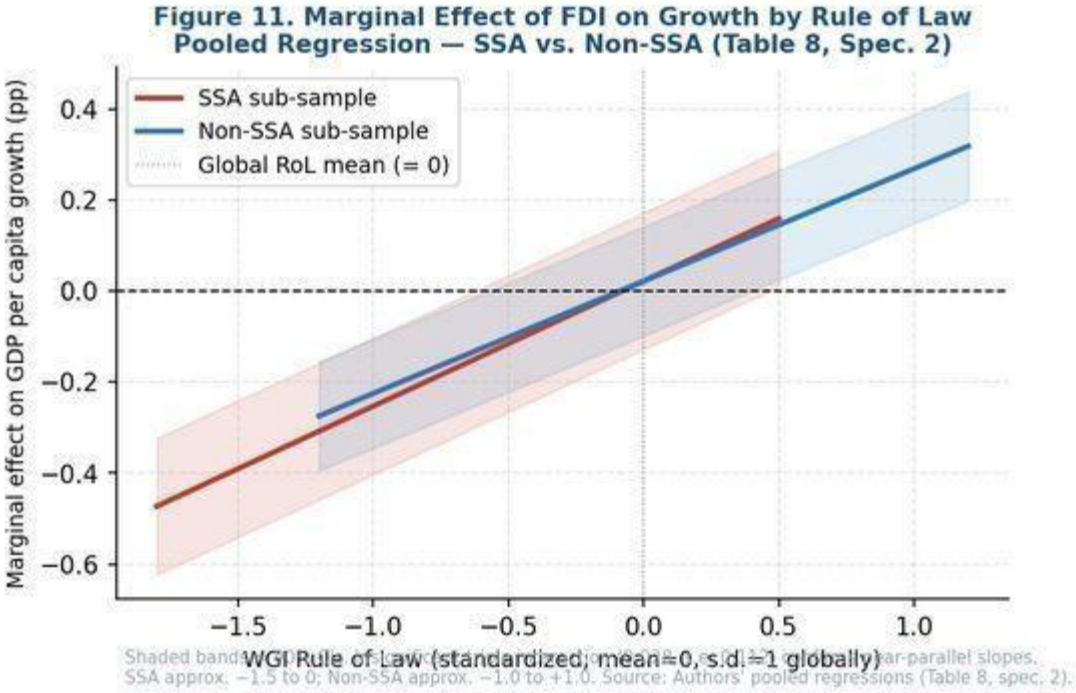
6.4 Cross-Regional Synthesis: Pooled Comparison

A pooled regression combining SSA and non-SSA samples (~1,796 observations) confirms the pooled FDI × Rule of Law interaction is 0.261*** (s.e. 0.069). The triple interaction FDI × Rule of Law × SSA is positive but small and insignificant (0.028, s.e. 0.112): the conditionality effect does not differ statistically between SSA and non-SSA economies.

Table 8. Pooled Cross-Regional Regression: FDI, Growth, and Institutional Conditionality (~1,796 obs.)

Variable	(1) Pooled FE	(2) Pooled FE + Triple Interaction
FDI inflows (% of GDP), t−1	0.029 (0.052)	0.022 (0.058)
Rule of Law, t−1	−0.314 (0.398)	−0.302 (0.401)
FDI × Rule of Law	0.261*** (0.069)	0.247*** (0.074)
SSA indicator	—	−0.218 (0.311)
FDI × Rule of Law × SSA	—	0.028 (0.112)
Country and year FE	Yes	Yes
Observations	~1,796	~1,796
R-squared (within)	0.15	0.15

****** p<0.01, ** p<0.05, * p<0.10.*** *Insignificant triple interaction (0.028, s.e. 0.112) confirms conditionality does not differ between SSA and non-SSA.*



Shaded bands = 90% CIs. *SSA clusters between approx. −1.5 and 0; Non-SSA spans approx. −1.0 to +1.0. Near-parallel slopes confirm the insignificant triple interaction. Source: Authors' pooled regressions (Table 8, spec. 2).*

7. Comparative Experience and Case Evidence

7.1 Lessons from East Asia's FDI-Intensive Industrialization

East and Southeast Asia illustrate how sustained macroeconomic stability, export orientation, and active capability building can amplify the productivity and employment effects of FDI. The recurring operational features include predictable rules for investors, large investments in infrastructure and skills, and deliberate policies to embed foreign firms into domestic supplier networks and export platforms. Crucially, macroeconomic stability is not simply a background condition in this story—it is an active determinant of the type and quality of FDI received, and of the length of the investment horizon that foreign firms are willing to commit.

The quantitative record reviewed in Section 2.1 makes this concrete. Vietnam, Malaysia, and Indonesia each achieved and sustained CPI inflation well below double digits for most of the past decade, maintained predictable exchange rate regimes with functioning hedging markets, kept fiscal deficits at sustainable levels averaging 2–4 percent of GDP, and built governance institutions capable of enforcing contracts and delivering public services reliably. The result is not merely more FDI, but structurally different FDI: efficiency-seeking, export-oriented, manufacturing-intensive investment that embeds in domestic supply chains and generates the backward linkages, worker training, and technology transfer that the literature identifies as the primary channels of inclusive growth.

The operational lessons from East Asia's experience include:

- Macroeconomic stability that reduces uncertainty for long-horizon investors—specifically: single-digit inflation, transparent and predictable exchange rate management, and fiscal frameworks that do not crowd out private credit.

- Public investments that relax binding constraints (power, logistics, trade facilitation), complemented by time-bound, performance-linked support.
- Capability building through sustained investments in education, technical and vocational training, and managerial upgrading.
- Export orientation and integration into regional and global markets to achieve scale and learning-by-exporting.
- Institutions and programs that foster linkages (supplier development, standards, logistics) and enable upgrading over time.

Vietnam's experience since Doi Moi (1986) and its WTO accession (2007) provides perhaps the most instructive recent parallel for SSA economies. Starting from a low-income, agrarian base with weak institutions, Vietnam systematically dismantled barriers to FDI, maintained macroeconomic discipline, and used SEZs and industrial parks to concentrate FDI in export manufacturing. By 2024, manufacturing and processing sectors attracted over 70 percent of FDI inflows, and electronics alone accounted for US$72.6 billion of annual exports. Indonesia's experience is also instructive: despite ongoing governance challenges, sustained macroeconomic stability anchored by a statutory fiscal deficit ceiling and an independent central bank has made Indonesia one of the largest FDI recipients in ASEAN, demonstrating that a large, resource-rich, demographically diverse economy can attract manufacturing-oriented investment when macroeconomic credibility is established.

7.2 Knowledge Spillovers as the Organizing Principle

Drawing on Keller (2021), knowledge spillovers represent the central economic benefit of FDI. Hostcountry policy should therefore be organized around the question: How can countries maximize spillovers and absorptive capacity? Three operational priorities follow.

7.2.1 Strengthen Domestic Absorptive Capacity

- Invest in Science, Technology, Engineering and Mathematics (STEM) education, technical and vocational training, and managerial skills aligned with investor demand.
- Support technology adoption and upgrading for domestic SMEs (quality systems, machinery, and management practices).
- Strengthen applied R&D and university–industry partnerships (internships, joint labs, technology transfer offices).

7.2.2 Build Strong Linkages Between Foreign and Domestic Firms

- Supplier development programs and certification support to meet quality and delivery standards.
- Matchmaking platforms that connect investor procurement needs to domestic firm capabilities.
- Incentives that reward training and technology support for domestic suppliers, monitored by realized supplier contracts.

7.2.3 Improve Institutional Quality and Reduce Uncertainty

- Strengthen contract enforcement and commercial dispute resolution.
- Stabilize tax and tariff regimes through transparent, rules-based processes.
- Reduce bureaucratic discretion via digitization, service standards, and published timelines.

7.3 Applying a Spillovers Lens to Nigeria

Nigeria illustrates how a spillovers lens can translate into a focused reform package that shifts FDI from enclave-type activities toward projects that embed in domestic supply chains. The priorities emphasize (i) capabilities and linkages, (ii) credibility and trade facilitation, and (iii) targeted sector focus with outcome-based monitoring.

On capabilities and linkages: scale demand-driven Technical, Vocational Education and Training (TVET) and in-firm training with anchor investors; stand up supplier development (certification support, technical assistance, matchmaking) in priority industrial nodes; co-finance time-bound SME upgrading linked to verified procurement opportunities; structure incentives around realized spillovers—training completion, supplier contracts, export milestones—not just investment size.

On credibility and tradables competitiveness: publish and adhere to tax/tariff and FX policy roadmaps; strengthen commercial dispute resolution; digitize customs end-to-end and enforce clearance targets; prioritize reliable power and logistics for export-oriented corridors and industrial clusters.

7.4 Special Economic Zones and Policy Credibility: The Shenzhen Experience

Shenzhen is often cited as a successful SEZ, but its main policy value is to clarify a small set of design-and-delivery conditions under which zones can attract investment, sustain credibility, and support learning and upgrading—not a model to copy wholesale.

Table 5. Shenzhen-Inspired SEZ Policy Checklist

Area	Minimum Design Feature	Implementation Test
Mandate	Clear national mandate with timeconsistent objectives; authority to implement differentiated rules.	Zone law specifies scope, governance, and dispute mechanisms; changes require transparent procedures.
Location	Connectivity to external market and logistics node with realistic comparative advantage for tradables.	Logistics performance is improving (clearance times, port dwell time, trucking turnaround).
Infrastructure	Front-loaded, reliable services (power, water, roads, digital), not "promised later."	Service-level metrics are published and met; investors face few outages and predictable tariffs.
Rules & Services	One-stop investor services with timebound approvals; predictable tax/customs treatment.	End-to-end processes are digitized; published fee schedules; approval times tracked.
Governance	Empowered zone authority with professional management and clear accountability.	Single accountable authority signs performance contract; audits and procurement are transparent.
Industrial Trajectory	Phased sector strategy: start with feasible tradables, then upgrade through skills and suppliers.	Evidence of upgrading tracked via domestic value added, supplier contracts, export diversification.

Source: Author's synthesis, drawing on case literature on Chinese SEZ governance.

8. Policy Implications for High-Quality FDI and Inclusive Growth

The policy agenda can be summarized as three mutually reinforcing pillars: (1) credibility and predictability, (2) competitiveness of the tradables ecosystem, and (3) capabilities and linkages that convert FDI into technology transfer and jobs.

Table 6. Policy Pillars, Reform Examples, and Key Metrics

Pillar	Reform Examples	Key Outcome Metrics
1. Credibility & Predictability	Medium-term tax/tariff roadmaps; rules-based regulatory change; digital licensing with published timelines.	Permit processing time (P50/P90 days); policy stability index; investor retention rate.
2. Tradables Ecosystem Competitiveness	End-to-end digital customs; reliable power for industrial corridors; competition in ports/logistics.	Customs release time (P50/P90 hours); power outage hours; zone occupancy rate; time-to-production.
3. Capabilities & Linkages	Demand-driven TVET tied to anchor investors; co-financed SME standards certification; supplier development centers.	Supplier contracts (count/value); local procurement share; training hours per worker; domestic value added.

Source: Author.

9. Conclusion

FDI can support growth and structural transformation, but it does not deliver inclusive outcomes automatically. The evidence reviewed in this paper points to conditional effects: spillovers and job creation are stronger when host countries combine macroeconomic stability with investments in skills, infrastructure, and institutions that enable domestic firms to learn and connect to foreign investors.

The empirical results in Section 6 confirm the core conditionality finding: the interaction between FDI and institutional quality (Rule of Law) is positive and statistically significant at the one percent level (0.283***, s.e. 0.094), while the unconditional FDI effect is negligible. This is consistent with the theoretical arguments of Borensztein et al. (1998) and the empirical literature on absorptive capacity. Employment effects of FDI are positive in direction but imprecisely estimated at the aggregate level, consistent with FDI being concentrated in capital-intensive activities in SSA over the sample period.

Macroeconomic stability emerges from the comparative analysis as a foundational prerequisite for attracting high-quality FDI. The contrast between Nigeria and its East Asian comparators (Vietnam, Malaysia, and Indonesia) is striking across multiple dimensions. Nigeria's general government deficit averaged approximately 4.9 percent of GDP over 2015–2025—roughly double Indonesia's 2.4 percent average and more than one percentage point above Vietnam's 3.6 percent. Combined with chronic inflation, exchange rate volatility, and weak governance, this fiscal trajectory has systematically deterred the efficiency-seeking, manufacturing-oriented investment that generates the strongest spillovers. For Sub-Saharan African policymakers, restoring and maintaining macroeconomic credibility—through fiscal consolidation, transparent exchange rate management, and independent monetary institutions—is the first-order structural reform for improving the quantity and quality of FDI inflows.

For Sub-Saharan Africa, the practical implication is to define and pursue "high-quality" FDI in operational terms—projects that expand scalable wage employment and generate measurable learning and linkage outcomes. This requires shifting from broad incentives toward performancebased packages, credible SEZ governance, and active supplier and workforce development.

- Prioritize macroeconomic stability: restore and maintain single-digit inflation, achieve fiscal consolidation toward a structural deficit in the 3–3.5 percent of GDP range consistent with debt sustainability, establish transparent exchange rate management, and anchor fiscal policy with credible medium-term frameworks.
- Prioritize reforms that reduce uncertainty and trade costs, and that build domestic capabilities (skills, management, finance) needed for absorption.
- Use linkage-building as the main technology-transfer lever (supplier development, standards support, and investor aftercare), rather than relying on horizontal spillovers.
- Evaluate SEZs and incentives by outcomes—exports, jobs, domestic value added, supplier contracts, and training—using transparent monitoring frameworks.

A next step is to implement the empirical extension with harmonized cross-country data and selected country case studies to estimate how FDI effects vary with institutions and absorptive capacity, and to document linkage outcomes at the firm level.

Appendix A. Data, Variable Definitions, and Robustness

Table A1. Data Sources and Indicator Codes

Concept	Series	Indicator Code	Source
FDI exposure	FDI, net inflows (% of GDP)	BX.KLT.DINV.WD.GD.ZS	WDI
Growth outcome	GDP per capita growth (annual %)	NY.GDP.PCAP.KD.ZG	WDI
Employment outcome	Employment to population ratio, 15+ (%)	SL.EMP.TOTL.SP.ZS	WDI
Institutions proxy	Rule of Law (estimate)	RL.EST	WGI
Inclusion outcome	Poverty headcount ratio at $2.15/day	SI.POV.DDAY	WDI

Table A2. Threats to Identification and Robustness Checks

Threat / Concern	Diagnostic	Mitigation / Check
Reverse causality; omitted reforms	Pre-trends; sensitivity to lag structure	Lag controls/outcomes; event-study where feasible; IV shift-share.
Commodity-cycle confounding	Correlation with terms-oftrade shocks	Control for terms of trade; exclude oil exporters; split samples.

Sectoral composition	Heterogeneity by resource dependence	Interact FDI with resource intensity; use sectoral FDI where available.
Measurement and outliers	Influence diagnostics; missingness	Winsorize; alternative FDI measures; alternative outcomes.

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