FOREIGN DIRECT INVESTMENT AND ECONOMIC GROWTH IN AFRICAN ECONOMIES (1995–2020)

AN ECONOMETRIC INVESTIGATION USING PANEL DATA TECHNIQUES

1. Introduction

In the context of developing economies, particularly in Sub-Saharan Africa, Foreign Direct Investment (FDI) has been positioned as a critical driver of economic growth. Policymakers often argue that FDI brings with it not only capital inflows but also technology transfer, employment opportunities, and management know-how. However, the literature remains divided—many studies report no significant impact of FDI on growth without pre-existing institutional strength.

This case study aims to analyze the effect of FDI on economic growth across 30 African countries over a 26-year period, with a specific focus on the moderating role of institutional quality. We apply panel data econometric techniques to identify fixed and interactive effects while controlling for potential endogeneity.

2. Research Questions

1. Does FDI inflow significantly impact GDP growth in African economies?
2. To what extent does institutional quality moderate the FDI–growth relationship?
3. Are the effects homogeneous across countries, or do income levels and governance characteristics introduce variance?

3. Literature Review Highlights

- Borensztein, De Gregorio, and Lee (1998): FDI promotes growth only in the presence of human capital.
- Alfaro et al. (2004): Sectoral composition of FDI is key—manufacturing vs. resource sectors yield different impacts.
- Asiedu (2006): FDI in Africa is significantly influenced by infrastructure and corruption levels.

- Lensink and Morrissey (2001): FDI volatility has a dampening effect on economic growth.

4. Data and Variables

Data Sources

- FDI (% of GDP): UNCTAD
- Real GDP Growth Rate: World Bank World Development Indicators
- Institutional Quality Index: Composite score of World Governance Indicators (average of GE, RL, and CC)
- Trade Openness: (Exports + Imports) / GDP from WDI
- Human Capital Index: Barro-Lee Education Dataset
- Sample: 30 African countries with complete panel from 1995–2020

Summary Statistics

Variable	Mean	Std. Dev	Min	Max
GDP Growth (%)	4.2	2.8	-7.1	12.4
FDI (% of GDP)	5.4	3.1	0.2	19.6
Institutional Index	0.41	0.13	0.12	0.76
Trade Openness	67.5	22.1	29.2	118.9
Human Capital Index	0.45	0.11	0.21	0.68

5. Methodology

5.1 Model Specification

$$GDPGrowth_{it} = \beta_0 + \beta 1FDIit - 1 + \beta 2InstQualityit + \beta 3(FDI \times InstQuality)it - 1 + \beta 4TradeOpenit + \beta 5HumanCapit + \backslash mui + \varepsilon it$$

Where:

- i: country index
- t: time index
- μ_i: country-specific unobserved effects

- ε_{it}: idiosyncratic error

5.2 Estimation Strategy

- **Fixed Effects (FE)**: Controls for time-invariant country-specific heterogeneity
- **Robust SEs**: Clustered at the country level to account for serial correlation
- **Two-Stage Least Squares (2SLS)**: Instrumental variable approach using lagged FDI to address endogeneity
- **Interaction Term**: Captures conditional effect of FDI moderated by governance quality

6. Econometric Tests

Test	Statistic	Interpretation
Hausman Test	$p < 0.01$	Favors Fixed Effects over Random Effects
Levin-Lin-Chu Unit Root	$p < 0.05$	Stationarity confirmed for all variables
Wooldridge Serial Corr.	$p > 0.10$	No first-order autocorrelation detected
Breusch-Pagan Test	$p < 0.01$	Heteroskedasticity detected, robust SE used
Cragg-Donald F-stat	18.7	Instrument is strong (threshold = 10)

7. Results

Main Regression Table (FE Model with Interaction Term)

Variable	Coefficient	Std. Error	p-value
FDI (lagged)	0.47	0.13	0.002
Institutional Quality	0.31	0.11	0.008
FDI × InstQuality	0.26	0.09	0.011
Trade Openness	0.19	0.06	0.004
Human Capital	0.21	0.12	0.081
Constant	2.34	0.88	0.009

Interpretation:

- FDI positively contributes to growth, but its impact is significantly amplified when paired with higher institutional quality.

- Trade openness and human capital exert a positive effect on growth but with varying levels of significance.

8. Visual Analysis

- **Figure 1**: Line plot of FDI vs GDP growth in Ghana, Kenya, and Nigeria
- **Figure 2**: Marginal effect plot of FDI at different levels of institutional quality
- **Figure 3**: Heat map of FDI-growth elasticity across countries

9. Discussion

- The results support endogenous growth theory, where **FDI acts as a growth catalyst**, conditional on absorptive capacity (human capital, institutions).
- Countries with weak institutions receive FDI, but **fail to convert it into productivity gains**.
- For policymakers: "FDI without reform = capital flight in disguise."

10. Policy Recommendations

1. **Institutional Reforms First**: Anticorruption, rule of law, and regulatory clarity
2. **Targeted FDI**: Promote FDI in manufacturing, not just extractive sectors
3. **Human Capital Investment**: Parallel efforts in education, vocational training
4. **Regional Harmonization**: Pan-African FDI standards could increase investor confidence

11. Conclusion

This case demonstrates the critical interaction between investment and institutions. FDI inflows, while valuable, require a strong domestic environment to translate into sustainable growth. Development economics must balance capital inflow strategies with long-term institutional strengthening.

12. Deliverables to Student

- 7,500-word dissertation draft (with placeholders for appendices)
- STATA .do files and regression log

- Graphs in editable Excel and PNG formats
- Executive summary (2 pages) suitable for policy brief
- 15 academic references in APA format
- Table templates in Word (copy-paste ready)