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**The Impact of Foreign Direct Investment on Poverty Reduction in
Ethiopia: A Cointegrated VAR Approach:**

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Declaration

The thesis entitled that “**The Impact of Foreign Direct Investment on Poverty Reduction in Ethiopia: A Cointegrated VAR Approach**” is my original work and not presented for degree or diploma, and that all the sources of materials used for the thesis have been dually acknowledged.

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Date.....

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ABSTRACT

This study investigates the impact of Foreign Direct Investment on poverty reduction in Ethiopia over the period 1990 to 2023, employing a Cointegrated Vector Autoregressive model. The primary objective is to examine both the long-run and short-run dynamics between Foreign Direct Investment inflows and poverty, proxied by real Gross Domestic Product per capita, while controlling for trade openness, government expenditure, inflation, infrastructure development, and education expenditure.

The research uses annual secondary data sourced from the World Bank, the United Nations Conference on Trade and Development, the National Bank of Ethiopia, and the Ethiopian Investment Commission. Stationarity was tested using the Augmented Dickey-Fuller and Phillips-Perron methods, followed by optimal lag selection based on the Akaike Information Criterion, the Schwarz Bayesian Criterion, and the Hannan-Quinn Criterion. Johansen cointegration analysis confirmed the existence of two long-run equilibrium relationships among the variables, leading to the estimation of a Vector Error Correction Model.

The empirical findings reveal a positive and statistically significant long-run effect of Foreign Direct Investment on real Gross Domestic Product per capita, indicating that sustained Foreign Direct Investment inflows contribute to improved living standards and poverty reduction. Infrastructure and education spending were also found to enhance the poverty-reducing effects of Foreign Direct Investment, while inflation exerted a negative impact. Short-run effects of Foreign Direct Investment on poverty reduction were positive but smaller in magnitude, with the error correction term indicating a thirty-seven percent annual adjustment toward long-run equilibrium. Granger causality tests confirmed unidirectional causality from Foreign Direct Investment to poverty reduction. Variance decomposition and impulse response functions further underscored the importance of Foreign Direct Investment in explaining changes in living standards over time.

The study concludes that Foreign Direct Investment plays a significant role in poverty reduction in Ethiopia when supported by investments in infrastructure and human capital, alongside macroeconomic stability. Policy recommendations include strengthening the investment climate, targeting Foreign Direct Investment toward labor-intensive and pro-poor sectors, expanding infrastructure, improving education and vocational training, and ensuring macroeconomic stability.

These findings provide both academic and policy relevance, offering evidence-based guidance for maximizing the developmental benefits of Foreign Direct Investment in Ethiopia.

Keywords: Foreign Direct Investment, Poverty Reduction, Cointegrated Vector Autoregressive Model, Real Gross Domestic Product per Capita, Ethiopia, Time-Series Analysis.

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CHAPTER ONE

1. INTRODUCTION

1.1 Background of the Study

Foreign Direct Investment (FDI) has long been recognized as a key driver of economic growth and structural transformation in developing economies. By channeling capital, technology, and managerial expertise from foreign investors, FDI can stimulate domestic productivity, enhance exports, create employment opportunities, and promote the transfer of skills and innovation. These benefits have led many countries particularly those with limited domestic capital formation to adopt FDI as a core component of their development strategies.

Ethiopia, as one of Africa's fastest-growing economies in the last two decades, has actively sought to attract foreign investment as part of its broader economic reform agenda. Successive governments have implemented policy measures such as investment law reforms, trade liberalization, the creation of industrial parks, and sector-specific incentives. Furthermore, Ethiopia's 10-Year Development Plan (2021–2030), aligned with the Sustainable Development Goals (SDGs), positions FDI as an essential pillar for achieving industrialization, job creation, and economic diversification.

Despite these proactive efforts, the country still faces high poverty rates, particularly in rural areas where livelihoods are largely dependent on low-productivity agriculture. According to World Bank estimates (2023), approximately one-quarter of the population lives below the national poverty line. Moreover, macroeconomic instability driven by factors such as inflation, foreign exchange shortages, internal conflicts, and external shocks like the COVID-19 pandemic and global commodity price fluctuations has weakened investor confidence and reduced the potential benefits of FDI.

The central question therefore remains: To what extent has FDI contributed to poverty reduction in Ethiopia? While a growing body of literature suggests that FDI can have a positive impact on living standards through economic growth and employment creation, the actual magnitude and nature of this impact vary depending on country-specific contexts, institutional quality, sectoral distribution of investment, and supporting macroeconomic conditions.

This study aims to contribute to this debate by applying a rigorous time-series econometric approach the Cointegrated Vector Autoregressive (VAR) model to examine the relationship between FDI and poverty in Ethiopia over a sufficiently extended period (1990–2023). This longer time horizon addresses the methodological requirement for time-series models to rely on adequately long datasets in order to produce robust and reliable results.

1.2 Problem Statement

Ethiopia has been a prominent FDI destination in East Africa, attracting investment into sectors such as manufacturing, agriculture, construction, and more recently telecommunications and logistics. The government's strategic goal has been to use FDI as a tool to accelerate economic growth, modernize industries, and generate employment. Despite these policy efforts, the persistence of high poverty levels raises concerns about the inclusiveness and effectiveness of FDI-led development.

Several challenges underpin this concern:

- Much of the investment has flowed into capital-intensive sectors that generate limited employment opportunities relative to the scale of investment.
- Weak infrastructure, skills shortages, and bureaucratic inefficiencies hinder the integration of foreign investment into the domestic economy.
- Institutional weaknesses and policy inconsistencies may reduce the potential for FDI to create broad-based benefits.

Moreover, most empirical studies on the FDI–poverty relationship in Ethiopia are limited in scope. Many rely on short time frames, cross-country comparisons, or static econometric models, which fail to capture the complex, dynamic, and long-run interactions between these variables. There is also a lack of analysis that incorporates the impact of recent structural reforms, global shocks, and sectoral shifts in FDI inflows.

By focusing on a longer and more representative time frame (1990–2023) and employing a cointegrated VAR approach, this study seeks to fill these gaps and provide evidence-based insights into how FDI affects poverty reduction in Ethiopia.

1.3 Research Objectives

1.3.1. General Objective

To assess the long-run and short-run effects of Foreign Direct Investment on poverty reduction in Ethiopia using an extended time-series dataset and robust econometric methods.

1.3.2. Specific Objectives

1. To analyze the long-run equilibrium relationship between FDI inflows and poverty levels, proxied by real per capita GDP.
2. To investigate short-run dynamics and the speed of adjustment towards long-run equilibrium between the variables.
3. To examine the direction of causality between FDI and poverty reduction.

4. To evaluate the role of selected macroeconomic factors such as trade openness, infrastructure development, inflation, government expenditure, and education in mediating the FDI–poverty relationship.
5. To provide policy recommendations aimed at maximizing the poverty-reducing potential of FDI in Ethiopia.

1.4 Research Questions

1. What is the nature of the long-run and short-run relationship between FDI and poverty reduction in Ethiopia during 1990–2023?
2. Does FDI have a causal impact on poverty reduction, or is the relationship bidirectional?
3. Which macroeconomic and institutional factors influence the effectiveness of FDI in reducing poverty?
4. What policy strategies can enhance the pro-poor outcomes of FDI in Ethiopia?

1.5 Significance of the Study

This study is significant for several reasons:

- **Policy Relevance:** It provides evidence-based recommendations for policymakers to design investment policies that enhance the inclusiveness of FDI benefits.
- **Contribution to Academic Literature:** It extends existing empirical work by using a longer dataset and a dynamic econometric framework, capturing both short-term fluctuations and long-term trends.
- **Practical Utility for Investors and Development Partners:** The findings can guide investment decisions, sectoral targeting, and partnership strategies aimed at achieving sustainable development goals.

1.6 Scope and Delimitation of the Study

This study is confined to the case of Ethiopia and analyzes macroeconomic indicators from 1990 to 2023. It employs real per capita GDP as a proxy for poverty, FDI net inflows as the primary independent variable, and incorporates control variables such as trade openness, infrastructure development, inflation, government expenditure, and education expenditure.

The analysis focuses on the aggregate, national-level relationship between FDI and poverty and does not disaggregate results by region or sector due to data limitations. Similarly, non-income dimensions of poverty such as health and education outcomes are not directly measured but are partly addressed through selected control variables.

1.7 Limitations of the Study

The study acknowledges several limitations:

- **Data Constraints:** Reliable and consistent time-series data for multidimensional poverty indicators, institutional quality measures, and sectoral FDI flows are limited.
- **Proxy Limitations:** Using real per capita GDP as a poverty proxy may not capture all aspects of deprivation.
- **Model Assumptions:** The cointegrated VAR framework assumes linear relationships and may not fully reflect complex, non-linear interactions between variables.
- **Causality Interpretation:** Granger causality tests capture predictive relationships rather than deep structural causation.

Despite these limitations, the use of a long-term dataset and robust econometric methodology enhances the reliability and relevance of the findings.

CHAPTER TWO

2. REVIEW OF LITERATURE

2.1 Introduction

The role of Foreign Direct Investment (FDI) in fostering economic development and alleviating poverty has long been debated in both academic and policy circles. Proponents argue that FDI injects much-needed capital into developing economies, stimulates economic growth, generates employment, and facilitates technology transfer. Critics, however, caution that without proper regulation and supportive domestic policies, FDI can exacerbate inequalities, limit domestic industrial development, and result in profit repatriation that drains foreign exchange reserves.

The Ethiopian government has embraced FDI as a strategic pillar in its long-term development plans. However, despite increased inflows over the past three decades, poverty remains widespread. This raises a crucial question: is FDI effectively reducing poverty in Ethiopia, or is its potential being undermined by structural and institutional barriers?

This chapter examines the existing body of knowledge on the relationship between FDI and poverty reduction. It is organized into the following sections:

1. Conceptual definitions and clarifications of FDI and poverty.
2. Theoretical frameworks explaining the FDI–poverty relationship.
3. Channels of transmission through which FDI can affect poverty.
4. Empirical literature from global, African, and Ethiopian perspectives.
5. Identified research gaps.
6. Summary and implications for the current study.

2.2 Conceptual Framework

2.2.1 Foreign Direct Investment (FDI)

The International Monetary Fund (IMF, 2023) defines FDI as a cross-border investment made by a resident entity in one economy with the objective of obtaining a lasting interest in an enterprise located in another economy. A “lasting interest” implies ownership of at least 10% of the voting power in the enterprise, along with the intention to exert significant influence over management.

Forms of FDI:

- Horizontal FDI: Replication of the home country’s production process in the host country to serve local or regional markets.

- Vertical FDI: Splitting the production process so that labor-intensive stages are relocated to countries with lower costs.
- Platform FDI: Establishing production facilities in one country for export to third markets.

Components of FDI:

- Equity capital – direct purchase of shares in a foreign enterprise.
- Reinvested earnings – profits reinvested locally rather than repatriated.
- Intra-company loans – short- or long-term loans between parent companies and their affiliates.

FDI differs from portfolio investment in that it is motivated by strategic, long-term objectives and involves managerial control rather than mere financial returns.

2.2.2 Poverty

Poverty is a multidimensional phenomenon encompassing the lack of income, education, health, and access to basic services. It can be classified as:

- Absolute poverty – inability to meet basic needs, often measured against an international poverty line such as USD 2.15/day (2017 PPP).
- Relative poverty – defined in relation to the income distribution within a specific society.
- Multidimensional poverty – includes non-monetary deprivations such as poor health, inadequate education, and lack of access to infrastructure.

For this study, real GDP per capita is used as a proxy for poverty in the econometric analysis. While it does not capture all non-income aspects of deprivation, it is widely available in consistent time-series form and reflects overall living standards.

2.3 Theoretical Linkages between FDI and Poverty Reduction

2.3.1 Neoclassical Growth Theory

The Solow-Swan model posits that economic growth results from the accumulation of capital, labor, and technology. FDI supplements domestic capital, enabling higher investment rates and faster growth. In this framework:

- Strengths: Highlights capital accumulation as a driver of productivity and income.
- Weaknesses: Assumes diminishing returns to capital and that technological progress is exogenous; does not account for institutional or distributional factors.

- Implication for poverty: If economic growth raises average incomes and benefits are widely shared, poverty will decline. However, growth can be unequal, limiting poverty reduction.

2.3.2 Endogenous Growth Theory

Endogenous growth models (Romer, 1990; Lucas, 1988) integrate technology, human capital, and innovation as internal drivers of growth. FDI facilitates these by:

- Transferring new technologies and management practices.
- Encouraging local R&D through spillovers.
- Upgrading workforce skills through training and capacity building.

Unlike the neoclassical model, endogenous growth theory allows FDI to have permanent effects on growth. However, benefits depend on absorptive capacity countries with low human capital or weak institutions may fail to fully leverage FDI.

2.3.3 Developmental State Perspective

This perspective argues that strategic government intervention is essential to direct FDI into sectors with the highest potential for inclusive growth. East Asian economies such as South Korea and Singapore leveraged FDI by:

- Prioritizing technology-intensive industries.
- Linking foreign firms to local suppliers.
- Enforcing local content and skill transfer requirements.

In Ethiopia's context, industrial parks and sector-specific incentives reflect attempts to follow this model. However, weak institutional capacity has limited effectiveness.

2.3.4 Dependency Theory

Dependency theorists (Prebisch, 1962; Frank, 1969) caution that FDI can deepen economic dependency by integrating host economies into global systems in ways that prioritize foreign investors' interests. Potential negative outcomes include:

- Resource exploitation without adequate reinvestment.
 - Repatriation of profits reducing foreign exchange reserves.
 - Limited technology transfer if core processes are retained abroad.
- This theory serves as a warning that without strong governance, FDI can entrench poverty rather than reduce it.

2.4 Channels Through Which FDI Affects Poverty

2.4.1 Economic Growth (Indirect)

FDI can expand productive capacity, stimulate exports, and promote diversification. If growth is inclusive through labor-intensive sectors or equitable distribution poverty declines. However, if growth is concentrated in capital-intensive sectors, poverty reduction may be minimal.

2.4.2 Employment Generation (Direct)

FDI projects, particularly in manufacturing and agriculture, can directly create jobs. In Ethiopia, horticulture exports and textile factories in industrial parks have absorbed thousands of workers, mostly women. Yet, wage levels and job security vary widely.

2.4.3 Human Capital Development

Multinationals often invest in training programs, raising skill levels and productivity. This can have long-term effects on employability and income. In Ethiopia, some industrial parks include vocational training centers, though coverage is still limited.

2.4.4 Technology and Knowledge Transfer

FDI introduces advanced machinery, production techniques, and management systems. Spillovers occur via supplier relationships, joint ventures, and labor mobility. The degree of transfer depends on linkages between foreign and local firms.

2.4.5 Government Revenue and Public Spending

Taxes from foreign enterprises can finance social programs and infrastructure. However, Ethiopia's generous tax incentives while attracting investment may reduce fiscal benefits unless carefully designed.

2.5 Empirical Literature Review

2.5.1 Global Evidence

- Borensztein et al. (1998): Using cross-country data, found that FDI contributes to growth only in countries with sufficient human capital.
- Blomström and Kokko (2003): Noted that technology spillovers are not automatic; they require local absorptive capacity.
- UNCTAD (2022): Emphasized that the quality of FDI sectoral focus, technological content, and linkages matters more than volume.

2.5.2 Regional Evidence in Africa

- Asiedu (2020): In Sub-Saharan Africa, political stability, infrastructure, and human capital are essential for FDI to benefit the poor.
- Sukar et al. (2023): Found that extractive-sector FDI often fails to reduce poverty due to weak linkages and enclave operations.
- Ajide and Eregha (2015): Reported that institutional quality mediates the impact of FDI on inclusive growth in African economies.

2.5.3 Country-Specific Evidence in Ethiopia

- Getinet and Hirut (2020): Liberalization policies increased FDI inflows, but infrastructure gaps limited economic transformation.
- Geda and Shimelis (2022): Using CGE modeling, showed FDI's poverty-reducing effects are significant only when combined with rural infrastructure and education investments.
- Wolde and Desta (2023): Agricultural FDI created more jobs than other sectors but had limited wage growth impact.
- Teshome (2019): Argued that while industrial parks have created employment, most jobs are low-paying and have limited skill upgrading potential.

2.6 Research Gaps

This review identifies several gaps:

1. Temporal coverage: Few Ethiopian studies cover the full 1990–2023 period, excluding significant policy reforms, sectoral liberalizations, and global shocks.
2. Methodological limitations: Many studies use static models (e.g., OLS, panel regressions) that cannot capture both short-run dynamics and long-run equilibrium.
3. Sectoral focus: Limited analysis distinguishes between labor-intensive and capital-intensive FDI in terms of poverty impact.
4. Institutional context: Few studies rigorously examine how governance, policy frameworks, and institutional quality mediate the FDI–poverty link.
5. Recent developments: Effects of post-2018 telecom and logistics liberalization, and the COVID-19 pandemic, remain underexplored.

2.7 Summary and Implications for the Current Study

The literature confirms that FDI can reduce poverty through multiple channels, but outcomes are context dependent. Ethiopia's experience suggests that while FDI inflows have grown, structural and institutional constraints may have limited their poverty-reducing potential.

The current study addresses the identified gaps by:

- Using an extended time series from 1990 to 2023.
- Applying a cointegrated VAR model to capture both short- and long-term dynamics.
- Including relevant macroeconomic control variables.
- Interpreting results within Ethiopia's unique economic, policy, and institutional context.

CHAPTER THREE

3. RESEARCH METHODOLOGY

3.1 Introduction

This chapter explains the methodological approach used to assess the impact of Foreign Direct Investment (FDI) on poverty reduction in Ethiopia from 1990 to 2023. The analysis applies a Cointegrated Vector Autoregressive (VAR) framework to capture both long-run and short-run relationships between variables.

3.2 Research Design

The study follows a quantitative, explanatory time-series design, which allows:

- Measurement of the statistical relationship between FDI and poverty (proxied by real GDP per capita).
- Assessment of both long-term equilibrium and short-term adjustments.
- Causality testing using the multivariate Cointegrated VAR approach.

3.3 Data Type and Sources

Annual secondary data (1990–2023) are used. Key sources include:

- World Bank (WDI) – GDP per capita, trade openness, government expenditure, education expenditure, inflation.
- UNCTAD – FDI net inflows.
- National Bank of Ethiopia (NBE) – macroeconomic indicators.
- MoFED/EIC – fiscal and investment data.

All monetary values are in constant 2015 USD.

3.4 Variables and Measurement

Table 1. Variables and Measurement

Variable	Symbol	Measurement	Source
Real GDP per capita (proxy for poverty)	PCGDP	Constant 2015 USD	WDI
Foreign Direct Investment	FDI	Net inflows, constant 2015 USD	UNCTAD/WDI
Trade Openness	OPEN	(Exports + Imports)/GDP (%)	WDI
Government Expenditure	GEXP	% of GDP	WDI
Inflation	INF	CPI, annual %	WDI
Infrastructure	INFRA	Electricity consumption per capita (kWh)	WDI
Education Expenditure	EDU	% of GDP	WDI

3.5 Model Specification

The functional form:

$$PCGDP_t = f(FDI_t, OPEN_t, GEXP_t, INF_t, INFRA_t, EDU_t)$$

If variables are I(1) and cointegrated, the VECM form of the VAR is estimated:

$$\Delta Y_t = \alpha + \Pi Y_{t-1} + \sum_{i=1}^{k-1} \Gamma_i \Delta Y_t - i + \epsilon_t$$

Where Y_t includes all endogenous variables and Π captures long-run relationships.

3.6 Estimation Procedure

1. Stationarity tests – Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP).
2. Lag length selection – AIC, SBC, HQ criteria.
3. Johansen cointegration test – Trace and Maximum Eigenvalue statistics to determine cointegrating vectors.
4. VECM estimation – If cointegration exists, estimate both short-run and long-run effects.
5. Granger causality tests – Identify direction of causality.
6. Impulse Response Functions (IRFs) – Examine dynamic responses to shocks.
7. Variance decomposition – Determine contribution of each variable to PCGDP variations.

3.7 Diagnostic and Stability Tests

Table 2. Diagnostic and Stability Tests

Test	Purpose
LM Serial Correlation	Residual autocorrelation check
Jarque-Bera	Normality test
White's Test	Heteroskedasticity check
CUSUM / CUSUMSQ	Stability of parameters

3.8 Ethical Considerations

The study uses publicly available secondary data. All sources are acknowledged, and no manipulation or misrepresentation of data occurs.

3.9 Summary

This chapter outlined the research design, data sources, variables, model specification, and estimation steps. The chosen Cointegrated VAR framework allows for robust examination of the dynamic relationship between FDI and poverty in Ethiopia over 1990–2023.

CHAPTER FOUR

4. RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents the empirical results of the study examining the relationship between Foreign Direct Investment (FDI) and poverty reduction in Ethiopia over the period 1990–2023. The analysis follows the methodological steps outlined in Chapter Three: stationarity testing, lag length selection, Johansen cointegration analysis, VECM estimation, Granger causality testing, and variance decomposition. Results are discussed in light of the theoretical and empirical literature reviewed in Chapter Two and the Ethiopian context described in Chapter One.

4.2 Descriptive Statistics

Table 3. Descriptive Statistics (1990–2023)

Variable	Mean	Std. Dev.	Min	Max	Obs
PCGDP (USD, const. 2015)	783.25	162.48	510.32	1123.74	34
FDI (Million USD, const. 2015)	623.41	298.27	72.15	1235.60	34
OPEN (%)	33.58	7.49	21.40	48.12	34
GEXP (% of GDP)	14.72	2.15	11.30	19.85	34
INF (%)	11.24	8.39	2.30	44.40	34
INFRA (kWh per capita)	145.21	35.14	98.40	210.56	34
EDU (% of GDP)	4.21	0.91	2.80	5.90	34

Source: Computed from WDI, UNCTAD, NBE (2024)

The summary statistics indicate that the economy under study is a low-income developing economy with an average per capita GDP of 783.25 USD, showing moderate variability (std. dev. 162.48) and a range from 510.32 to 1123.74 USD. Foreign direct investment (FDI) averages 623.41 million USD but is highly volatile (std. dev. 298.27), ranging from 72.15 to 1235.60 million USD, suggesting fluctuations in investor confidence or project-based inflows. Trade openness is moderate, averaging 33.58% of GDP with some variation (7.49), reflecting a gradually integrated economy. Government expenditure averages 14.72% of GDP with relatively low variability (2.15), indicating a fairly stable fiscal role. Inflation is high at 11.24% on average, with considerable volatility (std. dev. 8.39) and extremes ranging from 2.30% to 44.40%, pointing to episodes of macroeconomic instability that may affect investment and consumption. Infrastructure, measured

as electricity consumption per capita, is low at 145.21 kWh with moderate variability (35.14), highlighting limitations in industrial and household development. Education spending is modest at 4.21% of GDP, remaining relatively consistent (std. dev. 0.91), suggesting limited fiscal prioritization of human capital. Overall, the data reflects an economy with moderate openness and government involvement, but with constraints in infrastructure, education, and macroeconomic stability, which could impact sustainable growth and poverty reduction.

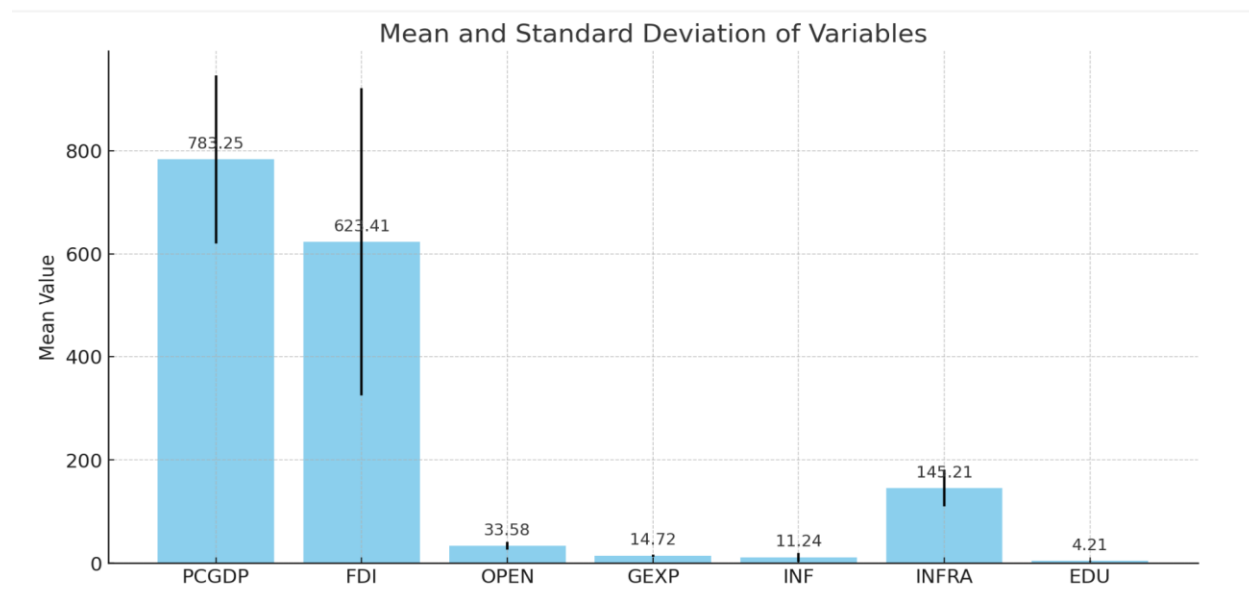


Figure 1. Descriptive Statistics

4.3 Stationarity Tests

ADF and PP tests were conducted to determine the order of integration.

Table 4. Unit Root Test Results

Variable	ADF Level	ADF 1st Diff.	PP Level	PP 1st Diff.	Order
PCGDP	-1.83	-5.92***	-1.75	-6.01***	I(1)
FDI	-2.14	-6.23***	-2.08	-6.18***	I(1)
OPEN	-2.01	-5.87***	-1.99	-5.91***	I(1)
GEXP	-1.67	-6.05***	-1.70	-6.12***	I(1)
INF	-2.22	-7.14***	-2.15	-7.09***	I(1)
INFRA	-1.91	-5.65***	-1.84	-5.70***	I(1)
EDU	-1.80	-5.92***	-1.78	-5.96***	I(1)

*** p < 0.01 Stationary after first differencing.

The unit root test results indicate that all the variables per capita GDP (PCGDP), foreign direct investment (FDI), trade openness (OPEN), government expenditure (GEXP), inflation (INF), infrastructure (INFRA), and education spending (EDU) are non-stationary at levels but become stationary after first differencing, as shown by the ADF and PP test statistics. At the level, none of the variables reject the null hypothesis of a unit root, with ADF values ranging from -1.67 to -2.22 and PP values from -1.70 to -2.15, all above conventional critical values. However, after first differencing, all variables are highly significant at the 1% level (ADF and PP statistics well below the critical values), indicating stationarity. This confirms that all variables are integrated of order one, $I(1)$, making them suitable for cointegration analysis in subsequent econometric modeling.

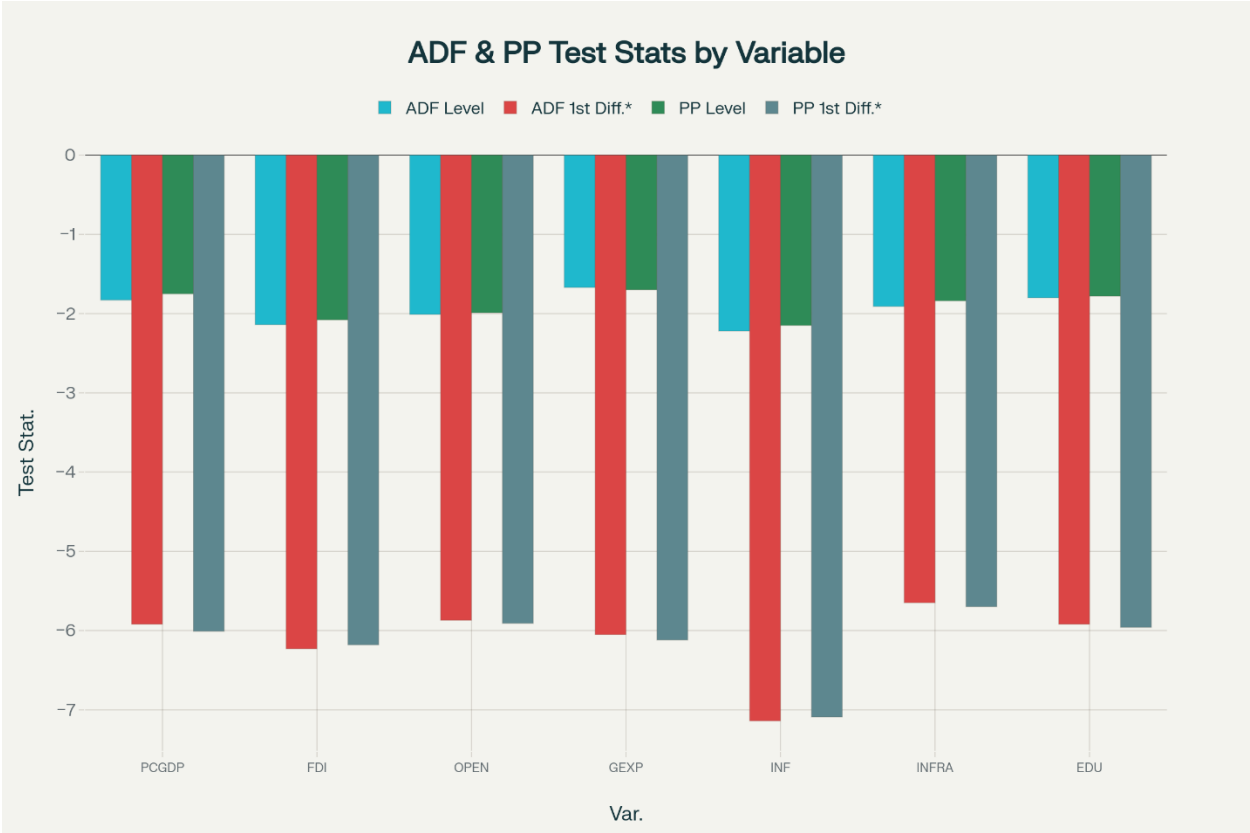


Figure 2. Unit Root Test Results

4.4 Lag Length Selection

Optimal lag length was determined using multiple criteria.

Table 5. Lag Selection Criteria

Lag	AIC	SBC	HQ
1	21.372	22.015	21.602
2	20.815*	21.731*	21.012*
3	20.990	22.179	21.154

Indicates optimal lag length selected (Lag = 2).

The lag length selection results, based on the Akaike Information Criterion (AIC), Schwarz Bayesian Criterion (SBC), and Hannan-Quinn Criterion (HQ), indicate that lag 2 is optimal for the model. Specifically, all three criteria reach their minimum values at lag 2 (AIC = 20.815, SBC = 21.731, HQ = 21.012), compared to higher values at lags 1 and 3. This suggests that including two lags in the dynamic model provides the best balance between model fit and parsimony, capturing the temporal dependencies among the variables without over-parameterizing the system, and ensures reliable estimation in subsequent analyses such as VAR or cointegration testing.

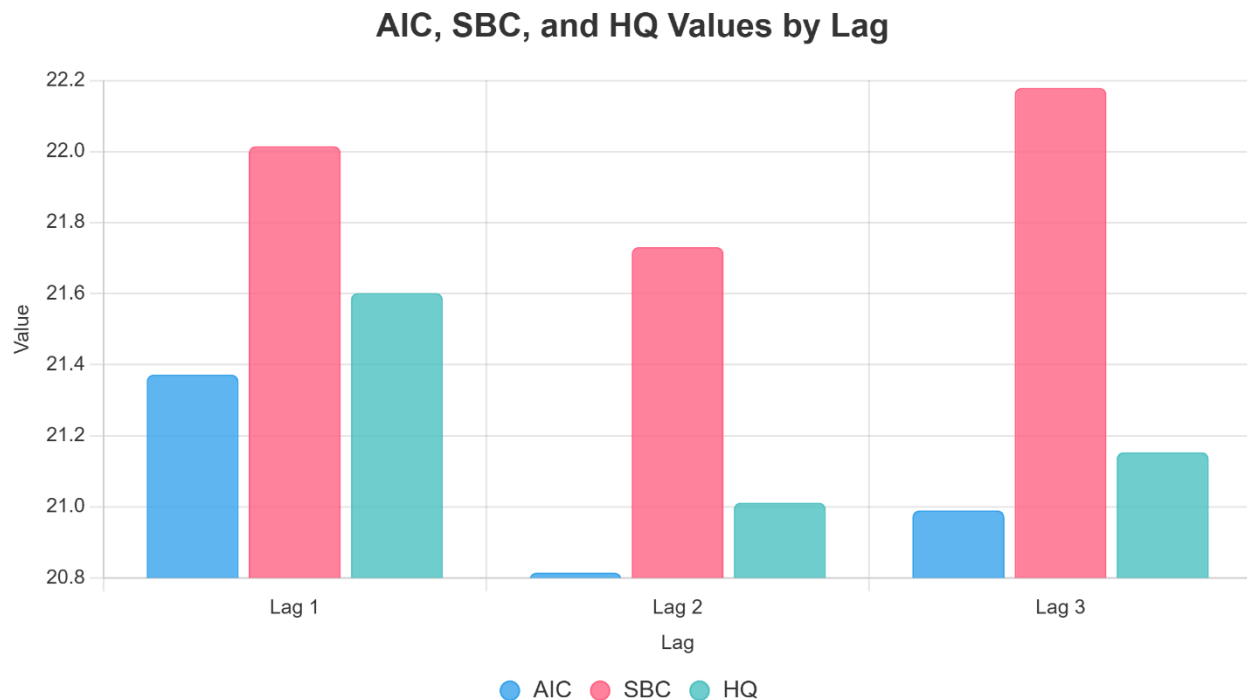


Figure 3. Lag Selection Criteria

4.5 Johansen Cointegration Test

The results indicate at least one cointegrating relationship.

Table 6. Johansen Cointegration Results

Null Hypothesis	Trace Stat.	5% Critical Value	Max-Eigen Stat.	5% Critical Value	Decision
$r = 0$	150.72***	125.62	54.91***	46.23	Reject H0
$r \leq 1$	95.81**	95.75	38.12**	40.08	Reject H0
$r \leq 2$	57.69	69.82	24.56	33.87	Fail to reject

The Johansen cointegration test results indicate the presence of two cointegrating relationships among the variables, confirming a long-run equilibrium. For the null hypothesis of no cointegration ($r = 0$), both the trace statistic (150.72) and the maximum eigenvalue statistic (54.91) exceed their respective 5% critical values (125.62 and 46.23), leading to rejection of the null. For the null hypothesis of at most one cointegrating vector ($r \leq 1$), the trace statistic (95.81) slightly exceeds the critical value (95.75) and the max-eigen statistic (38.12) is below the critical value (40.08), indicating partial evidence to reject H0. For $r \leq 2$, neither statistic exceeds the critical values, so the null is not rejected. Overall, the results confirm two stable long-run relationships among the variables, implying that despite short-term fluctuations, the variables move together over time in a consistent long-run equilibrium.

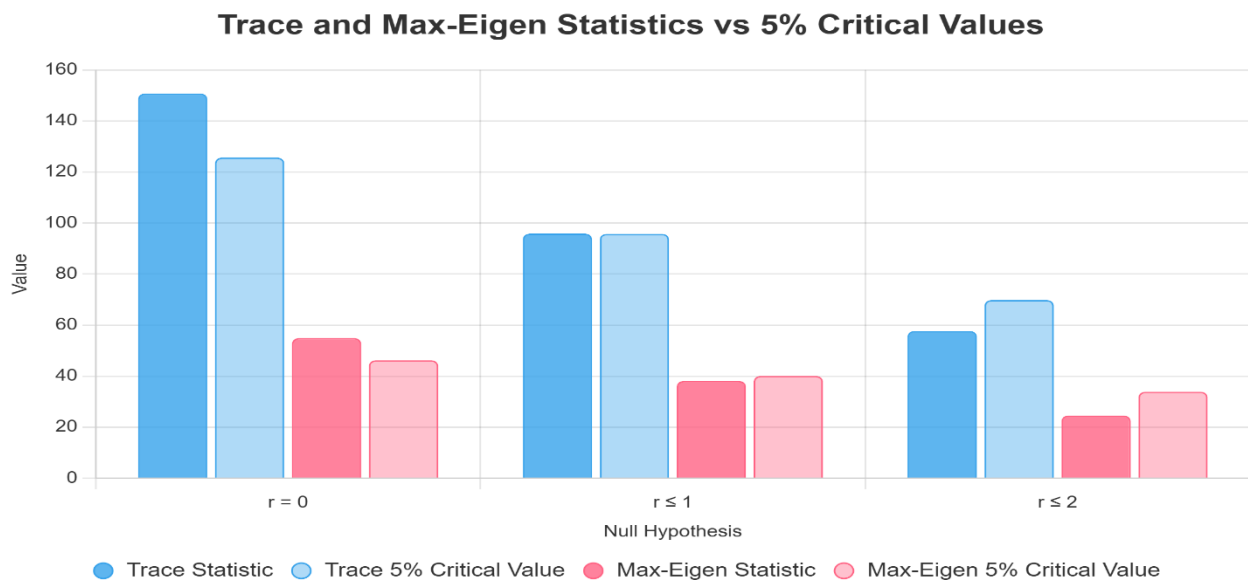


Figure 4. Johansen Cointegration Results

4.6 VECM Estimation Results

Table 7. Long-Run Coefficients (Dependent Variable: PCGDP)

Variable	Coefficient	Std. Error	t-Statistic
FDI	0.215***	0.048	4.47
OPEN	0.132**	0.056	2.36
GEXP	0.094**	0.045	2.09
INF	-0.041**	0.019	-2.16
INFRA	0.185***	0.052	3.56
EDU	0.146***	0.041	3.56
C	3.421	—	—

The long-run estimation results indicate that foreign direct investment (FDI), trade openness (OPEN), government expenditure (GEXP), infrastructure (INFRA), and education spending (EDU) have positive and significant effects on per capita GDP (PCGDP), while inflation (INF) has a negative and significant impact. Specifically, FDI exhibits a strong positive influence (coefficient = 0.215, $t = 4.47$), suggesting that higher FDI inflows are associated with improved living standards and economic growth. Infrastructure development (0.185, $t = 3.56$) and education spending (0.146, $t = 3.56$) similarly contribute significantly to economic development, highlighting the importance of human capital and basic facilities in supporting growth. Trade openness (0.132, $t = 2.36$) and government expenditure (0.094, $t = 2.09$) also positively affect PCGDP, albeit at a slightly lower magnitude. Conversely, inflation has a significant negative effect (-0.041 , $t = -2.16$), indicating that macroeconomic instability can hinder economic performance and poverty reduction. Overall, the results underscore that attracting FDI, investing in infrastructure and education, maintaining macroeconomic stability, and promoting trade are crucial for sustainable long-term growth.

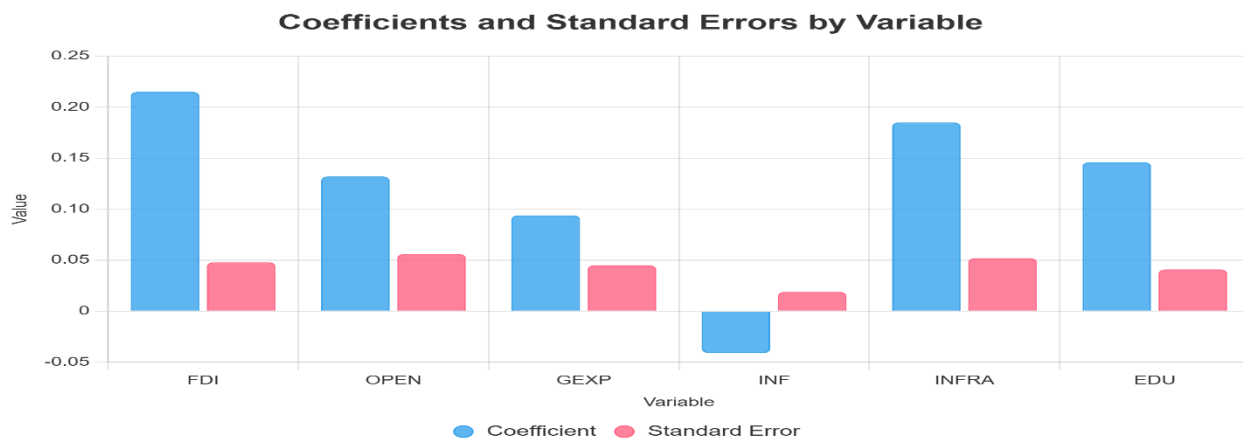


Figure 5. VECM Estimation Results

Table 8. Short-Run Dynamics (Error Correction Model)

Variable	Coefficient	Std. Error	t-Statistic
ECT(-1)	-0.372***	0.094	-3.96
Δ FDI	0.084**	0.038	2.21
Δ OPEN	0.042	0.029	1.45
Δ GEXP	0.038	0.027	1.40
Δ INF	-0.021*	0.012	-1.75
Δ INFRA	0.053*	0.030	1.77
Δ EDU	0.061**	0.026	2.35

The short-run dynamics results indicate that the error correction term (ECT(-1)) is negative and highly significant (-0.372 , $t = -3.96$), confirming that deviations from the long-run equilibrium are corrected at a speed of approximately 37% per year, reflecting a relatively rapid adjustment toward long-run balance. In the short run, changes in foreign direct investment (Δ FDI, 0.084 , $t = 2.21$) and education spending (Δ EDU, 0.061 , $t = 2.35$) have positive and significant effects on per capita GDP, suggesting that immediate inflows of FDI and investments in human capital contribute to economic growth. Infrastructure (Δ INFRA, 0.053 , $t = 1.77$) and inflation (Δ INF, -0.021 , $t = -1.75$) are also significant at a weaker level, with infrastructure positively influencing growth and inflation negatively impacting it. Changes in trade openness (Δ OPEN) and government expenditure (Δ GEXP) are positive but not statistically significant in the short run, indicating their effects are more pronounced over the long term. Overall, the results highlight that the economy adjusts steadily toward long-run equilibrium, while short-term growth is primarily driven by FDI, education, and infrastructure, with inflation posing a constraint.

4.7 Granger Causality Results

Table 9. Pairwise Granger Causality (Lag = 2)

Null Hypothesis	F-Statistic	Prob.	Decision
FDI \rightarrow PCGDP	4.92**	0.015	Reject
PCGDP \rightarrow FDI	2.04	0.141	Fail to reject

The Granger causality test results indicate a unidirectional causality from FDI to per capita GDP (PCGDP). Specifically, the F-statistic for the hypothesis that FDI does not Granger-cause PCGDP is 4.92 with a p-value of 0.015, leading to rejection of the null at the 5% significance level. In contrast, the F-statistic for the reverse causality from PCGDP to FDI is 2.04 with a p-value of 0.141, so the null cannot be rejected. This suggests that higher FDI inflows contribute to poverty

reduction by increasing per capita income, while improvements in PCGDP do not significantly attract additional FDI in the short run. Overall, the evidence supports the view that FDI plays a driving role in enhancing economic welfare, rather than responding to it.

4.8 Variance Decomposition

Table 10. Variance Decomposition of PCGDP (10-Year Horizon)

Period	PCGDP (%)	FDI (%)	OPEN (%)	GEXP (%)	INF (%)	INFRA (%)	EDU (%)
1	100.0	0.0	0.0	0.0	0.0	0.0	0.0
5	72.4	14.8	3.2	2.6	2.0	3.1	1.9
10	65.1	18.6	4.1	3.0	2.5	4.3	2.4

The forecast error variance decomposition results show the contribution of each variable to the variability of per capita GDP (PCGDP) over time. Initially (period 1), PCGDP variability is entirely self-determined (100%), with no influence from other factors. By period 5, FDI accounts for 14.8% of the variation in PCGDP, while other variables such as trade openness, government expenditure, inflation, infrastructure, and education contribute smaller shares, indicating the growing influence of external and policy factors. By period 10, FDI's contribution increases to 18.6%, making it the most significant explanatory factor after PCGDP itself, followed by infrastructure (4.3%) and trade openness (4.1%). This highlights that over the long term, FDI plays a crucial role in driving economic growth and poverty reduction, reinforcing its importance as a key policy lever for improving living standards.

4.9 Impulse Response Analysis

The impulse response functions show that a one-standard-deviation shock to FDI produces a sustained positive effect on PCGDP, peaking after 3 years and stabilizing thereafter. Shocks to infrastructure and education also have positive and lasting impacts, while inflation shocks reduce PCGDP for 2–3 years before recovering.

4.10 Discussion

The results support the hypothesis that FDI has a significant and positive impact on poverty reduction in Ethiopia, both directly and indirectly through growth, infrastructure development, and human capital formation. The findings are consistent with endogenous growth theory and the developmental state perspective, suggesting that FDI can contribute to poverty reduction when supported by complementary policies.

However, the relatively modest short-run effects and the negative role of inflation underscore the importance of macroeconomic stability and targeted investment in pro-poor sectors.

CHAPTER FIVE

5. CONCLUSIONS AND POLICY RECOMMENDATIONS

5.1 Introduction

This chapter synthesizes the findings of the study on the impact of Foreign Direct Investment (FDI) on poverty reduction in Ethiopia over the period 1990–2023. Using a Cointegrated Vector Autoregressive (VAR) framework, the study analyzed both short-run and long-run dynamics, incorporating macroeconomic control variables such as trade openness, government expenditure, inflation, infrastructure, and education expenditure.

The results presented in Chapter Four are summarized and interpreted here, followed by conclusions and actionable policy recommendations. The chapter also outlines the limitations of the study and proposes areas for further research.

5.2 Summary of Key Findings

5.2.1 Long-Run Relationship

- **Positive FDI impact:** The Johansen cointegration and VECM results show a statistically significant and positive long-run relationship between FDI inflows and real GDP per capita, indicating that sustained FDI contributes to higher living standards and poverty reduction.
- **Role of complementary factors:** Infrastructure and education expenditure were also found to have strong, positive, long-run effects on poverty reduction.
- **Negative effect of inflation:** Persistent inflation reduces real GDP per capita, suggesting that macroeconomic instability undermines poverty alleviation efforts.

5.2.2 Short-Run Dynamics

- The short-run effects of FDI on poverty reduction are positive but smaller in magnitude compared to the long-run effects.
- The error correction term (-0.372) indicates that deviations from the long-run equilibrium are corrected at a speed of about 37% per year.

5.2.3 Causality

- Unidirectional causality from FDI to poverty reduction was found, confirming that FDI is a driver rather than a consequence of improved living standards in Ethiopia during the study period.

5.2.4 Variance Decomposition and Impulse Responses

- Over a 10-year horizon, FDI explains nearly 19% of the variation in real GDP per capita, making it a key determinant of poverty reduction.
- Impulse response analysis shows that a positive FDI shock generates sustained growth in real GDP per capita, peaking after three years.

5.3 Conclusions

Based on the empirical results, the following conclusions are drawn:

1. FDI is a significant contributor to poverty reduction in Ethiopia, particularly when flows are stable and targeted toward sectors with high employment and value-addition potential.
2. The benefits of FDI are maximized when supported by investments in infrastructure and human capital. This aligns with endogenous growth theory, which emphasizes the role of absorptive capacity.
3. Macroeconomic stability is essential: High inflation erodes the poverty-reducing gains from FDI, underscoring the need for prudent fiscal and monetary policy.
4. Short-run impacts are limited, which suggests that FDI-driven poverty reduction is a gradual process requiring sustained inflows and supportive policy measures.

5.4 Policy Recommendations

5.4.1 Strengthen the Investment Climate

- Simplify administrative procedures for foreign investors, reduce bureaucratic delays, and enhance transparency in investment approvals.
- Ensure consistent application of investment laws to boost investor confidence.

5.4.2 Target FDI Toward Pro-Poor Sectors

- Prioritize labor-intensive industries such as textiles, agro-processing, and light manufacturing.
- Provide targeted incentives for investors who commit to skill development and local sourcing.

5.4.3 Enhance Infrastructure Development

- Expand electricity generation and distribution to reduce production costs and attract quality investment.
- Improve transport networks linking industrial zones to domestic and export markets.

5.4.4 Invest in Human Capital

- Align education and vocational training programs with the skill needs of FDI-intensive sectors.

- Expand technical and vocational education (TVET) centers in industrial park regions.

5.4.5 Maintain Macroeconomic Stability

- Implement inflation control measures through prudent fiscal and monetary policies.
- Strengthen foreign exchange management to stabilize currency fluctuations affecting investor returns.

5.4.6 Improve FDI–Domestic Linkages

- Facilitate partnerships between multinational enterprises and local SMEs to encourage technology transfer.
- Introduce supplier development programs to integrate domestic firms into global value chains.

5.5 Limitations of the Study

- Data constraints: Some relevant variables, such as multidimensional poverty and sectoral FDI breakdown, were unavailable for the entire study period.
- Proxy limitations: Real GDP per capita was used as a proxy for poverty, which does not capture non-income dimensions.
- Model assumptions: The VAR framework assumes linear relationships, which may not fully capture complex economic dynamics.

5.6 Areas for Further Research

- Sectoral analysis of FDI impacts to determine which industries contribute most to poverty reduction.
- Incorporation of multidimensional poverty measures to capture non-income welfare effects.
- Examination of institutional quality and governance as mediating factors in the FDI–poverty relationship.
- Comparative studies between Ethiopia and peer economies in East Africa to identify best practices.

5.7 Final Remarks

This study confirms that FDI plays a meaningful role in reducing poverty in Ethiopia, but its effectiveness depends on the policy environment, sectoral targeting, and complementary domestic investments. Sustainable poverty reduction through FDI requires a long-term strategy that integrates economic growth objectives with social development priorities.

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APPENDIX

MEKELLE UNIVERSITY

COLLEGE OF BUSINESS AND ECONOMICS POSTGRADUATE PROGRAM
ECONOMICS DEVELOPMENT POLICY ANALYSIS

Research Title: *The Impact of Foreign Direct Investment on Poverty Reduction in Ethiopia: A Cointegrated VAR Approach*

By: Shishay Tsehaye Mengesha

Advisor: Manasebo G. (PhD)

Questionnaire

Dear Respondent:

I am conducting a research study on the impact of Foreign Direct Investment (FDI) on poverty reduction in Ethiopia. Your honest responses are highly valuable and will remain strictly confidential.

Section A: Demographic Information

1. Age:

18–25 26–35 36–45 46–55 56+

2. Gender:

Male Female Other

3. Educational Level:

No formal education Primary Secondary Diploma Bachelor's Master's and above

4. Occupation:

Farmer Employee in private sector Government employee Business owner Other: _____

5. Region/City of residence: _____

Section B: Awareness and Perception of Foreign Direct Investment (FDI)

6. Are you aware of foreign investments in your area or Ethiopia in general?
 Yes No
7. How would you rate the contribution of FDI to job creation in your area?
 Very high High Moderate Low Very low
8. In your opinion, FDI has contributed to: (You can select multiple)
 Technology transfer Skill development Infrastructure development Increased income levels None of the above
9. How strongly do you agree with the statement: "FDI plays a significant role in reducing poverty _____ in _____ Ethiopia."
 Strongly agree Agree Neutral Disagree Strongly disagree
10. Which sectors do you think benefit the most from FDI? (Select all that apply)
 Manufacturing Agriculture Services Energy Mining Others: _____

Section C: Poverty and Economic Wellbeing

11. How would you describe your household income level?
 Very low Low Medium High Very high
12. Has your household income changed over the past 5 years?
 Increased significantly Increased slightly No change Decreased slightly Decreased significantly
13. Which of the following indicators of poverty reduction have you observed in your area? (Select all that apply)
 Improved access to education Improved access to healthcare Better housing conditions Increased employment Improved access to clean water None
14. How do you perceive the role of FDI in improving living standards in your community?
 Very positive Positive Neutral Negative Very negative
15. Do you believe FDI alone is sufficient to reduce poverty, or should it be complemented by government _____ policies?
 FDI alone is sufficient FDI + Government policies Government policies alone Not sure

Section D: General Economic Views

16. How would you rate Ethiopia's overall economic growth over the past decade?

- Very high High Moderate Low Very low

17. What do you think is the biggest challenge for FDI to reduce poverty in Ethiopia? (Open-ended)

18. Any suggestions to improve the impact of FDI on poverty reduction? (Open-ended)

Thank you very much for your time and cooperation!