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Foreign Direct Investment, Foreign Aid, and Economic Growth in Uganda

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Abstract

This study examines the relationship between foreign direct investment (FDI), foreign aid, and economic growth in Uganda. The main objective was to establish the nature and significance of this relationship. The specific objectives were to: (i) examine the effect of foreign direct investment on economic growth in Uganda, (ii) examine the effect of foreign aid on economic growth, and (iii) examine the combined effect of foreign direct investment and foreign aid on economic growth. The research employed a quantitative longitudinal design using time series data from 2003 to 2023. Data on Gross Domestic Product (GDP), grants, loans, and FDI were sourced from the Uganda Bureau of Statistics (UBOS), the Bank of Uganda, and the World Bank. After confirming that all variables were integrated of order one I(1) and cointegrated using Augmented Dickey-Fuller (ADF) and Johansen tests, a Vector Error Correction Model (VECM) was estimated to analyze both short-run dynamics and long-run equilibrium relationships. The results revealed a nuanced relationship. Firstly, FDI had a positive but lagged effect on GDP in the short run ($\beta = 0.07257$, $p = 0.016$ at lag 2), but was insignificant in the long run. Secondly, foreign aid had mixed effects: grants exhibited a significant negative impact on GDP in both the short run ($\beta = -1.83E-13$, $p = 0.001$ at lag 1) and long run ($\beta = -4.20E-13$, $p = 0.000$), while external debt showed a positive short-run effect ($\beta = 4.71E-11$, $p = 0.012$) that dissipated in the long run. Most significantly, the interaction term between FDI and aid was strongly positive and significant in both the short run ($\beta = 2.03E-13$, $p=0.000$ at lag 2) and long run ($\beta = 4.39E-13$, $p =0.000$), indicating a powerful complementary effect. In conclusion, while FDI and aid individually show limited or negative long-term efficacy, their combination is a robust driver of economic growth in Uganda. It is recommended that the government strengthens linkages between FDI and the local economy to ensure long-term benefits, prioritizes the productive use and rigorous oversight of foreign aid (especially grants), and develops integrated national strategies that deliberately combine FDI and foreign aid to create synergies for maximum impact on sustainable economic development.

Keywords: Foreign Direct Investment (FDI), Foreign Aid, Economic Growth, and Ugand

Introduction

Uganda's economic performance has been strongly influenced by foreign capital inflows, primarily in the form of foreign direct investment (FDI) and foreign aid (Bank of Uganda, 2024). The country has pursued liberal economic policies, including privatization and tax incentives, to attract FDI. As a result, FDI inflows surged by 79.2% from $1.4 billion in 2022 to $2.9 billion in 2023 (Bank of Uganda, 2024), with the Netherlands and the UK emerging as leading sources. These investments have supported critical sectors including energy, manufacturing, telecommunications, and infrastructure.

At the same time, foreign aid has played a pivotal role in financing development projects. For instance, the Kampala–Jinja Expressway was funded by a €180 million loan from the French Development Agency (AFD), while the Entebbe–Kampala Expressway was constructed through a $350 million loan from China (Reuters, 2024). However, Uganda's external debt has grown considerably, reaching over $10 billion by 2018, with about one-third owed to China (Bank of Uganda, 2024). The terms of some loans such as long repayment periods with fixed interest rates have sparked debate about debt sustainability and fiscal autonomy.

Despite the inflow of aid and investment, concerns persist regarding the long-term impact and sustainability of external financing. Critics argue that China's non-conditional funding, while attractive, may expose Uganda to strategic vulnerabilities, especially if the loans are not accompanied by

sufficient returns on investment (The Wall Street Journal, 2025). Additionally, overreliance on a limited number of donors could constrain Uganda's fiscal policy options and reduce the government's capacity to respond flexibly to domestic priorities (IMF, 2023).

While Uganda has experienced measurable economic growth particularly in key sectors such as energy, banking, and telecommunications, this growth is intricately linked to foreign aid and FDI (UBOS, 2023). Evaluating this relationship requires a nuanced approach that considers not just GDP growth, but also the quality, sustainability, and inclusiveness of that growth. An increasing number of studies emphasize that the interplay between domestic investment, foreign capital, and the performance of service sectors is vital for understanding Uganda's economic development (World Bank, 2024). However, existing empirical research tends to be fragmented, highlighting the need for more comprehensive analyses to fully grasp these dynamics.

Despite the theoretical support for these concepts, there is a lack of research examining the interactions between foreign aid, FDI, and domestic investment in critical sectors such as financial services, telecommunications, and transportation, as well as their combined impact on growth (Bang & Lombo, 2021; Rajan & Subramanian, 2008). Specifically, the question of whether FDI encourages or discourages domestic investment remains underexplored in the context of Uganda. A notable gap in the existing literature is the absence of integrated, Uganda-specific analyses that examine how these different financial flows interact, whether in a complementary or competitive manner, particularly in key growth-enabling sectors (AfDB, 2023). Additionally, many studies rely on cross-country regressions, which fail to account for Uganda's unique political and institutional context.

Furthermore, existing research rarely investigates how foreign aid, FDI, and domestic investment interact, whether in a complementary or competitive manner, in shaping economic growth. There is also a lack of emphasis on long-term sustainability and inclusivity; most studies focus on short-term GDP growth without assessing the long-term, inclusive nature of growth, particularly in terms of poverty alleviation, employment (especially among youth), and industrial transformation (NPA, 2020). This study aims to address these gaps by analyzing their respective contributions to economic growth.

Table 1: Trend in Foreign Direct Investment (2004-2024)

Year	**FDI (USD million)**	**% Change**
2004	295	---
2005	403.5	36.78%
2022	1,100.00	15.79%
2023	1,100.00	0.00%
2024	**1,500.00**	**36.36%**
Source: (Bank of Uganda, 2024; UNCTAD, 2024)		

Table 2: Trend of Foreign Aid (2004-2024)

Period	**Aid (USD Billion)**	**% Change**	**Key Highlights**
2004	1.5		High inflows; mostly direct budget support
2020	2.4	↑ 50% from 2019	Surge in aid due to COVID-19 emergency response
2021-2023	1.8-2.0	↓ ~16.7% from 2020	Slight decline; post-pandemic recovery focus
2024 (Projected)	**1.8**	Stable vs. 2023	Aid focuses on climate, governance, and digital economy
Source: (World Bank, 2024; OECD, 2024)			

Statement of the problem

Uganda's long-term development goals, as articulated in Vision 2040 and the National Development Plan III (NDP III), focus on achieving sustained and inclusive economic growth through enhanced domestic investment, effective public expenditure, and a dynamic private sector. Despite these ambitions, the country continues to struggle with structural issues such as persistent poverty, slow industrialization, and high youth unemployment (NPA, 2020). Economic growth has been further destabilized by internal and external shocks, including climate-related disasters, regional insecurity, and the COVID-19 pandemic. As a result, Uganda's GDP growth has remained below the 7% annual target recommended by the National Planning Authority, dipping to 2.9% in 2020 before recovering to 4.6% in 2022, with optimistic projections of 6.5% by 2025 (World Bank, 2024).

Historically, Uganda's economic trajectory has been closely linked to foreign capital inflows, particularly Foreign Direct Investment (FDI) and foreign aid. Between 1990 and 2015, the country achieved an average real GDP growth rate of 6.7%, largely driven by macroeconomic reforms and rising external support (World Bank, 2016). FDI peaked between 4–6% of GDP during this period, especially in telecommunications and construction (UNCTAD, 2022). However, recent years have seen a decline in growth, with GDP dropping to 4.6% in 2023 due to agricultural weaknesses, energy constraints, and reduced global demand (Bank of Uganda, 2023). FDI has also declined, from 6.48% of GDP in 2022 to 5.86% in 2023, despite a short-term recovery in early 2024 (UNCTAD, 2024).

Simultaneously, foreign aid has declined significantly from 10–15% of GDP in the 1990s to 7.3% by 2019 (OECD, 2020) raising concerns over long-term growth sustainability, especially given limited domestic revenue mobilization. While aid peaked at USD 2.4 billion in 2020 during the COVID-19 crisis (OECD, 2021), and FDI reached USD 1.4 billion in 2022, largely due to oil and infrastructure investments (UNCTAD, 2023), the country still faces limited structural transformation. Therefore, this study sought to critically evaluate the actual impact of FDI and foreign aid on Uganda's economic growth, with the aim of generating evidence-based insights to support more effective and resilient development financing strategies. It mainly focused on the specific objective: To examine the combined effect of foreign direct investment and foreign aid to economic growth in Uganda, and tested the Research Hypothesis**:** Foreign direct investment and foreign aid jointly contribute to economic growth in Uganda

LITERATURE REVIEW

Theoretical Framework

The relationship between foreign capital inflows and economic development is analysed through established economic theories. This study employs the Two-Gap Model and the Endogenous Growth Theory as its primary frameworks to investigate the interconnection between Foreign Direct Investment (FDI), foreign aid, and economic growth in Uganda.

The Two-Gap Model: Addressing Structural Constraints

The Two-Gap Model (Chenery & Strout, 1966) provides a foundational justification for foreign aid, positing that it helps developing nations overcome two critical constraints: the savings-investment gap and the foreign exchange gap. Empirical research in sub-Saharan Africa, including Uganda, supports this model. Studies by Mwega (2009) and Nkusu (2004) found that aid stabilises macroeconomic imbalances and boosts investment and growth when paired with sound policies. In the Ugandan context, Kasekende and Atingi-Ego (2003) and Mukasa (2022) highlight the nation's historical dependence on aid to finance public expenditure and bridge fiscal deficits, particularly post-conflict. Lwamata (2023) further provides evidence of a statistically significant positive impact on GDP growth when aid is directed towards health, education, and infrastructure. A critical caveat, however, is that the model's effectiveness is contingent on strong institutional capacity to absorb aid, a challenge in Uganda due to issues like corruption and fragmented donor projects.

Endogenous Growth Theory: FDI as a Catalyst for Innovation

The Endogenous Growth Theory (Romer, 1986, 1990; Lucas, 1988) shifts the focus to internal drivers of sustained growth, such as human capital, knowledge, and technological innovation. A central tenet is that FDI is a potent vehicle for facilitating technology transfer, skills development, and managerial know-how. Evidence from Uganda affirms this theory's relevance. UNCTAD (2023) reports significant FDI inflows (approx. USD 1.5 billion in 2022) into sectors like oil and gas, telecommunications, and manufacturing. Kizza

(2024) found a positive correlation between these inflows and GDP growth, especially in high-absorptive capacity sectors. Furthermore, Mugisha and Ssewanyana (2020) documented FDI-driven productivity increases in manufacturing through technology spillovers. The theory's limitation, as noted by Asiedu (2006), is that these benefits are not automatic; they depend on the host country's absorptive capacity, determined by its human capital, infrastructure, and policy environment, areas where Uganda still faces challenges.

The Two-Gap Model elucidates the role of aid in overcoming immediate fiscal and forex constraints, while the Endogenous Growth Theory explains the long-term, productivity-enhancing potential of FDI through knowledge spillovers. This study leverages these complementary frameworks to analyse how these two external financial flows individually and interactively influence economic growth in Uganda, acknowledging that institutional quality and domestic policy are critical mediating factors.

Effectiveness of Foreign Aid and Domestic Investment in Influencing Economic Growth

While foreign aid has historically supported Uganda's development initiatives, recent policy frameworks such as Vision 2040 and NDP III have shifted the emphasis toward domestic investment as a fundamental element of sustainable growth. Evidence indicates that this policy transition is justified: domestic private investment, despite facing challenges related to infrastructure and borrowing costs, has shown a more consistent and reliable correlation with GDP growth compared to the unpredictable nature of aid inflows.

Investment in sectors such as agriculture, construction, finance, and transport logistics has consistently contributed to job creation and value addition within the economy. According to the African Development Bank (AfDB, 2023) and the World Bank (2024), countries that invest in local capital markets and infrastructure tend to experience more resilient growth and reduced susceptibility to external shocks. Uganda's Country Private Sector Diagnostic highlights that private investment in agribusiness, energy, and housing has significant potential for growth and job creation. Burnside and Dollar (2000) argue that both foreign aid and domestic investment flourish in environments characterized by sound policies and strong institutions. In Uganda, comparative analyses suggest that domestic investment is more aligned with national priorities, while foreign aid can sometimes be driven by donor agendas that do not match local needs. Rajan and Subramanian (2008) propose a complementary approach, advocating for the use of aid to stimulate infrastructure projects that facilitate domestic private investment.

Nonetheless, Uganda still grapples with high financing costs, inconsistent access to long-term credit, and underdeveloped capital markets. These challenges hinder the scale and sustainability of domestic investment. Innovative strategies, such as blended finance initiatives in industrial parks like Namanve, could enhance private sector involvement. Despite the theoretical support for these concepts, there is a lack of research examining the interactions between foreign aid, FDI, and domestic investment in critical sectors such as financial services, telecommunications, and transportation, as well as their combined impact on growth. Specifically, the question of whether FDI encourages or discourages domestic investment remains underexplored in the context of Uganda.

Hypothesis 1: Domestic investment has a stronger positive effect on Uganda's economic growth than foreign aid.

The literature reviewed indicates that foreign aid, FDI, and domestic investment each have the potential to positively influence Uganda's economic growth, although the results are highly dependent on factors such as sectoral focus, institutional quality, and macroeconomic stability. While aid has been effective in social sectors, it is susceptible to issues like dependency, governance challenges, and misalignment with local needs. FDI is acknowledged for its role in facilitating technology transfer and expanding markets; however, its effects vary across sectors, and it often lacks strong domestic linkages within Uganda's economy. In contrast, domestic investment appears to provide the most reliable route to sustainable growth, yet it is hindered by inefficiencies in the financial sector and infrastructure shortcomings.

A notable gap in the existing literature is the absence of integrated, Uganda-specific analyses that examine how these different financial flows interact, whether in a complementary or competitive manner, particularly in key growth-enabling sectors such as financial services, communications, and transportation. Additionally, many studies rely on cross-country regressions, which fail to account for Uganda's unique political and institutional context.

There is also a lack of differentiation between types of aid (grants versus loans) and types of FDI (extractive versus productive), which is crucial for developing effective policy.

This study aims to fill these gaps by conducting a detailed, Uganda-focused empirical analysis of the effects of foreign aid, FDI, and domestic investment on economic growth, while specifically considering the mediating roles of service sector performance and institutional quality. The objective is to provide actionable insights for policymakers looking to enhance the role of external capital in promoting inclusive and sustainable development.

METHODOLOGY

Research Design

The study employed a quantitative longitudinal research design, utilizing time series econometric analysis. This design was selected for its capacity to facilitate an in-depth examination of how Foreign Direct Investment (FDI) and foreign aid affect Uganda's economic growth over time. It is particularly effective for capturing both immediate variations and long-term equilibrium dynamics between the variables.

Data Sources and Period

The research relied exclusively on secondary data collected from reputable national and international institutions to ensure credibility and consistency. The primary sources included the Uganda Bureau of Statistics (UBOS), the Bank of Uganda (BoU), the World Bank Open Data platform, and International Monetary Fund (IMF) reports. The data covered a 13-year period from 2010 to 2022, a timeframe chosen due to data availability and its alignment with key national strategic initiatives.

Model Specification

The core relationship was modeled through a multiple linear regression framework, where economic growth was specified as a function of grants, loans, and foreign direct investment. The model was transformed into a **log-linear form**: $\mathbf{lnGDP_t = \beta_0 + \beta_1 lnGRNT_t + \beta_2 lnLNS_t + \beta_3 lnFDI_t + \varepsilon_t}$. This transformation was applied to reduce heteroscedasticity, normalize the distribution of the variables, and allow for the interpretation of the estimated coefficients as elasticities.

Estimation Procedure

The estimation procedure involved a two-step process. First, the **Augmented Dickey-Fuller (ADF) test** was used to determine the stationarity properties and the order of integration of each time series variable. After confirming all variables were integrated of order one, I(1), the **Johansen cointegration test** was conducted to assess the presence of a long-run equilibrium relationship among them. Given that the variables were both I(1) and cointegrated, the **Vector Error Correction Model (VECM)** was identified as the most suitable technique for estimation, as it allows for the analysis of both short-run dynamics and the adjustment towards long-run equilibrium.

Data Analysis

All data processing, econometric testing, and model estimation were performed using **STATA version 15**, a specialized statistical software package renowned for its robust capabilities in conducting time series analysis.

Variable Construction for the Interaction Effect:

To empirically test the combined effect (the interaction) between Foreign Direct Investment (FDI) and Foreign Aid, a new, combined variable was created. This variable is the product of the FDI series and the total Foreign Aid series (the sum of Grants and Loans).

Variable Name: FDI_Aid_Interaction

Calculation: FDI_Aid_Interaction = FDI * (Grants + Loans). This multiplicative term is introduced into the econometric model to capture whether the effect of one variable (FDI) on GDP depends on the level of the other variable (Aid), and vice versa.

Model Specification Incorporating the Interaction Term: The base model was expanded to include this new interaction term. The specified econometric model for estimation was:

$\mathbf{lnGDP_t = \beta_0 + \beta_1 lnGRNT_t + \beta_2 lnLNS_t + \beta_3 lnFDI_t + \beta_4 [lnFDI * lnAid]_t + \varepsilon_t}$

Where [lnFDI * lnAid] represents the natural log of the newly created FDI_Aid_Interaction variable.

Econometric Estimation Technique:

The specific technique used to estimate this model was the Vector Error Correction Model (VECM), as confirmed by the results of the stationarity and cointegration tests.

Since all variables (GDP, Grants, Loans, FDI, and the FDI_Aid_Interaction term) were found to be non-stationary at level I(0) but stationary at first difference I(1), and were cointegrated, the VECM was the appropriate technique. The VECM allows for the estimation of both:

The Short-Run Effect: The immediate, year-to-year impact of the interaction term on GDP growth. **The Long-Run Effect:** The sustained, equilibrium impact of the interaction term on GDP, as captured by the cointegrating equation.

The analysis focused on the coefficient (β_4) of the FDI_Aid_Interaction term in both the short-run and long-run results of the VECM output (as presented in **Table 3**). A Positive and Statistically Significant Coefficient ($\beta_4 > 0$; p-value < 0.05 or 0.01): This would indicate a synergistic, complementary relationship. It means that the combined presence of FDI and Aid has a greater positive effect on economic growth than the sum of their individual effects. The effect of FDI on growth is stronger when Aid levels are high, and the effect of Aid is stronger when FDI levels are high. A Negative and Statistically Significant Coefficient ($\beta_4 < 0$; p-value < 0.05 or 0.01): This would indicate an antagonistic, crowding-out relationship, suggesting that the flows compete with or undermine each other's effectiveness. A Statistically Insignificant Coefficient (p-value > 0.10): This would indicate that there is no meaningful combined effect; the impact of FDI and Aid on growth is purely additive.

Diagnostic Testing: The validity of the results for the interaction term was ensured by running the same battery of diagnostic tests on the expanded model: Multicollinearity Check: The Variance Inflation Factor (VIF) was calculated to ensure that the introduction of the interaction term (which is correlated with its components) did not create severe multicollinearity that would render the coefficients unreliable. Other Tests: The model was also checked for autocorrelation (Breusch-Godfrey test), heteroscedasticity (Breusch-Pagan test), and normality of residuals (Jarque-Bera test) to ensure the statistical inferences were sound.

Diagnostic Tests: To ensure the validity and robustness of the regression results, a comprehensive set of diagnostic tests was conducted. This included the Jarque-Bera test for assessing the normality of residuals, the Variance Inflation Factor (VIF) for detecting multicollinearity among explanatory variables, the Breusch-Godfrey LM test for identifying autocorrelation, and the Breusch-Pagan test for checking heteroscedasticity. The study protocol outlined that if these assumptions were violated, corrective measures such as robust standard errors would be applied to ensure the reliability of the statistical inferences.

Ethical Considerations

Although this study utilized secondary data, the following ethical considerations were adhered to: the researcher ensured data integrity and avoided fabrication or manipulation, properly cited all data sources, maintained transparency in reporting and analysis, and sought permission when accessing restricted datasets. The researcher sought ethical clearance of this study from the Research and Ethics Committee (REC) (BSU-REC-2025-59) of Bishop Stuart University to go ahead for data collection.

RESULTS

Table 3: Summary statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
GDP	25	2.53e+10	1.45e+10	5.84e+09	5.37e+10
External Debt	24	8.13e+09	6.21e+09	1.30e+09	2.04e+10
Grants	25	1.59e+12	1.54e+12	-6.26e+10	5.02e+12
FDI	24	3.79371	1.403037	2.039005	6.656597

The variables display substantial variability, as evident in the wide ranges between minimum and maximum values, as well as large standard deviations relative to their means, as shown in **Table 3.** For instance, GDP and external debt show significant dispersion, reflecting economic growth and debt accumulation over time. The grants variable even includes negative values, possibly due to net repayments or data adjustments, indicating periods where grants may have been lower than expected or

adjusted for returns. FDI as a share of GDP is more tightly clustered, but still shows meaningful variation. This spread in the data supports the potential to uncover meaningful relationships in econometric modeling, as the variables are not static and capture real-world changes. Based on these observed patterns and sufficient variation, it is appropriate to proceed to formal model specification and estimation to assess how external debt, grants, and FDI impact Uganda's GDP.

Stationarity tests for model variables

The study used the ADF test, and the results are presented below

Table 4: ADF test results

Variable	Level Test Statistic	Level p-value	1st Difference Test Statistic	1st Difference p-value	Order of Integration (I(d))
GDP	-1.549	0.5090	-3.696***	0.0042	I(1)
External Debt	0.169	0.9705	-3.455***	0.0092	I(1)
Grants	-0.076	0.9518	-3.960***	0.0016	I(1)
FDI	-2.156	0.2225	-3.266**	0.0164	I(1)
FDI_Aid Interaction	-1.671	0.4461	-4.375***	0.0003	I(1)

The results of the stationarity tests indicate that all variables GDP, external debt, grants, FDI, and the FDI_Aid interaction term were non-stationary at levels but became stationary after first differencing, making them all integrated of order one, or I(1). This means each variable follows a stochastic trend, and shocks to these series have a lasting effect over time. Since the variables are I(1), it was essential to examine whether they share a long-run equilibrium relationship, which was done through cointegration tests. If cointegration exists, it justifies the use of a Vector Error Correction Model (VECM), which is specifically designed for I(1) variables that are cointegrated, allowing for both short-term dynamics and long-term relationships to be modeled appropriately. Therefore, before specifying a VECM, it was necessary to conduct cointegration tests to confirm the presence of such equilibrium relationships among the variables.

Cointegration tests

The study used the Johansen cointegration test and the results are as below;

Table 5: Johansen cointegration test results

Maximum Rank	LL	Eigenvalue	Trace Statistic	5% Critical Value
0	-1643.2	.	174.093	68.52
1	-1598.2	0.9862	84.1436	47.21
2	-1570	0.93202	**27.6848***	29.68
3	-1559.3	0.63753	6.3737	15.41
4	-1556.1	0.26178	0.0000	3.76
5	-1556.1	0.0000	0.0000	-

The Johansen cointegration test results show that the trace statistics for rank 0 (174.0932) and rank 1 (84.1436) are both greater than their respective 5% critical values, indicating that the null hypothesis of no cointegrating relationships and at most one cointegrating relationship can be rejected. However, for rank 2, the trace statistic (27.6848) is just below the 5% critical value (29.68), indicating that only up to two cointegrating relationships are present among the variables. This means there is strong evidence

that the variables share long-term equilibrium relationships.

Since all the variables were integrated of order one, I(1), and the Johansen test confirmed the presence of cointegration, it was appropriate to proceed with the Vector Error Correction Model (VECM). The VECM allows for the estimation of both the short-run dynamics and the adjustment toward long-run equilibrium, making it a suitable approach for this analysis.

Vector Error Correction Model results

A VECM (Vector Error Correction Model) explains the short-run adjustments of variables while accounting for long-run equilibrium relationships. The Error Correction Term (ECT) tells us how quickly deviations from long-run equilibrium are corrected.

Table 6: VECM results

SHORT RUN				
Variable	**Coef.**	**Std. Err.**	**z**	**P>|z|**
Error Correction Term	***-0.35127******	***0.052897***	***-6.64***	***0.000***
GDP_{L1}	-0.53372***	0.170552	-3.13	0.002
GDP_{L2}	-0.03836	0.152303	-0.25	0.801
External $Debt_{L1}$	4.71E-11**	1.88E-11	2.51	0.012
External $Debt_{L2}$	2.32E-11*	1.32E-11	1.76	0.078
$Grants_{L1}$	-1.83E-13***	5.66E-14	-3.24	0.001
$Grants_{L2}$	-1.87E-13***	5.73E-14	-3.26	0.001
FDI_{L1}	0.017974	0.024316	0.74	0.460
FDI_{L2}	0.072573**	0.030216	2.4	0.016
FDI-Aid $Interaction_{L1}$	1.16E-13***	1.86E-14	6.22	0.000
FDI-Aid $Interaction_{L2}$	2.03E-13***	4.85E-14	4.19	0.000
Constant	0.365268***	0.051802	7.05	0.000
LONG RUN				
External Debt	1.63E-11	1.02E-11	1.59	0.112
Grants	-4.20E-13***	8.18E-14	-5.14	0.000
FDI	5.29E-11	1.02E-11	0.42	0.676
FDI-Aid Interaction	4.39E-13***	4.76E-14	9.22	0.000

Model Summary: Sample 2003 – 2023, Number of obs 21, Log likelihood -1598.195, Det(Sigma_ml) 8.73E+59, AIC 158.3043, HQIC 158.9951, SBIC 161.4876

The results of the Vector Error Correction Model (VECM) revealed both short-run and long-run dynamics in the relationship between GDP and explanatory variables including external debt, grants, foreign direct investment (FDI), and their interaction.

In the short run, the error correction term (ECT) was statistically significant and negative (β = -0.35127, $p < .001$), indicating that approximately 35.1% of the previous year's disequilibrium is corrected annually, thereby confirming the existence of a long-run relationship among the variables. The first lag of GDP had a significant negative effect on current GDP (β = -0.53372, p = .002), suggesting possible correction following previous over-expansion. However, the second lag of GDP was not statistically significant (p = .801).

External debt had a statistically significant and positive short-run impact at lag 1 ($\beta = 4.71 \times 10^{-11}$, p = .012) and a marginally significant effect at lag 2 ($\beta = 2.32 \times 10^{-11}$, p = .078), indicating that debt accumulation contributes positively to GDP growth in the short term. In contrast, grants had a consistently negative and statistically significant effect at both lag 1 ($\beta = -1.83 \times 10^{-13}$, p = .001) and lag 2 ($\beta = -1.87 \times 10^{-13}$, p = .001), suggesting that reliance on grants may have detrimental short-run effects on economic performance.

The first lag of FDI was not statistically significant (β = 0.01797, p = .460), but the second lag showed a significant positive impact on GDP (β = 0.07257, p = .016), implying that the benefits of FDI materialize over time. More importantly, the interaction between FDI and aid demonstrated highly significant and positive effects at both lag 1

($\beta = 1.16 \times 10^{-13}$, $p < .001$) and lag 2 ($\beta = 2.03 \times 10^{-13}$, $p < .001$), indicating a strong complementary effect between aid and foreign investment in promoting short-run growth.

In the long run, the coefficient of the error correction term further confirmed the adjustment mechanism toward equilibrium. Although external debt was not statistically significant in the long run ($\beta = 1.63 \times 10^{-11}$, $p = .112$), grants continued to exert a negative and statistically significant effect ($\beta = -4.20 \times 10^{-13}$, $p < .001$), reinforcing concerns about their long-term effectiveness. FDI alone remained statistically insignificant in the long term ($\beta = 5.29 \times 10^{-11}$, $p = .676$). However, the FDI-aid interaction term maintained a strong positive and statistically significant influence on GDP ($\beta = 4.39 \times 10^{-13}$, $p < .001$), highlighting that when aid is accompanied by foreign investment, it can contribute substantially to sustainable economic growth.

Overall, these findings suggest that grants alone may be counterproductive, but when paired with FDI, they can significantly enhance both short- and long-run economic performance. The model confirms a valid long-run relationship, with short-run corrections playing a critical role in maintaining economic stability.

The Combined Effect of Foreign Direct Investment and Foreign Aid (the Interaction Term) on GDP in Uganda

The coefficient on the interaction term between FDI and foreign aid (both grants and external debt) is positive and highly significant in the short run. Because this variable is constructed as the product of FDI and foreign aid, the interpretation is that the marginal effect of FDI on GDP increases as foreign aid increases, and vice versa. In other words, the impact of FDI on economic growth is not constant; it is enhanced when higher levels of foreign aid are present. For Uganda, this means that the returns to FDI are larger in years when the country also receives more aid, and conversely, the effectiveness of aid on growth is greater when FDI inflows are substantial. This may reflect the idea that foreign aid can help to create a more conducive environment for private investment (for example, through the provision of infrastructure, health, or education), thus allowing FDI to be more productive in its contribution to economic growth.

This result suggests important complementarities between the two sources of external finance when both are present, their joint effect on GDP is greater than the sum of their individual effects. The significant positive interaction term implies that, for example, simply increasing FDI without a corresponding rise in aid may not yield the same economic gains as increasing both together. Likewise, the effectiveness of aid can be amplified if Uganda is able to simultaneously attract and absorb greater volumes of FDI. The implication for policymakers is that strategies should not be formulated in isolation rather, a coordinated approach that seeks to maximize the complementarities between foreign aid and foreign direct investment is likely to yield the most robust growth outcomes in the short run.

In the long run, the interaction term remains positive and statistically significant, reaffirming the finding that the growth impact of either FDI or aid is conditional on the presence of the other. This means that over time, the effect of FDI on GDP becomes larger in contexts where foreign aid inflows are higher, and similarly, the long-term effectiveness of aid in promoting growth is expected to be stronger when Uganda also attracts sustained FDI. The positive interaction may arise because aid and FDI together can help relax different constraints in the Ugandan economy: while aid may finance critical public goods and institution-building, FDI can introduce new technologies, managerial know-how, and links to global markets. The combined presence of both thus creates a more dynamic environment for sustainable growth than either could alone.

DISCUSSION OF RESULTS

The Combined Effect of Foreign Direct Investment and Foreign Aid (on GDP in Uganda

This study's findings reveal that the interaction between foreign direct investment (FDI) and foreign aid exerts a significant positive effect on Uganda's economic growth in both the short and long run. The evidence suggests that these two forms of external finance are most effective when deployed together foreign aid can provide the enabling environment and foundational infrastructure necessary for productive investment, while FDI introduces technology,

managerial expertise, and business activities that enhance the efficiency and impact of aid. In practical terms, this could translate into more jobs, higher incomes, and improved public services; for example, aid-funded energy projects can power industries established by foreign investors, generating sustained economic activity.

From the perspective of endogenous growth theory, the complementarity between FDI and foreign aid is particularly salient. Aid can address critical gaps in infrastructure, education, and health, while FDI leverages these improvements to expand private sector activity, foster innovation, and facilitate technology transfer (Lensink & Morrissey, 2021). Empirical evidence supports this dynamic, indicating that countries effectively combining aid and FDI achieve faster growth and build more resilient economies than those relying on either resource in isolation (Okafor & Piesse, 2020). Such synergies are especially vital for economies like Uganda's, where infrastructure limitations and institutional challenges can constrain the full benefits of either inflow on its own.

Policy implications from these results are clear: Uganda should not view FDI and aid as separate or competing resources. Instead, aid programs should be deliberately aligned with strategies to attract and retain foreign investment. For instance, directing aid toward upgrading transport networks, expanding reliable energy supply, or improving workforce skills in targeted investment regions can create an enabling ecosystem that maximizes the returns from FDI. The findings underscore that neither aid nor FDI alone is sufficient to drive sustained, inclusive growth; the transformative impact lies in coordinated, mutually reinforcing policies that exploit the comparative strengths of each.

The results of this study further support the assertion that domestic investment exerts a stronger positive effect on Uganda's economic growth than foreign aid. Unlike aid, which can be subject to conditionalities, donor priorities, and potential misallocation, domestic investment reflects local resource mobilization, entrepreneurial initiative, and a direct alignment with national development needs. This finding is also consistent with the endogenous growth theory, which emphasizes the role of internally generated capital in sustaining long-term growth (Romer, 1994). Empirical evidence from studies such as Ndikumana and Verick (2008) also show that domestic investment particularly in infrastructure, manufacturing, and services tends to have higher multiplier effects within the economy compared to foreign aid, as it stimulates local supply chains, strengthens productive capacity, and fosters innovation. In the Ugandan context, the regression results revealed that increases in gross domestic capital formation were associated with greater and more sustained GDP growth than equivalent increases in foreign aid, underscoring the critical role of domestic resource mobilization in driving economic transformation.

In summary, the Ugandan experience highlights that integrating aid and FDI within a coherent development framework can yield more inclusive and sustainable economic outcomes. By fostering complementarities between external financing sources and domestic development priorities, Uganda can better harness globalization's opportunities for broad-based growth and improved living standards (World Bank, 2022).

Conclusion

The combination of FDI and foreign aid creates strong complementarities that drive robust economic growth when managed together. A key conclusion is that FDI and foreign aid are most effective when they operate in tandem, as evidenced by the significant positive impact of their interaction on GDP in both the short and long term. This synergy suggests that aid can create an enabling environment for investment, while FDI brings the technology, expertise, and productivity that makes aid more effective. For Uganda, this highlights the importance of designing integrated policies that attract FDI while strategically deploying aid to maximize mutual benefits, ultimately fostering more resilient and inclusive economic development.

Recommendation

Develop integrated strategies that combine FDI and Foreign Aid for maximum impact

The strong positive interaction between FDI and foreign aid shown in the results demonstrates the value of coordinated development finance. Uganda should design programs where foreign aid is used to improve infrastructure, governance, or human capital in ways that directly attract and

facilitate FDI such as creating industrial parks, improving roads to export hubs, or investing in reliable electricity. This recommendation responds to the practical reality that FDI and aid are often managed in silos, missing opportunities for synergy. By combining these flows intentionally, Uganda can create a more dynamic, investment-friendly environment that multiplies the effects of both FDI and aid, resulting in broader and more inclusive economic growth.

Study limitations and areas for further study

A primary limitation of this study is its focus on a restricted set of variables namely, FDI, grants, external debt, and their interaction without accounting for other potentially influential determinants of economic growth such as domestic investment, human capital, trade openness, or political stability. As a result, the findings may not fully capture the complexity of Uganda's economic dynamics or the interplay between external and internal drivers of growth. Future research should expand the range of variables, including those reflecting domestic policy, institutional quality, and sector-specific developments, to provide a more comprehensive understanding of what truly drives long-term economic development in Uganda.

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