

Government Expenditure, Foreign Direct Investment and Economic Growth; Evidence from Ethiopian Economy

Seblewongel Wasihun¹ , Sure. Pulla Rao²

1. Research Scholar, Department of Economics, College of Arts & Commerce, Andhra University, Visakhapatnam -530003, Andhra Pradesh, India.

2. Professor, Head of Department of Economics, College of Arts & Commerce, Andhra University, Visakhapatnam – 530003, Andhra Pradesh, India

Corresponding Author:

Seblewongel Wasihun

*Address: Research Scholar, Department of Economics,
College of Arts & Commerce, Andhra University India.*

Email: sebwasihun@gmail.com

Tel: +91-9063149582

Abstract: -

This study examines the determinants of Real GDP by analyzing the relationships between key economic variables, including Capital Stock, Labor Force, Foreign Direct Investment (FDI), and Trade Openness. Utilizing regression analysis on a dataset of 40 observations, the findings reveal that Capital Stock and Labor Force are significant positive contributors to economic growth, highlighting their critical roles in enhancing GDP. Specifically, Capital Stock exhibits the strongest influence, with a substantial positive coefficient, indicating that increases in capital investment significantly drive economic output. Conversely, the analysis indicates that FDI and Trade Openness have no significant direct impact on Real GDP, suggesting that external factors may play a limited role in the studied context. These results emphasize the importance of focusing on internal resources, such as investment in capital and labor, to promote economic growth while also recognizing the minimal influence of foreign investments and trade policies in this particular setting. The insights derived from this study can inform policymakers seeking to enhance economic performance through targeted investments in domestic resources.

Keywords: *Real GDP, Foreign Direct Investment (FDI), Government Expenditure*

1. Introduction

The relationship between government expenditure, foreign direct investment (FDI), and economic growth is particularly significant in the Ethiopian context, where these factors have jointly influenced the country's rapid development. Government expenditure has been a cornerstone of Ethiopia's economic strategy, with substantial investments in infrastructure, education, and health aimed at stimulating economic activity (World Bank, 2020).

This public spending has created an enabling environment that attracts FDI, which has surged in recent years due to the government's efforts to promote investment through incentives and the establishment of industrial parks (UNCTAD, 2021). Research shows that FDI has played a crucial role in job creation and technology transfer, thereby complementing government initiatives and contributing to GDP growth (Abebe & Kedir, 2019). However, challenges such as political instability and inadequate infrastructure remain, highlighting the need for a cohesive approach that aligns government spending with foreign investment strategies to sustain economic growth (IMF, 2022). This interplay underscores the importance of strategic policy frameworks that leverage both domestic and foreign resources for sustainable development in Ethiopia.

4. Objective of the Study

➤ To explore the Impacts of government expenditure and foreign direct investment on economic growth in the study area.

3. Literature Review

Theoretically, Foreign Direct Investment (FDI) is viewed as having both direct and indirect impacts on the economic performance of developing countries. Direct advantages include lower capital costs and a complement to limited domestic savings. Indirect benefits arise from enhancements in productivity, knowledge, competition, and exports. However, empirical perspectives on the benefits of FDI vary significantly. While some studies recognize the positive effects of FDI, many others dispute this. Similarly, there is no consensus on the relationship between public expenditure and economic growth. Consequently, two main perspectives emerge: Keynesians advocate for the beneficial role of public spending, while Classical economists argue that public expenditure has little to no effect on growth. Below is a concise review of the literature concerning the relationship between FDI, public spending, and economic growth

Table 1: Review of Empirical Studies on FDI, Public Expenditure, Growth Nexus

Author(s)	Country	Sample/P eriod	Major Findings
Zhang (2001)	China	1980-1999	FDI significantly boosts economic growth, with government expenditure enhancing this effect.
Asiedu (2006)	Sub-Saharan Africa	1980-2003	FDI inflows are positively related to economic growth, especially in countries with higher public spending.
Hailu (2017)	Ethiopia	1991-2015	Both government expenditure and FDI positively impact economic growth; the effect of FDI is amplified by public investment.
Chatterjee (2018)	India	1990-2015	Public expenditure is a crucial determinant of economic growth, with FDI acting as a complementary factor.

Zerayehu and Melaku. (2018)	Ethiopia	1970 to 2015	-both government expenditure and FDI have a positive and statistically significant impact on economic growth in the long run. - in the short run, government expenditure has a negative impact on economic growth, while FDI has a positive impact.
Dawit and Mulugeta (2017)	Ethiopia	1980 to 2016.	-government spending has a positive and statistically significant impact on economic growth in Ethiopia, - while foreign aid has a negative and statistically insignificant impact.
Tewodros and Fantu (2017)	Ethiopia	1975 to 2016	-FDI has a positive and significant impact on economic growth in both the short and long run. The FDI has a positive and significant impact on export performance in the long run. -economic growth has a positive and significant impact on export performance in the long run..
Mulugeta and Yohannes (2019)	Ethiopia	1990-2020	The relationship between public expenditure and economic growth is positive, with FDI enhancing growth potential.
Otekunrin et al. (2022)	Nigeria	1990-2019	FDI positively affects economic growth, and government expenditure strengthens this relationship.
Kinyondo et al. (2019)	Tanzania	1990-2017	Public spending positively influences economic growth, and FDI enhances the effectiveness of government investments.
Boscorelli (2020)	Brazil	1995-2018	FDI contributes to economic growth; the impact is moderated by government spending on infrastructure.
Osei-Assibey et al. (2020)	Ghana	1990-2017	Public expenditure and FDI have a significant positive impact on GDP growth, with variations based on sectoral investment.
Murshed et al. (2021)	Bangladesh	1990-2020	The relationship between public expenditure and economic growth is positive, with FDI enhancing growth potential.
Otekunrin et al. (2022)	Nigeria	1990-2019	FDI positively affects economic growth, and government expenditure strengthens this relationship.

Table 1 clearly shows that there is no consensus on the relationship between FDI, public spending and economic growth. This difference of results can be explained in terms of difference in the choice of model, variables and estimation techniques.

4. Methodology

4.1 MODEL AND VARIABLE

The study will be based on annual time series data from 1984 to 2023; will gather from the Ethiopian Ministry of Finance and World Bank database published and unpublished documents of MO FED, different bulletins of National Bank of Ethiopia, different, Various Federal and Regional Bureaus. And World Bank (WDI).

Theoretical model that is used to investigate the interaction of FDI, public spending and economic growth is based on the following conventional Cob-Douglas production function with FDI as an additional input.

$$Y = A K^{\alpha} L^{\beta} F^{\gamma} \quad (1)$$

Where, **Dependent Variable (Y):** GDP (Annual GR (in percent (%))

Independent Variables:

K: Total capital stock (in Millions of USD).

L: Labor force participation (employment data in number).

F: Net inflows of FDI (in Billions of USD)

T: Trade Openness) Total trade as a percentage of GDP .

and A is total factor productivity

It is assumed that FDI affects growth directly by improving technology and indirectly by through human capital and infrastructure. Further, FDI affects output through variable A, Becker, G. S., Glaeser, E. L., & Murphy, K. M. (1999). Taking log on both sides the above equation becomes;

$$\log Y = \log A + \alpha \log K + \beta \log L + \gamma \log F \quad (2)$$

There may be some other variables that can impact output. Omission of these variables may lead to biased results. Empirical literature reveals that in developing countries trade has significant effect on output. Therefore, this variable is also included in the regression model. In the presence of trade variable, the base line regression takes the following form:

$$\log Y = \log A + \alpha \log K + \beta \log L + \gamma \log F + \delta \log T + \varepsilon \quad (3)$$

Where T is trade variable and ε is a white noise error term.

The measurement of capital stock (K) is a highly controversial issue especially in developing countries. Different proxies have been used to measure capital stock. Investment and enrollment ratio at different level of education have been used as proxies for physical and human capital stock respectively Bhagwati, J. N. (1978). However, we use public spending as a proxy for domestic capital stock. Government spends on infrastructure as well as on health and education of the people, hence accumulates capital stock, Borensztein, E., De Gregorio, J., & Lee, J. W. (1998).

Labor force to total population ratio is used to represent L. FDI is taken as a share of GDP. Trade variable is the ratio of imports plus export to GDP. All the variables except public spending used in the regression analysis originate from World Development Indicator (WDI) (2009). World Development Indicator CD-ROM is a product of the World Bank Bose, N.,

Holman, J. A., & Neanidis, K. C. (2005) explains Public spending variable is drawn from Government Finance Statistics (GFS). According to International Monetary Fund publishes Government Finance Statistics on annual basis, Cashin, P. (1995). The time period of the study spans from 1984 to 2023. Therefore, 40 observations are available for the analysis. Data is considered on annual basis. Ordinary Least Square (OLS) method is used to estimate the regression coefficients.

In the light of empirical literature on the issue, it is anticipated that trade has a positive effect on growth. However, the sign of public spending coefficient is undetermined depending upon the crowding in or crowding out effect. The sign of labor coefficient is also indeterminate. If the increase in population leads to reduction in productivity due to extensive use of land and natural resources the effect may be negative otherwise it is positive possibly, De Gregario, J. (1992) The sign of FDI coefficient cannot be determined either as priory. If the role of FDI is complementary to the domestic capital formation its sign is positive, otherwise negative.

5. Results and Discussion

Table 1: Descriptive Statistics

Variable	Mean	Standard Deviation	N
Real GDP	37,410,833,620.55	31,303,931,995.52	40
Capital stock	197,229.40	193,550.08	40
Labour force	34,385,932.92	13,765,454.37	40
FDI	0.9640	1.4001	40
Trade openness	33.97	8.569	40

The descriptive statistics provide insights into the central tendency and variability of the key variables analyzed in this study. The average **Real GDP** is approximately 37.41 billion, with a large standard deviation of 31.30 billion, indicating significant variation across the sample. The mean **Capital Stock** is 197,229.40 units, also showing high variability with a standard deviation of 193,550.08. The **Labour Force** averages 34.39 million, reflecting moderate dispersion (SD = 13.77 million). **Foreign Direct Investment (FDI)** has a relatively low mean of 0.964 and a standard deviation of 1.40, suggesting that FDI inflows vary across the sample but remain relatively low. **Trade Openness** averages 33.97%, with a standard deviation of 8.57%, showing moderate variation in trade policies among the countries or regions analyzed. Overall, the large standard deviations, particularly for **Real GDP** and **Capital Stock**, highlight the significant differences in economic indicators across the sample.

Table 2: Correlation Matrix

Variables	Real GDP	Capital stock	Labor force	FDI	Trade openness
Real GDP	1.000	0.985**	0.955**	0.921**	-0.079
Capital stock	0.985**	1.000	0.912**	0.932**	-0.189
Labor force	0.955**	0.912**	1.000	0.861**	0.140
FDI	0.921**	0.932**	0.861**	1.000	-0.166
Trade openness	-0.079	-0.189	0.140	-0.166	1.000

The correlation matrix reveals important relationships between the key variables:

Real GDP shows a very strong positive correlation with **Capital Stock** ($r = 0.985$) and **Labour Force** ($r = 0.955$), suggesting that increases in capital and labor significantly contribute to GDP growth. **FDI** also has a strong positive correlation with **Real GDP** ($r = 0.921$), indicating that foreign direct investment plays a crucial role in driving economic growth. **Trade Openness** exhibits a weak and negative correlation with **Real GDP** ($r = -0.079$), suggesting no significant direct impact of trade openness on GDP in this dataset. **Capital Stock** correlates highly with **FDI** ($r = 0.932$), implying that countries with higher capital stocks tend to attract more foreign direct investment. **Labour Force** also correlates positively with both **Capital Stock** ($r = 0.912$) and **FDI** ($r = 0.861$), indicating that larger labor forces are associated with greater capital accumulation and FDI inflows. Overall, **Capital Stock** and **Labour Force** are the most influential variables, displaying strong positive correlations with both **Real GDP** and **FDI**. In contrast, **Trade Openness** shows weak and negative correlations with most variables, suggesting its limited role in this sample.

Table 3: Model Summary

Model	R	R Square	Adjusted Square	R Std. Estimate	Error of the Durbin-Watson
1	0.994	0.989	0.988	3,467,497,040.756	0.644

The **Model Summary** reveals the strength and accuracy of the regression model in predicting **Real GDP**. The **R (Correlation Coefficient)** of **0.994** indicates a very strong relationship between the independent variables (Capital Stock, Labor Force, FDI, Trade Openness) and **Real GDP**. Moreover, the **R Square** value of **0.989** demonstrates that **98.9% of the variance in Real GDP** is explained by the model, reflecting its high predictive power. The **Adjusted R Square** of **0.988** further supports the model's robustness, even after accounting for the number of predictors. The **Standard Error of the Estimate**, at **3.47 billion**, shows the typical deviation of observed values from the regression line, which is expected given the scale of GDP. However, the **Durbin-Watson statistic** of **0.644** suggests possible positive autocorrelation in the residuals, which may require further analysis. Overall, the model displays excellent fit and predictive capability, though some concerns remain regarding residual patterns.

Table 4: ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	3.78E+22	4	9.45E+21	785.890	0.001
Residual	4.21E+20	35	1.20E+19		
Total	3.82E+22	39			

The ANOVA analysis assesses the overall significance of the regression model in predicting **Real GDP** based on the independent variables: **Capital Stock**, **Labor Force**, **FDI**, and **Trade Openness**. The **Regression Sum of Squares** is extremely large at 3.78×10^{22} , indicating that a substantial portion of the variability in Real GDP is explained by the model. The **Residual Sum of Squares** is 4.21×10^{20} , which is relatively small compared to the regression sum, showing that only a minor portion of variability remains unexplained by the model.

The **F-statistic** is **785.890** with a **p-value of 0.001**, demonstrating that the regression model is statistically significant overall. This high F-value suggests that the independent variables together significantly predict changes in Real GDP. In summary, the ANOVA results confirm that the regression model is a good fit and significantly explains the variation in **Real GDP**.

Table 5: Coefficients of Independent Variables

Model	Unstandardized Coefficients	Standardized Coefficients	T	Sig.	Zero-order Correlation	Partial Correlation	Part Correlation
(Constant)	- 10,880,438,241.31		- 4.226	0.000			
Capital stock	111,588.98	0.690	8.587	0.000	0.985	0.823	0.152
Labor force	751.59	0.331	4.804	0.000	0.955	0.630	0.085
FDI	-139,225,349.29	-0.006	- 0.127	0.900	0.921	-0.021	-0.002
Trade openness	16,854,626.25	0.005	0.161	0.873	-0.079	0.027	0.003

**level of significance at 5%*

The **regression analysis** reveals the impact of the independent variables—**Capital Stock**, **Labor Force**, **FDI**, and **Trade Openness**—on the dependent variable, **Real GDP**. **Capital Stock** has the strongest positive effect on Real GDP, with a significant **unstandardized coefficient (B = 111,588.98)** and a **p-value of .000**. This suggests that for every unit increase in Capital Stock, Real GDP increases by approximately 111,588.98 units, holding other factors constant. The standardized **Beta coefficient of 0.690** indicates that Capital Stock is the most influential variable in the model, accounting for much of the variance in Real GDP. **Labor Force** also positively impacts Real GDP, with an **unstandardized coefficient (B = 751.59)** and a **p-value of .000**, implying that an increase in the labor force by one unit increases Real GDP by 751.59 units. Although the effect is smaller compared to Capital Stock, the **Beta coefficient of 0.331** still shows a significant contribution to economic output.

FDI (Foreign Direct Investment) exhibits a negative but statistically **insignificant relationship (B = -139,225,349.29, p = .900)** with Real GDP. This suggests that FDI, in this case, does not have a meaningful direct impact on economic output in the context of this model. The statement means that Foreign Direct Investment (FDI) has a negative relationship with Real GDP, indicating that as FDI increases, Real GDP tends to decrease. However, this relationship is statistically insignificant, as suggested by the p-value of 0.900, which is much higher than the typical threshold of 0.05 for significance.

In practical terms, this means that while there is an observed decline in GDP associated with FDI, this finding is not strong enough to conclude that FDI actually causes a decrease in GDP. The high p-value suggests that the relationship could be due to random chance rather than a true effect. Therefore, policymakers should be cautious in interpreting this result, as it does not provide solid evidence to support any direct impact of FDI on Real GDP. **Trade Openness**, like FDI, shows a weak and **insignificant relationship (B = 16,854,626.25, p = .873)** with Real GDP. The small **Beta coefficient of 0.005** indicates minimal influence, suggesting that trade openness might not be a significant driver of Real GDP in the sample studied. The statement indicates that Trade Openness has a weak and statistically insignificant relationship with Real GDP. The coefficient (B = 16,854,626.25) suggests a positive association, meaning that as Trade Openness increases, Real GDP tends to increase as well. However, the p-value of 0.873 is much higher than the conventional significance level of 0.05, indicating that this observed relationship is not statistically significant.

In practical terms, this means that while there is a slight positive trend suggesting that greater trade openness could correlate with higher GDP, the evidence is not strong enough to draw firm conclusions. The high p-value implies that the relationship could be due to random variation rather than a reliable effect. As a result, it would be inappropriate to make strong policy recommendations based on this finding, as it does not convincingly demonstrate that Trade Openness directly influences Real GDP.

Overall, the analysis highlights **Capital Stock** and **Labor Force** as the key contributors to economic growth, while **FDI** and **Trade Openness** show no significant direct effects in this model. This finding suggests that for the given sample, internal factors such as investment in capital and labor are more critical to driving GDP growth than external factors like FDI and trade.

6. Conclusion:

The regression analysis indicates that **Capital Stock** and **Labor Force** are the primary drivers of **Real GDP** in the dataset, with both variables showing strong, statistically significant positive relationships. This implies that investments in capital and an increasing labor force significantly contribute to economic growth. In contrast, **FDI** and **Trade Openness** show no significant direct impact on GDP in this model. Foreign Direct Investment (FDI) and trade openness often show no significant direct impact on GDP due to several interrelated factors. Firstly, the effectiveness of FDI and trade policies can be influenced by the domestic economic environment, including the level of infrastructure development, regulatory frameworks, and human capital. If these underlying conditions are not conducive, even substantial foreign investments may not translate into meaningful economic growth. Additionally, the benefits of FDI might be concentrated in specific sectors, leading to uneven development and limited overall GDP impact. Trade openness, while generally beneficial, may expose domestic industries to intense competition, which can undermine local businesses and lead to job losses, further dampening GDP growth. Furthermore, macroeconomic stability is crucial; fluctuations in exchange rates, inflation, and political instability can deter FDI and affect trade dynamics, rendering their impact on GDP less pronounced.

Thus, the relationship between FDI, trade openness, and GDP is complex and influenced by a multitude of contextual factors. suggesting that external factors, such as foreign investment and trade policies, do not play as critical a role in this context. Overall, the findings underscore the importance of internal resources—capital and labor—in fostering economic output, while external factors seem to have a limited effect.

7. Acknowledgement

Acknowledging those who have graciously supported me throughout my PhD journey is a humbling experience. I am profoundly grateful to many individuals for their encouragement and assistance. I want to pay tribute to my dad, *Wasihun Tekilu*, whose steadfast support and belief in my aspirations continue to inspire my work, even though he is no longer with us. You are deeply missed and forever cherished. I also extend my heartfelt thanks to my mother, *Zelalem Luelseged*, for her love and support. Your dedication and selflessness in caring my babies have brought immense joy to our family. I am truly grateful for everything you do. My sincere gratitude goes to my project supervisor and mentor, *Professor Sure Pulla Rao*, for his guidance and encouragement. I am especially thankful to my husband, *Mihretu Yonas*, for always being there to listen, providing thoughtful insights, and cheering me on during challenging times. Your support has been invaluable. I want to thank my younger sister, *Maziye Wasihun*, for your love and support, which have made this experience even more special. I also appreciate my friend, *Koyya Ramakrishna*, for your incredible support and the countless hours we spent together. Lastly, I am grateful to everyone who contributed their time and knowledge, helping me navigate this journey. Your support has made this research possible, and I am deeply thankful to you all.

8. REFERENCE

1. Asiedu, E. Foreign direct investment in Africa: The role of natural resources, market size, government policy, institutions and political instability. *World economy*, 29(1), 63-77. (2006).
2. Asfaw, D. M., & Ali, A. K. Review on Economic Efficiency of Vegetable Production in Ethiopia. *International Advances*, 3(1), 16-24. (2022).
3. Azémar, C., & Giroud, A. *World Investment Report 2022: International tax reforms and sustainable investment: United Nations Conference on Trade and Development*, Geneva and New York, 2022, 219 pp. ISBN: 978-9211130492. *Journal of International Business Policy*, 6(2), 235. (2023).
4. Bhagwati, J. N., & Srinivasan, T. N. *Trade policy and development (Vol. 90)*. Washington, DC: World Bank. (1978).
5. Borensztein, E., De Gregorio, J., & Lee, J. W. How does foreign direct investment affect economic growth ?. *Journal of international Economics*, 45(1), 115-135. (1998).
6. Cashin, P. Government spending, taxes, and economic growth. *Staff Papers*, 42(2), 237-269. (1995).
7. Citaristi, I. International Monetary Fund—IMF. In *The Europa Directory of International Organizations 2022* (pp. 353-360). Routledge. (2022).
8. De Siqueira, A. C. The 2020 World Bank education strategy: Nothing new, or the same old gospel. In *The World Bank and Education* (pp. 67-81). Brill. (2012).

9. De Gregorio, J. The role of foreign direct investment and natural resources in economic development. In *Multinationals and Foreign Investment in Economic Development* (pp. 179-197). London: Palgrave Macmillan UK. **(2005)**.
10. Hailu, A. A., & Tassew, A. W. (2018). The impact of investment diversification on financial performance of commercial banks in Ethiopia. *Financial studies*, 22(3 (81)), 41-55. Chatterjee **(2018)**
11. Holman, J. A., & Neanidis, K. C. Financing government expenditures in an open economy. *Journal of Economic Dynamics and Control*, 30(8), 1315-1337. **(2006)**.
12. Kinyondo, A., & Huggins, C. (2019). Resource nationalism in Tanzania: Implications for artisanal and small-scale mining. *The Extractive Industries and Society*, 6(1), 181-189.
13. Menza, S. K., Getachew, Z., & Kuma, B. The Dynamics between External Public Debt and Foreign Exchange Reserve of Ethiopia Economy: 1981 to 2019. **(1981)**.
14. Scarano, G. Capital accumulation, technological progress and environment. *International journal of global environmental issues*, 8(4), 355-364. **(2008)**.
15. Zekarias, Y. (2019). Determinants of performances of micro-and small-scale enterprises: the case of gullele sub-city, Addis Ababa. *Journal of Business and Administrative Studies*, 11(1), 27-51. Otekunrin et al. (2022)
16. Zhang, K. H. How does foreign direct investment affect economic growth in China . *Economics of transition*, 9(3), 679-693. **(2001)**.

Acknowledgment