

THE EFFECT OF FOREIGN AID ON THE ECONOMIC GROWTH IN GHANA



ASHESI UNIVERSITY

**EXPLORING THE EFFECT OF FOREIGN AID ON ECONOMIC GROWTH IN
GHANA**

Undergraduate Thesis submitted to the Department of Business Administration, Ashesi
University in partial fulfilment of the requirement for the award of Bachelor of Science
degree in Business Administration

B. Sc. Business Administration

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DECLARATION

I hereby declare that this thesis is my original work and that no part of it has been presented for another degree in this university or elsewhere.

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I hereby declare that the preparation and presentation of this thesis was supervised in accordance with the guidelines on supervision of theses established by Ashesi University.

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Date: Wednesday 27th April 2022

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ABSTRACT

Developing countries, including Ghana, rely on foreign aid to assist in the development of their economy. However, despite the substantial increase in the foreign aid inflows, the country experiences unsatisfactory economic growth. This study employs an updated and wider range of data to assess the effect of foreign aid on the economic growth in Ghana.

This study used the Ordinary Least Squares Regression model, using data from the World Bank's World Development Indicators spanning from the year 1979 to the year 2021. This study found foreign aid (Net ODA) to be insignificant to the economic growth (GDP) in Ghana. However, the other kinds of cash inflows FDI and RI were significant and had a positive relationship on the economic growth in Ghana. Although control variables such as General Government Final Consumption Expenditure (GXP) and External Debt Stocks (ED) were not significant to the model, Fixed Capital Formation (CAP) had a positive effect on the economic growth in Ghana and was also found to be statistically significant.

With regards to the findings, the government should limit the amount of foreign aid received into the country as it has no significance on the economic growth. Policies that will increase savings and investment in the country should be enforced and finally make the resources available to the citizens create jobs, which will increase Gross Domestic Product (GDP), leading to an increase in economic growth.

LIST OF FIGURES

Fig 1 : Foreign Aid Flowing into Ghana (1960 - 2019)	3
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LIST OF ABBREVIATIONS

Abbreviation	Meaning
RGDP	Real Gross Domestic Product
ODA	Official Development Assistance
FDI	Foreign Direct Investment
RI	Remittance Inflow
ED	External Debt Stock
GXP	General Government Final Consumption Expenditure
CAP	Fixed Capital Formation
OLS	Ordinary Least Squares
ERP	Economic Recovery Program
SAP	Structural Adjustment Program
MDBS	Multi- Donor Budgetary Support
VIF	Variance Inflation Factor

LIST OF TABLES

Table 1: Descriptive Statistics Ghana Foreign Aid-Economic Growth Data	21
Table 2: Correlation Matrix	23
Table 3: VIF Test for Multicollinearity	24
Table 4: Regression Output for Net ODA, FDI, RI, ED, GXP and CAP	26

TABLE OF CONTENTS

DECLARATION.....	ii
ACKNOWLEDGEMENT.....	iii
ABSTRACT.....	iv
LIST OF FIGURES	v
LIST OF ABBREVIATIONS	vi
LIST OF TABLES	vii
TABLE OF CONTENTS	viii
CHAPTER 1: INTRODUCTION.....	1
1.1 Background	1
1.2 Problem Statement	3
1.3 Research Questions/ Hypothesis test:	4
1.4 Research Objectives:	5
1.5 Significance/Relevance of the Study:	5
1.6 Overview of Research Methodology:	6
1.7 Organization of Study:	7
CHAPTER 2: LITERATURE REVIEW.....	8
2.1 Overview	8
2.2 Theoretical Review	8

2.3 Empirical Review	10
CHAPTER THREE: METHODOLOGY	15
3.1 Overview of Methodology	15
3.2 Research Design.....	15
3.3 Research Scope and Data Sources	16
3.4 Description and Justification of Model	16
3.5 Hypothesis	16
3.6 Empirical Approach and Data Analysis	17
3.7 Validity and Reliability	18
CHAPTER FOUR: DISCUSSION OF RESULTS	20
4.1 Overview	20
4.2 Descriptive Statistics	20
4.3 Regression Analysis	22
4.3.1 <i>Multicollinearity Test</i>	22
4.3.2 <i>Test for Robustness</i>	24
4.3.3 <i>Test for Stationarity</i>	24
4.3.4 <i>The Regression Output and Discussion of Output</i>	25
CHAPTER FIVE	30
5.1 Overview	30
5.2 Conclusion.....	30

5.3 Recommendations	31
5.4 Limitations	32
REFERENCES.....	33

CHAPTER 1: INTRODUCTION

1.1 Background

How are developing countries still developing with close to little or no development occurring while the developed countries continue to be rich in the economy? For more than the past fifty years, foreign aid is pumped into developing countries, which is being used to improve growth and reduce poverty in developing countries. Just like Ha-Joon Chang (2004) concluded, developed countries are kicking away the ladder they used to get to where they are, diverting developed countries from endorsing policies and institutions they used. This theory is an eye opener as to why foreign aid came about because developing countries have no extra push to help grow their economy than to resort to foreign aid given by other countries with an upper hand.

During this period, certain international organizations, became worldwide donors to developing countries. (Hjertholm & White, 2003). However, this parody has raised questions on the relevance and effectiveness of foreign aid and its influence on economic growth. The role of foreign aid contributions to the economic growth of developing countries has been a source of heated discussion. Thus, coming up with the question "How has foreign aid influenced economic growth in developing countries?".

Foreign aid, when spoken of is often associated with Africa (Kwakye, 2010). Foreign aid is defined by the Organization for Economic Cooperation and Development (2016) as assistance supplied bilaterally or multilaterally from a sponsor to a beneficiary through a development group for developmental purposes. This aid comes in the form of cash, low-interest loans, technical assistance, and professional guidance (Riddell, 2008). With diminishing economic growth and increasing foreign aid and debt, it

is rarely possible for the information center or for the existing knowledge on literature to fill all the gaps of how the aid is being used to develop the country Ghana economically.

The need for aid sprang from the need to rebuild Europe after the war's turmoil (Riddell, 2008). After this event, foreign aid began for Africa in the 1960's through institutionalization. Foreign aid to developing countries like Ghana has a primary goal of assisting in the promotion of economic development, which is measured by economic growth (Riddell, 2008). According to Boldeanu (2015) the four supply factors that can be used to determine economic growth are natural resources (land), capital goods, human resources (labor) and technology. These factors were classified under the Gross Domestic Product which was the measurement for economic growth.

According to Aryeetey and Tarp (2000), sustained economic growth in Ghana as at the 1980's was as a result of the increased aid inflows similar to that of the 1960's. Ghana received significant aid during the Economic Recovery Program (ERP) of 1983 and the Structural Adjustment Program (SAP) of 1986, totaling US\$150.7 million and US\$450.8 million for the two periods in 1995, respectively. According to Pedersen (1996), it is impossible to assume that foreign aid is positively associated to growth Conditional variables, according to Morrissey (2001), have an impact on the growth regression of the country being analyzed. Evidence for the insignificance of aid to growth was presented by Boone (1996), Mosley (1980), and Mosley et al. (1987). The relationship between aid and growth is still a work in progress, thus it needs more research. This paper sheds additional light on this area of literature by focusing on Ghana as its case country.

1.2 Problem Statement

From the 1960s, Ghana has been a significant receiver of international aid. (*Ghana Foreign Aid - Data, Chart.*). Around the period of 1960, Ghana had received foreign aid amounting to US\$ 2.94million and as of 2019 the foreign aid flowing into the country was US\$ 936.32 million. The average value of foreign aid received in Ghana during the period 1960 and 2019 was US\$ 590.44 million with a minimum of US\$ 2.94 million in 1960 and a maximum of US\$ 1803.87 million in 2011. Below is a chart from The Global Economy illustrating the amount of foreign aid in US\$ millions flowing into Ghana from the period around 1960 to 2019.

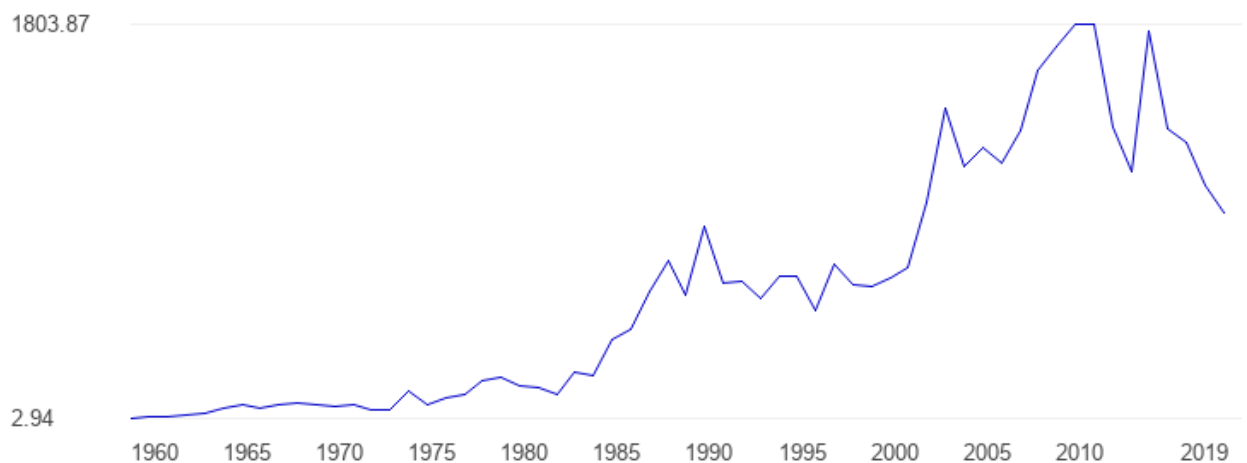


Fig 1 Foreign aid flowing into Ghana (1960 - 2019)

With inadequate economic growth in some parts of Africa, international assistance inflows have increased significantly (Girma, 2015). Thus, questioning the role of foreign aid in the form of capital inflow on the growth of developing African countries (Girma, 2015). Ghana has been ranked the 39th country out of 131 countries to be receiving foreign aid of an amount of US\$ 936.92 million (The Global Economy, 2019). Therefore, an

intense investigation into the effect of foreign aid on economic growth in Ghana is essential in further understanding the nature and relationship between foreign aid on economic growth and establishing a basis for future research into aid mechanisms that improve economic growth.

Since there exist a gap provided by literature where there is no updated data used to analyze the effect of foreign aid and economic growth, it was important to carry out this comprehensive research with an updated and wider range of data taking into consideration the years the country was affected with the coronavirus and how it affected the country's economic growth with foreign aid received before and during that period. Also, this study controls different kinds of capital inflows to determine their effects on economic growth.

Dambisa (2009) revealed that aid to Africa has exacerbated poverty and slowed the continent's growth. African countries have become more debt-ridden, more prone to inflation, more vulnerable to currency market fluctuations, and less attractive to higher-quality investment as a result of the pernicious assistance culture. Other authors such as Armah (2016 & 2020) argue that aid itself is not the problem, but if aid is pumped into a country with weak institutions, poor governance, endemic corruption, and a culture that is anti-market and not supportive of healthy work ethic, aid becomes pure poison as it will corrupt and lead to continuous dependence. This paper focused on Ghana because it is a primary recipient of aid in Africa yet does not seem to have developed economically when its assistance with foreign aid is considered.

1.3 Research Questions/ Hypothesis test:

This paper analyzed the question:

- a. *What is the relationship between foreign aid and economic growth in Ghana?*

The hypothesis tested is that foreign aid does not have an effect on economic growth in Ghana. This hypothesis was based on the findings of Ekanayake and Chatrna (2010), where the research explored foreign aid on economic growth in developing countries. However, this study delved into a particular region using the case of Ghana unlike other research papers.

1.4 Research Objectives:

The primary goal of this research is to:

- Investigate the relationship between foreign aid and economic growth in Ghana.

1.5 Significance/Relevance of the Study:

The widening chasm between developed and underdeveloped nations has been increasing, leading to developing countries relying on foreign aid from these developed countries. Ghana, as a developing country, is no exception to this act and receives foreign aid from time to time.

A number of studies such as Konadu (2016), Sothan (2018), Twerefou (2016), Agbola (2013) among other scholarly works have assessed the effect of foreign aid and economic growth. However, these studies have found significantly varying results. Some have reported a positive relationship between foreign aid and economic growth implying that foreign aid is growth-enhancing while others found the reverse with some others finding no significant relationship. The varying conclusions have been attributed to several factors, including poor data quality and relatively short data periods, which adversely affect the results' reliability (Boakye, 2008).

Furthermore, except for the work of Duodu and Baidoo, (2020), previous studies have paid less attention to the effect of other forms of cash inflows on economic growth in Ghana. Therefore, the need for further studies on the matter.

Therefore, this study contributes to the existing knowledge by using a relatively updated and a wider range of data to assess the effect of foreign aid on economic growth in Ghana as the effect might have changed over time. This will help provide up-to-date evidence on this debate to enable policymakers to make timely and informed policies to enhance growth in the country.

1.6 Overview of Research Methodology:

The research methodology discussed the model specifications to examine the relationship between foreign and economic growth. The link between the independent variables and the dependent variable was investigated using a quantitative method approach. As a result, a multiple linear regression was run to investigate the relationship between the independent variables and to eliminate multicollinearity. Official Development Assistance (ODA), Foreign Direct Investments (FDI), Remittance Inflows (RI), Gross Fixed Capital Formation (CAP), General Government Final Consumption Expenditure (GXP) and External Debt Stocks(ED) are the independent variables and control variables in this analysis, with Real Gross Domestic Product (RGDP) as the dependent variable. The effect of each of the independent variables on RGDP will be determined by holding all the other factors constant and also taking into consideration the control variables and their effect on the economic growth. The econometric model for this research is:

$$RGDP_t = \beta_0 + \beta_1 ODA_t + \beta_2 FDI_t + \beta_3 RI_t + \beta_4 GXP_t + \beta_5 CAP_t + \beta_6 ED_t + u_t$$

where RGDP = Real Gross Domestic Product, ODA = Official Development Assistance, FDI = Foreign Direct Investment, RI = Remittance Inflows, GXP = General Government Final Consumption Expenditure, CAP = Gross Fixed Capital Formation, ED = External Debt Stocks, β_0 = Intercept parameter, β_1 to β_6 are the coefficients of the independent and control variables respectively, u = unobserved variables accounted for as error and t = time.

Secondary data from the World Bank's Data Indicators, Organization for Economic Co-operation, and Development (OECD), The Global Economy was used while carrying out this study. The potential stakeholders of this topic are the citizens of Ghana as a country.

1.7 Organization of Study:

The study is divided into five main chapters, the first of which is the study's introduction. The second looked at the literature by going over scholarly literature and pointing out where there were gaps in the various works. The third chapter discusses the technique employed throughout the study, including data collection, research designs, and data sources. The study's outcomes are presented in the fourth chapter, which takes into account the methodology's findings. Finally, the findings from chapter four gives the conclusion which leads to chapter five. This chapter sums up the study with the conclusion and recommendations on the research findings.

CHAPTER 2: LITERATURE REVIEW

2.1 Overview

This chapter examines the existing body of information and ongoing debates on foreign aid and economic growth on the continent, using Ghana as a case study. The literature discussions first look into the works of whether or not foreign aid is related to economic growth. This chapter examined the theoretical review and empirical review for this study.

2.2 Theoretical Review

It is necessary to review some theories of economic growth that have a bearing on this topic. The effectiveness of aid began with the theory of modernity, where the promotion of aid led to linear growth in the West. This led to the use of growth theories such as the neoclassical model and the Harrod-Domar model to help in the study of foreign aid and economic growth. The Harrod-Domar model of economic growth is a Keynesian model used to explain economic growth rate in terms of savings and capital. In the Harrod-Domar model, production is a function of investment rate and investment productivity. Investment in an open economy like Ghana is financed by savings, both domestic and foreign savings. As a result, foreign aid inflows supplement local savings to boost investment, which boosts steady-state capital and promotes economic growth (Easterly, 2003; p.31).

The "Two Gap" model of Chinery et al. (1966) can also be used to examine the impact of foreign aid. The first, dubbed the "savings gap," is the discrepancy between both the level of investment necessary to attain a predetermined rate of growth and the quantity of domestic savings available. The "Two Gap" is the second chasm (foreign exchange gap).

When there is a difference between import requirements for a certain rate of output and foreign exchange inflows, this gap occurs. In this concept, a savings or trade deficit in a developing country causes a deficiency in profitable investments required to attain a particular level of production, necessitating the use of foreign aid to close the gap. As a result, the "Two Gap" model supports the premise of investment and savings aiding growth just like the Harrod-Domar model.

When investment exceeds savings, the difference is covered by an increase in external capital, according to the model. As a result, without greater external capital, the desired investment growth cannot be achieved (Konadu et al., 2016). Because foreign aid is a source of external capital, the Two-Gap model predicts that its expansion will finance the gap between investment and savings, while its decrease will reduce the level of investment in a country, resulting in a reduction in economic growth. (Chenery and Strout, 1966)

Smith (1961) argues that an increase or decrease in the capital of a country leads to an increased or decreased production, the real quantity of industry, the productive land, and the actual wealth of the people of a country increase or decrease, respectively. According to Smith, as capital in the country increases, the country's wealth also grows and when capital decreases, it negatively impacts the wealth of the country. Comparatively, foreign aid serves as a capital for recipient countries and therefore, applying Smith's theory of wealth creation, it will mean that an increase in foreign aid will lead to an outcome of wealth creation in a country. Conversely, a reduction in foreign aid will be expected to reduce the wealth level or economic growth of a county, with all things being equal.

Rajan and Subramanian (2011) offers a theory which shows a negative impact of aid on growth, in contrast to the theories that postulate a positive influence on development. The model offers two channels through which external aid has a negative effect on economic growth. The first is by reducing tradeable goods. It shows that the aid in the non-traded sector such as teaching, law and aid administration increases when aid increases.

When wages increase in this sector, workers move to areas with increased salaries, thus from the tradable sector such as agriculture and manufacturing to the non-tradeable sector of work. Less goods for economic growth are produced when this happens. The goods available for exports therefore decline, and the country loses its export revenue. The second deals with the event of a flexible exchange rate where the inflow of foreign aid moves the real exchange up. The tradable industry will become less competitive if wages do not fall.

2.3 Empirical Review

Based on statistics and scholarly literature, the economic growth of most developing countries has been disappointing, and Ghana is not exempted. Ghana's annual growth rate has not been as projected over the years. For the decades between 1980 to 2018, the average annual growth rates were 1.99%, 4.27%, 5.36%, and, 6.83% (World Bank, 2019). The World Bank's available data (2019) also show that the average growth rate over the past three decades has not exceeded 7%, leading to a projected growth rate of 4.56%. (Duodu and Baidoo, 2020)

Foreign aid has been shown to have both a beneficial and negative impact on economic growth in studies. Sothan (2018) looks at the effects of foreign aid on Cambodia's economic growth and finds that it has an excellent short-term impact but a negative long-

term impact. This may have been due to the ample population used in carrying out this study. Sothan (2018), applies the autoregressive distributive lag model on a sample data from 1980-2014. The approach incorporates into the model, other variables such as Real Gross Domestic Product, Trade Openness, Official Development Assistance, and Investment. On the other hand, (Aluko, 2020) finds that foreign aid and investments are strongly correlated. Therefore, incorporating investment into the model could positively have led to multicollinearity, which reduced the statistical power as it resulted in weak estimated coefficients. However, this study delved into a more extended time period of 43 years as compared to Sothan's number of years.

According to Hussain, Haque, and Igwike (2015), most developing nations' have underdeveloped stock markets, finding it challenging to raise sufficient funds to support investment, which is a necessity for economic growth. Governments of countries with this type of economies rely on foreign capital for economic growth and development since indigenous capital is insufficient to support investment which yields growth.

Instead of using a vast pool of data from a variety of developing nations, Quartey's (2005) research focuses on creative strategies to make financial aid more successful in Ghana. According to the author, MDBS (multi-donor budgetary support) could be beneficial, but only if the Ghanaian government and its partners better plan and organize their efforts. In addition, the government must make an effort to lower its debt burden so that aid inflows are not utilized to pay off the debt. According to the author, the MDBS will not be entirely successful until other types of project support are integrated, and inflows become more predictable.

Furthermore, Fasanyo & Onakayo (2012) investigated the relationship between foreign aid and economic growth in Nigeria and discovered that the two variables have a high positive correlation. The findings are in line with Sothan's (2018) short-run findings that, aid promotes economic growth. Sothan (2018) differs from Fasanyo & Onakayo (2012) in that he considers both the long-run and short-run effects of aid on growth, whereas Fasanyo & Onakayo (2012) does not distinguish between the two periods. Fasanyo & Onakayo (2012) used Ordinary Least Squares regression to analyze a time series data set spanning 40 years, from 1970 to 2010. The research is based on the neoclassical growth model, which identifies four fundamental factors that influence growth: output (Y), capital (K), labour (L), and knowledge (A), Juselius et. Al. (2013). The dynamic error correction model was built up to correct any flaws in the model for the possibility of correlation among the dependent variables, making the process more dependable. This study decomposed foreign aid to ascertain the contribution on each component which has been less explored.

Juselius, Møller, and Tarp (2013) looked at the long-term impact of foreign aid on a few significant macroeconomic variables in thirty-six countries in Sub-Saharan Africa (Sothan, 2018). Their research findings support the idea that ODA flows have a long-term positive influence on the macroeconomy. In contrast to their findings, Sothan (2018) showed a long-term negative relationship between aid and economic growth. The differences in their conclusions could be explained by the fact that they used different methodology, factors, and countries. Using a well-specified cointegrated VAR model, Juselius, Møller, and Tarp (2013) looked at panel and multivariate time series data from the mid-1960s to 2007.

Furthermore, they employed the whole system equations to test aid exogeneity and avoid collinearity among the macro-variables on aid. In the long run, the assistance exogeneity test assures that aid is unaffected by macro-variables and other unobserved variables. As a result, the process became more dependable and valid. This research focused on a cross-country time series studies which gave a wide range of results. The gap here was to investigate a particular country to have more accurate results which this paper sought to fill by looking into the case of Ghana, a single-country times series study.

Durbarry et al. (1998) employ an enlarged Fischer-Easterly type model to assess the influence of foreign aid on growth in developing countries using both cross-section and panel data methodologies. In the case of a stable macroeconomic policy environment, the data substantially support the hypothesis that foreign aid has a favourable impact on GDP. They also discovered that the outcomes differed depending on the level of income, the amount of assistance provided, and the geographical location Durbarry et al (1998).

Jiffar (2002) looked at the impact of foreign aid on Ethiopian state spending, with a focus on aid fungibility. In this study, an OLS estimate was used. He calculated the short-term impact using the Error Correction Model. Nonfungibility characterized the expected result in the education and agricultural sectors, implying that the impact of sectoral aid on sectoral spending is producing crowding. Jiffar, on the other hand, concludes that aid fungibility appears to exist in the transportation, communications, and construction sectors, signalling a crowding-out impact. Sectoral aid has a negative impact on spending in this case. Aid has a significant impact on debt servicing for non-developmental expenditures but has a negligible impact on general service and defence spending.

Islam (2003) examined the relationship between aid and economic growth in twenty countries using panel data from 1960 to 2000. In his analysis, he used the regression model. To tackle the endogeneity problem, he calculated equations with endogenous regressors k . To overcome the endogenous problem, he employed a two-step systems estimator.

Armah (2009) used data from thirty-one nations in Sub-Saharan Africa from 1984 to 2007. The research was based on Islam's empirical aid-growth model, which hypothesizes that aid has an impact on economic growth via savings and investment. The study employed a multiple regression model.

Finally, a variety of research on the relationship between foreign aid and economic growth have been conducted. Some of the researchers employed panel data, while others relied on time-series data. Majority of the literature employed a multiple regression model in their research. The gap filled by this research paper is the use of an updated and wider range of data from 1979 to 2021, the employment of different kinds of inflows flowing into Ghana and the addition of new literature to the inconclusive findings from already existing literature. This was to also explore whether COVID-19 played a role in terms of aid and growth.

CHAPTER THREE: METHODOLOGY

3.1 Overview of Methodology

The goal of this research is to look into the relationship between foreign aid and Ghana's economic growth. Aid is commonly assumed to enhance the recipient country's economic development. Ahmed (2014), on the other hand, concluded that "foreign aid has no substantial effect on economic growth." However, because this research focused on countries in Sub-Saharan Africa, the situation in Ghana may differ. Fasanyo (2012) conducted a similar study to see if foreign aid helps Nigeria's economy grow faster. On the other side, this section looked into the methodology of the study, the research design, sampling strategy, data collection, variable description and justification, reliability and validity.

3.2 Research Design

To help with the study issue, a quantitative research strategy is required. This method uses figures, mathematical formulas, statistical computations, and conclusions to respond to the study issue; this was accomplished by evaluating relationships and making predictions by quantitatively analyzing data (Leedy, 1993). This method was appropriate for this research because it allowed for hypothesis testing as well as statistical data analysis to find relationships (Jupp, 2012).

Secondary data for the variables under investigation, which include both aid and a measure for economic growth, were quantitative in this case. Quantitative methods, specifically regression, will be used to determine the relationship between foreign aid and economic growth. As a result, the relationship between the independent variables, and dependent variables was investigated using multiple linear regression (to reduce

multicollinearity). The effect of each independent variable on the Real Gross Domestic Product (RGDP) was determined while all other variables are held constant. The research followed a time-series data analysis to observe the changes in the economic growth rate of Ghana. The observation was done over forty-one years to accommodate the different changes that occurred over the years to answer the objectives, draw conclusions, and make recommendations for the study. The data for this study was obtained from the World Bank World Data Indicators and other credible sources such as OECD.

3.3 Research Scope and Data Sources

The study was limited to Ghana and used a time series data spanning from 1979 to 2021. The data was sourced from the World Bank's World Development Indicators (WDI).

3.4 Description and Justification of Model

The Ordinary Least Squares (OLS) multiple regression model was used in this research which is like Fasanyo (2010). The study was based on time series data covering the period 1979-2021. The study however differs from Fasanyo (2010) in terms of choice of the dependent variable used. It also applied to a different country, Ghana in this case. It used more current data and included a larger sample as compared to Fasanyo (2010). The growth of RGDP was used to calculate the economic growth rate in this study, hence the model for this research was given by.

$$RGDP_t = \beta_0 + \beta_1 ODA_t + \beta_2 FDI_t + \beta_3 RI_t + \beta_4 GXP_t + \beta_5 CAP_t + \beta_6 ED_t + u_t$$

3.5 Hypothesis

The purpose of this study was to investigate the effect of foreign aid on Ghana's economic growth. As a result, the following was the study's hypothesis:

Null hypothesis, H_0 : In Ghana, there is no relationship between foreign aid and economic growth.

Alternative hypothesis, H_a : In Ghana, there is a relationship between foreign aid and economic growth.

3.6 Empirical Approach and Data Analysis

OLS regression is a statistical approach for determining the strength and direction of a relationship between an explanatory and response variable that has been accumulated over time. The OLS was chosen for two reasons: first, it is highly regarded as a statistical tool for analyzing and forecasting correlations between variables, and second, its results are simple to interpret.

The OLS regression evaluates variables in the general format below

$$y_t = \beta_0 + \beta_1 x_t + \dots + u_t$$

Where y and x represent the dependent and explanatory variables respectively. β_0 and β_1 represent the intercept and coefficient of the explanatory variable and u captures all unobserved variables that influence the dependent variable. OLS regression is a statistical approach for estimating the degree and direction of a time-dependent relationship between an explanatory and response variable. The OLS was used for two reasons: first, it is well-known as a statistical tool for analyzing and anticipating correlations between variables, and second, its results are easy to comprehend.

Three explanatory variables were factored into a multivariate model. Multivariate regression has been utilized in similar ways by Knack (1999), Brautigam et al. (2004), and others. The growth variable's coefficient was also used to determine the extent of foreign aid's effect on the Ghanaian economy. The p-value was utilized to establish whether the

identified connections between foreign aid and economic growth are statistically significant. The p-value would be calculated using a significant level of 5% as the baseline.

The statistical program used in this study's investigation was Microsoft Excel. It was used for data collection and analyzing the data in a variety of ways, including summary and test statistics, test assumptions, regression models and robustness testing.

3.7 Validity and Reliability

Validity (Drost, 2011) is concerned with the importance and relevance of research components, whereas reliability (Bollen 1989) is concerned with preserving consistency in measures; the absence of errors to generate consistent results (Peterson, 1994). Consistency will be achieved in this study by using data that suits the approach of the research, that is having a large sample for the time series approach. The utilization of raw secondary data from the World Development Indicators Bank made the study valid and reliable. The pilot test allowed for the testing of the dependability of variables to ensure that questions were aligned with the study's objectives.

The numerical data used in this study ranged from 1979 to 2021, covering a forty-one-year period. For time series analysis, a sample size of 43 is sufficient. This period allowed for the examination of the numerous changes in the various forms of foreign aid received over time and their impact on Ghana's economic growth using the Real Gross Domestic Product (RGDP). The Ordinary Least Square's (OLS) normality assumption was met because the sample size was large enough.

Furthermore, OLS assumes that the independent variables do not have a perfect correlation. To be sure of this, a correlation matrix will be used to determine if any of the variables have a perfect correlation of 1.

CHAPTER FOUR: DISCUSSION OF RESULTS

4.1 Overview

This chapter presents the results and analysis of the tests carried out in the study. This paper relied on secondary data from the World Bank's World Development Indicators (WDI) and was analyzed using acceptable econometric approaches for this research. The chapter begins with a review of the statistical measures for the different variables considered in the research, followed by an overview of collected data for analysis, which covers test assumptions for time series data. The multiple linear regression results are explained and discussed in this section. In the context of the theoretical framework and methodology offered, the techniques and data analysis are reviewed.

4.2 Descriptive Statistics

The descriptive statistics of data between foreign aid and economic growth with three variables representing foreign aid were reviewed in this part. There was a total of forty-three (43) observations. When comparing the gap between the mean and median of each of the variables, the independent variables appear to have a small gap of plus or minus 1% between their means and medians, except for the dependent variable, GDP, making it strongly skewed to the right. This could be because 2019 had the highest GDP of the time.

On the other hand, the standard deviation measures the data's dispersion or spread about its mean. Table 1 shows that the variables have data that is considerably low, and therefore the data is clustered closely around the mean, which means it's more reliable. The Table also shows the minimum and maximum values for each variable. In 1979, GDP was at an all-time low, while in 2019, it was at an all-time high. The FDI was lowest in 1979

with a negative number of 2,800,000 and highest in 2019. For the Net ODA and RI, they were highest in 2011 and 2015 respectively, and lowest in 1983 for both variables.

Table 1.

Descriptive Statistics Ghana Foreign Aid-Economic Growth Data

	RGDP (USD)	Net ODA (in %)	FDI (in %)	RI (in %)	ED (in %)	GXP (in %)	CAP (in %)
Mean	19053.91	7.19	2.94	1.47	60.09	9.90	17.66
Median	6891.31	6.11	1.73	0.40	49.40	9.72	18.04
Standard Deviation	20649.01	4.04	2.94	2.36	33.47	2.28	6.55
Sample Variance	426381522.20	16.29	8.64	5.59	1120.55	5.21	42.94
Kurtosis	0.09	-0.98	-0.64	3.50	-0.40	-0.36	-1.03
Skewness	1.25	0.38	0.80	1.98	0.73	0.39	-0.08
Range	63214.06	14.91	9.54	10.07	122.92	9.45	25.24
Minimum	4020.23	1.43	-0.07	0.01	16.52	5.86	3.76
Maximum	67234.29	16.34	9.47	10.08	139.44	15.31	29.00
Sum	781210.17	294.73	120.56	60.09	2463.55	406.04	723.96
Count	43	43	43	43	43	43	43

Source: Author's calculation based on World Bank Data

The kurtosis values for the variables RGDP and RI were positive, illustrating a peaked distribution with these two variables. A relatively flat distribution is indicated by negative kurtosis for Net ODA, FDI, ED, GXP and CAP. However, these numbers distort the assumption of a normal distribution which should have a kurtosis value of 3, with the exception of Remittance Inflow which has a value above 3. Indicating a normal distribution for that variable. The results, however, are within the range of +2 and -2, which is the range of a normal distribution dataset (Lewis-Beck, Bryman & Liao, 2003). Thus, concluding that there is a normal distribution, satisfying an assumption of multiple linear regression analysis where the values of the independent variables follow a random probability distribution.

4.3 Regression Analysis

The study employs the ordinary least squares regression model to assess the effect of foreign aid on economic growth. The study carried out a few pre-estimation tests on the data to ensure its reliability, validity, and robustness.

4.3.1 Multicollinearity Test

When two or more independent variables have a strong correlation, they provide duplicate or misleading information about the solution, which is known as multicollinearity. Using the correlation matrix function in Microsoft Excel was a way to detect multicollinearity by calculating the correlations between all pairs of independent variables. The model has a multicollinearity problem if a pair of variables have a high correlation of close to 1 or -1 (often 0.9 or -0.9). As a result, one or both variables should be removed from the model. The correlation results for the model are shown in Table 2. The highest correlation was between the independent variable Net ODA and ED of 0.76, which indicates this kind of foreign aid is correlated to the control variable ED, and they are likely to come out with similar results in the regression model. None of the correlations in Table 2 is close to 1 or -1; however, the correlation matrix in Excel has its flaws in giving very accurate results, which led to another test.

Table 2

Correlation Matrix

	CORRELATION MATRIX					
	<i>Net ODA</i>	<i>FDI</i>	<i>RI</i>	<i>ED</i>	<i>GXP</i>	<i>CAP</i>
Net ODA	1					
FDI	-0.42	1				
RI	-0.48	0.59	1			
ED	0.76	-0.42	-0.31	1		
GXP	0.57	-0.20	-0.24	0.46	1	
CAP	0.28	0.28	0.34	0.40	0.31	1

Source: Author's calculations based on World Bank data

All variables were either low or moderately correlated to each other except Net ODA and ED which had a high correlation of 0.76. The VIF test was run to crosscheck for multicollinearity. When inferring multicollinearity from VIF data, a basic rule of thumb is:

VIF = 1 (no correlation)

$1 < \text{VIF} < 5$ (moderately correlated)

$5 < \text{VIF}$ (highly correlated)

Net ODA, FDI, RI, ED, GXP and CAP all have VIF values of 3.34, 1.93, 2.13, 2.99, 1.54 and 2.06 respectively. All independent variables have a moderately correlated VIF value. These results can be seen in the Table below. These values are less than five, holding the assumption of no perfect correlation to be true. As a result, all the model's variables can be kept and analyzed afterwards.

Table 3

VIF Test for Multicollinearity

Variables	VIF Values
------------------	-------------------

Net ODA	3.34
FDI	1.93
RI	2.13
ED	2.99
GXP	1.54
CAP	2.06

Source: Author's calculations based on World Bank data

4.3.2 Test for Robustness

To determine the model's robustness, the Breusch-Pagan test was performed. The critical value was set at 0.05, corresponding to a 95% confidence interval. The output generated in Excel was 3.07^{-06} . We reject the null hypothesis, which states there is no association between foreign aid and economic growth in Ghana since the p-value is less than 0.05. There is enough evidence that the original regression model does not contain heteroscedasticity.

4.3.3 Test for Stationarity

In time series analysis, stationarity is a crucial notion. Stationarity simply indicates that the statistical features of a time series do not vary with time. Since this paper used a time series data, it was important to run the test for stationarity. The hypothesis for the Dickey-Fuller Test is

$H_0: \theta = 0$ (thus the data needs to be differentiated to make it stationary)

$H_1: \theta < 0$ (thus the data does not need to be differentiated because it is stationary)

The test was run using a 5% critical value and a -1.663 critical value for the tail distribution using the Dickey-Fuller Test. The t-statistics for the data were all less than the absolute value of the critical value which meant the null hypothesis was rejected and the data is stationary.

4.3.4 The Regression Output and Discussion of Output

The regression analysis output comes in three components: the Regression Statistics, ANOVA and Regression Coefficients Tables. In the first component, the greatest of interest is the R-Square which from Table 4 is 0.89, which means 89% of the variation of RGDP is explained by Net ODA, FDI, RI, ED, GXP and CAP. The R-Square and Adjusted R-Square of the OLS model indicates a good fit model.

The adjusted R-squared in Table 4 below shows that the independent variables in the model account for 87% of the variations in the dependent variable. The high adjusted R-square value (more than 0.5) suggests that the model accounts for other significant explanatory factors that may have been included in the equation's error term. As a result, the models' predictive potential is limited to approximately 87%.

Moving on to the next component, the Significance F would be considered. This column is associated with a p-value of 0.05. Since the significance F of 8.20^{-16} is less than the p-value, we reject H_0 at a significance level of 0.05. The significance of F also explains how good the model is in terms of it being lower than the critical value of 0.05 or 5%. For the column coefficients in the third component, it gives the least-squares estimates for the variables. From Table 4, the independent variables have a positive relation except for the variables Net ODA, ED and GXP, which had a negative coefficient of -867.82, *112.58

and -1357.01, respectively. The values of the coefficients are inputted to derive the equation below.

$$RGDP_t = 21413.18 - 87.82ODA_t + 1618.20FDI_t + 3948.29RI_t - 1357.01GXP_t + 772.18CAP_t - 112.58ED_t + u_t$$

The P-values for FDI, RI and CAP are lower than the significance value of 0.05, which makes them statistically significant. However, the Net ODA, GXP and ED are greater than 0.05, which is not statistically significant.

Table 4

Regression Output for RGDP, Net ODA, RI, FDI, ED, GXP and CAP for Ghana.

SUMMARY OUTPUT								
<i>Regression Statistics</i>								
Multiple R	0.94							
R Square	0.89							
Adjusted R Square	0.87							
Standard Error	7799.95							
Observations	43							
ANOVA								
	<i>df</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>			
Regression	6	17758305753	2.96E+09	48.65	8.20E-16			
Residual	36	2190214397	60839289					
Total	42	19948520149						
	<i>Coefficients</i>	<i>Standard Error</i>	<i>t Stat</i>	<i>P-value</i>	<i>Lower 95%</i>	<i>Upper 95%</i>	<i>Lower 95.0%</i>	<i>Upper 95.0%</i>
Intercept	21413.18	6064.12	3.53	0.0012	9114.58	33711.78	9114.58	33711.78
Net ODA	-867.82	558.18	-1.55	0.13	-1999.86	264.23	-1999.86	264.23
FDI	1618.20	580.98	2.79	0.01	439.91	2796.48	439.91	2796.48
RI	3948.29	738.24	5.35	0.00001	2451.08	5445.51	2451.08	5445.51
ED	-112.58	63.74	-1.77	0.09	-241.84	16.68	-241.84	16.68
GXP	-1357.01	665.64	-2.04	0.05	-2706.98	-7.03	-2706.98	-7.03
CAP	772.18	269.30	2.87	0.01	226.01	1318.34	226.01	1318.34

Source: Author's calculations based on World Bank data

Based on the output, Net ODA is negatively related to GDP however, this was not statistically significant. Thus a 1% increase in Net ODA will lead to a decline in the GDP of Ghana by 867.82. This variable was used as the measure for foreign aid, however other kinds of capital inflows that were controlled were significant and had a positive effect on GDP. It is wise to say foreign aid which has an objective of developing emerging economies with Ghana inclusive, may not have an effect on economic growth as it is insignificant in this model. A similar study by Simon Scott (2019) discovered Net ODA is insignificant and has a negative effect on economic growth. Simon Scott (2019) attributed this to Net ODA being received by countries which do not have sound institutional policies regarding their investments and expenditure, which makes it insignificant.

Konadu (2016) concludes that Net ODA which is the measure for foreign aid and is meant to aid the economy of the recipient's country rather harms the economy by causing a decline due to the high interest payments on foreign aid which is received as loans and corruption. This finding is also in line with the findings of Ekanayake et al. (2008), who found that foreign aid has a negative impact on economic growth in low-middle income nations like Ghana. According to Osew (2012), the negative effect of foreign aid on economic growth can be linked to the following factors: (1) The reality that foreign aid may not be used for the stated purpose and may be used for corrupt purposes such as sponsoring political campaigns using foreign aid, resulting in the persistence of terrible governments. (2) Embezzlement of foreign aid or the exploitation of it to enrich a few political leaders places a significant economic burden on governments.

The relationship between the two kinds of capital inflows received has a positive relationship with Ghana's economic growth.. Thus when 1% of FDI is received, it increases

Ghana's economic growth by 1618.20. This result is similar to Ndambendia and Njoupouognigni (2010) where FDI positively affected the economic growth in 36 Sub-Saharan African countries. Also, Har et al. (2008) performed research in this area and had a positive relationship with FDI on economic growth in Malaysia. This positive relationship could be due to an increase in the level of investment in the country, which attracts investors and increases the country's GDP.

Remittance Inflow just like FDI, had a significant positive effect on economic growth in Ghana, unlike the study by Egyir et al. (2020) where there was an insignificant positive relationship between Remittance Inflow and economic growth. This relationship is because this kind of capital inflow increases investment as well with the use of capital accumulation. Remittance Inflow improves the allocation of capital and serves as a substitute for the lack of financial development and thus increases economic growth. (Meyer & Shera, 2017). Many scholarly works find Remittance Inflow to usually boost GDP. This result can be interpreted with a 1% increase in Remittance Inflow leading to 3948.29 increase in the GDP of Ghana. When people are remitted, it leads to an increase in individual investments and savings which increases the GDP of Ghana.

Capital had a significant positive relationship with economic growth. GDP will increase by 772.18 when Capital input is increased by 1%. According to Easterly (2003), different kinds of foreign aid with FDI and Remittance Inflow inclusive complement domestic savings in a country which increases investment leading to a steady increase in capital. Having had the different kinds of capital inflows being positive, it explains the conclusion of Easterly (2003).

External Debt and Government Consumption Expenditure had a negative effect on economic growth. As studies suggest, Net ODA does not increase investment but rather expenditure resulting in a decrease in the economic growth which explains the negative effect government expenditure also has on GDP. The negative relation between the External Debt and GDP is due to the fact that the interest rates on the loans received by the country become high and keep compiling when the country takes loans which rather declines the economic growth. Based on the results from the model, a 1% increase in External Debt leads to a 112.58 decrease in the GDP of Ghana while a decline in the GDP of Ghana by 1357.01 is as a result of an increase in the Government Expenditure. Overall, the findings suggest that the Ghanaian government spends beyond its core function which leads to retarded growth in the economy.

This study is similar to Fasanyo & Onakayo (2012) in terms of methodology but differs in the results gathered. This study has differences with Fasanyo & Onakayo (2012), with this study having a negative relationship in Ghana. This can be as a result of the different countries used and the fact that this study also controls for other kinds of capital inflows. Similar to the study of Rajan and Submarian (2011), where the study found a negative effect of foreign aid on economic growth with the assumption that foreign aid reduces tradeable goods within the country and leads to a reduction in the employment level in the country.

CHAPTER FIVE

5.1 Overview

This chapter summarizes the research study and highlights the findings as well as recommendations for policymakers and future research. This section entails a summary of the study topic, objectives, methodology, critical findings, and significant conclusions to address the research issue. Finally, in order to better future investigations, an evaluation of the research's flaws has been done.

5.2 Conclusion

The study's goal was to assess the effect of Foreign Aid on Economic Growth in Ghana. The motivation behind this research was to add updated data with a wider data range to existing literature, use different kinds of capital inflows in Ghana and bridge the gap of the inconclusive findings in this area of study. The intense study on foreign aid and economic growth in Ghana led to the exploration of this study. Does foreign aid increase economic growth or not? Foreign aid flows into countries especially developing countries like Ghana, which seems to have a growth rate below 7%. This paper delved deep into understanding this debate on foreign aid and economic growth.

In this study, the Ordinary Least Squares method was employed to examine the relationship between foreign aid and economic growth. A regression analysis was used to analyze the data to identify the type of relationship between foreign aid and economic growth. The model passed all the necessary tests needed before the results of a regression analysis could be authentic. That is the model does not suffer correlation and heteroscedasticity and indicates that all the variables were stable for research to be carried on.

To test for the validity and robustness of the model, multicollinearity and heteroskedasticity were performed. The result showed a positive relationship between the variables. The results also indicate that all the variables with the exception of Net ODA, ED and GXP variables were significant in explaining foreign aid's effect on economic growth in Ghana because it had a negative coefficient in the OLS model executed. Despite the existence of the relationship, there are other underlying characteristics or factors that explain how foreign aid affects economic growth. This means that aid intended to improve economic growth sometimes harms Ghana's economy, since there may be hefty interest payments on aid that is given in the form of loans to the country.

5.3 Recommendations

The study suggests the provision of economic assistance that focuses on capital formation and technology by investing in businesses and education. To help with policy making, the recommendation of more grants should be received rather than loans because interest payments on external debt have been found to have a detrimental impact on economic growth because most foreign aid is not profitably invested in Ghana. The basic line is that Net ODA can no longer serve as an objective indicator of donor aid effort. As a result, the study admonishes the government to implement policies that would limit foreign aid into the country since it is not significant, and reduce government expenditure. Rather, the allocation of the different kinds of cashflows should be encouraged into the country because it increases income through investment and savings which leads to an increase in economic growth.

5.4 Limitations

A significant limitation in this research area was the insufficient studies on the topic, which allowed for further analysis. Also, the emergence of new data was not taken into consideration in this research since data on the most current year was not available as at the time of the data collection. Initially, the study was to cover the period 1960 to 2021, however, the variable Remittance Inflow reduced the number of years since data was not available until 1979. This limitation did not stop the study from being carried because the sample size with regards to the number of years was still enough to fulfil the research objectives and answering the research question.

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