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**IMPACT OF FOREIGN AID ON ECONOMIC GROWTH
IN TANZANIA**

KATRA MOHAMED ISMAIL

**MASTER OF ARTS IN ECONOMICS
THE UNIVERSITY OF DODOMA
DECEMBER, 2020**

**IMPACT OF FOREIGN AID ON ECONOMIC GROWTH IN
TANZANIA**

**BY
KATRA MOHAMED ISMAIL**

**A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF
THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS
IN ECONOMICS**

**THE UNIVERSITY OF DODOMA
DECEMBER, 2020**

DECLARATION AND COPYRIGHT

I **Katra Mohamed Ismail**, declare that this dissertation is my own original work and that it has not been presented and will not be presented to any other University for a similar or any other degree award.

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The undersigned certifies that he has read and hereby recommends for acceptance by the University of Dodoma a dissertation entitled “**Impact of foreign aid on economic growth in Tanzania**” in partial fulfilment of the requirements for the degree of Master of Arts in Economics of the University of Dodoma.

Dr. MUSA ALLY MWAMKONKO

Signature 

Date 8 / 12 / 2020

Supervisor

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To the highest Almighty God, I am exceptionally thankful for the good health, strong mind, high spirit and wisdom throughout my academic journey. Without your blessings and mercy I would have not made it this far.

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I would lastly thank my Beloved family for always supporting my mission in my academic carrier; they have been part and parcel of my success. Special thanks go to my beloved Husband for always being there. I am thankful to my colleagues in the Master of Arts in Economics class of 2018-2020 for their cooperation and support throughout my studies. Lastly, there are many other who have not mentioned, but their contribution cannot be neglected; together I say thank you.

DEDICATION

This Dissertation is dedicated to my Family

My parents, Mohamed Ismail (dad) and Asha Hirsi (mom)

My Husband (Musa Shilunga); and

My Children (Ismail and Imran)

ABSTRACT

The study analyzed the impact of foreign aid on economic growth in Tanzania. The study questioned the contribution of foreign aid on the development and recurrent expenditure as one of the source of funds, apart from net external finance and Government revenue; which most prior empirical works did not mention. The study filled this gap in literature by analyzing official development assistance, development expenditure financed by foreign aid and recurrent expenditure financed by foreign aid. The study used time series data drawn from Bank of Tanzania (BOT), and The Organization for Economic Co-operation and Development (OECD). After the preliminary tests for unit root test, the Johansen test for co integration was used to determine co-integrating vectors. Thereafter, Autoregressive distributive lag model (ARDL) was performed to obtain results.

The study revealed that, ODA has a positive relationship with GDP in the long run, and it's highly significant, while on the short run it has a negative impact on economic growth. On the other hand, FDI influence economic growth both in the short run and in the long-run. Apart from that, Development expenditure financed by foreign aid has positive relationship with economic growth and is statistically significant in the long-run, as well as tax rate influence economic growth only in the long-run. Furthermore the result reveals that, current expenditure financed by foreign aid influence economic growth, while inflation rate seems to be insignificant.

To promote economic growth, Government should continue to enhance a good diplomatic relation with countries providing official development assistants, as well as ensuring that development programs are consistent with assistant programs. Furthermore, the study foresee the need for establishing good policies that will support and enhance good cooperation with Donor countries and invest more in physical investment and consumption spending to speed up the level of production as which will result into spur growth.

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LIST OF ABBREVIATIONS AND ACRONYMS

ADF	The Augmented Dickey Fuller test
AIC	Akaike Information Criterion
ALRC	Australian Law Reform Commission
ARDL	Autoregressive Distributive Lag Model
BOT	Bank of Tanzania
DW	Durbin Watson
FDI	Foreign Direct Investment
FPE	Final Prediction Error
GDP	Growth Domestic Product
GNP	Gross National Product
GoT	Government of Tanzania
HIC	Human Index Capital
HIQC	Hannan and Quinn Information Criterion
HOD	Head of Department
IMF	International Monetary Fund
JB	Jarque-Bera
JICA	Japan International Cooperation Agency
LM	Langrage Multiplier
MDGs	Millenium Development Goals
MSE	Mean Square Error
NBS	National Bureau of Statistic
ODA	Official Development Assistant
OECD	Organization for Economic Co-operation and Development
PP	Phillips-Perron
SDGs	Sustainable Development Goals

SIBC	Schwarz Bayesian Information Criterion
STATA	Statistical Analysis Software
TIC	Tanzania Investment Center
UDOM	The University of Dodoma
UN	United Nations
UNCTAD	The United Nations Conference on Trade and Development
VECM	Vector Error Correction Model

CHAPTER ONE

INTRODUCTION

1.1 Background Information

Over the past decade, developing countries have tried their best level to improve their technology, reduce number of dependency level, reduce number of poverty level, to stimulate investments and improve the life of their population. The United Nations Millennium Development Goals (MDGs) signed the commitment in September 2000 that was to be achieved by 2015. MDGs committed to combat social anomalies such as diseases, discrimination against women, hunger, illiteracy, environmental degradation, and poverty. MDGs later mutated into Sustainable development goals (SDGs) in September 2015 during the UN General Assembly, which adopted 2030 Agenda, focusing on Sustainable Development. This new agenda gave emphasis on a holistic approach meant to achieve sustainable development for everyone (General Secretary, 2014).

To achieve this broad purpose, less industrialized countries continued to rely on foreign aid to cover for their fiscal deficits, to support balance of payment, massive project investments, to technical assistance support, and paying off countries' debts. Countries affected by war and natural disasters continued to rely on foreign aid in form of food packages, peacemaking programs, and emergency aid (Bulir&Hamann, 2003).

Meanwhile, Tanzania as one of the less industrialized countries, recorded one of the highest growth rates, at 7% growth in Gross Domestic Product by 2018 (NBS, 2019). According to National Bureau of Statistics, the GDP growth relates to improved construction projects, mining works, and the communication sector. However, due to decreasing demand and consumption in the country, this growth began to soften.(NBS, 2020)

Tanzania is one of the lower middle income countries, in spite of increasing at economic growth rate, yet becoming the most popular figure in east Africa in receiving foreign aids from donor countries and other developing partners. This aidflows help to support the budget, so as to meet the long-term plan project for

development. Tanzania has started to receive foreign aid since 1970s and still rely on foreign aid.

Rise in GDP also affects overall basic needs poverty, which declined from 34.4% in 2007, 28.2% in 2012 and to 26.4% in 2018. This has been suggested by data from Household Budget Survey. It is still crucial for the country to accelerate the growth rate to continue reducing the number of poor which is still relatively high while most Tanzanians are vulnerable to fall back to poverty should there be a slightest shock. Nearly half of the population sustain the living below \$ 1.90 per person per day (BOT, 2019). It is doubtful if foreign aid inflows to Tanzania are active in encouraging growth, promoting welfare of the people especially because of the presence of poor technology, deficit in Trade balance, such as reduction in exports and increase in imports.

1.2 Statement of the problem.

Contentious debate regarding foreign aid and its contribution to the growth of the economy of Tanzania has been rising over and over. The debate has been constantly and rapidly involving, basing on different ideological and methodological perspectives. From one point of view, foreign aid seems to be beneficial and contribute to the economic growth by increasing investments and being a significant part of capital formation, as well as fixing the budget deficit. On the other side, Some studies have concluded that foreign aid was insignificant and only lead to the increase of dependency, corruption, bureaucracy and enlarge inequalities (Hansen & Trap, 2000)

Several Authors have devoted a great deal of empirical efforts showing the serious debates on how foreign aid affects or stimulates economic growth but their findings are contradictory and lacking common arguments, as explained below.

Rotarou and Ueta (2009) conducted a study concerning “foreign aid and economic development, Tanzania experience with ODA”. The study displayed that, the ODA helped in reducing poverty, also significant result on growth of economy but only when other factors are present, such as increase in investment, implementation of ‘sound macroeconomic policies’, firm political and economic environments. Also

Kargbo(2012) for Sierra Leon; Randy (2012) for Arab Countries; Mitra (2013) for Cambodia; analyzed foreign aid in relationship with growth of the economy and found positive relationship between the variables.

Albiman (2016) researched “on the impact of Foreign Aid to the economic growth of Tanzania”. This research found out external support negatively affected economic growth instead of promoting and cautioning the government to consider the type of aid it receives from donors or development partners. Moreover, Malik (2008) for African Countries; Fatima (2014) for Pakistan; Hossain (2014) for Bangladesh; Ndambedia & Njoupougnigni(2010) for Sub Saharan African Countries; revealed that aid is ineffective in promoting economic growth.

Despite the empirical findings that have been put forward by different studies, the mixed conclusions justify a need to re-examine the impact of foreign aid on economic growth, especially in Tanzania where there is flow of foreign aid to stimulate growth. Most of the previous studies focused on assessing the contribution of this aid, and failed to examine the impactof development expenditure financed by foreign aid and the recurrent expenditure financed by foreign aid on economic growth, which will take into account the incentive mechanisms by relating the allocation of aid to the way it is being used. From this fact, this study intends to fill this gap, by examining the impact of foreign aid on economic growth of Tanzania using time series data covering from year 1978 up to 2018.

1.3 Objectives

1.3.1 General Objective

The general objective of the study was toanalyze the impact of foreign aid on economic growth of Tanzania.

1.3.2 Specific objectives

The specific objectives of the study were aimed to:

- i. Examine the effect of Official Development Assistant (ODA) on economic growth of Tanzania.
- ii. Determine the impact of development expenditure financed by foreign aid on economic growth of Tanzania.

- iii. Investigate the impact of recurrent expenditure financed by foreign aid on economic growth of Tanzania.

1.4 Hypothesis of the study.

On the basis of the dependent and independent variables, the following hypothesis have been developed, which are aimed to be tested in this research study:

HO: Official Development Assistance (ODA) has impact on economic growth of Tanzania.

H1: Official Development Assistance (ODA) has no impact on the economic growth of Tanzania.

HO: Development expenditure financed by foreign aid has impact on the economic growth of Tanzania.

H1: Development expenditure financed by foreign aid has no impact on the economic growth of Tanzania.

HO: Recurrent expenditure financed by foreign aid has impact on economic growth of Tanzania.

H1: Recurrent expenditure financed by foreign aid has no impact on economic growth of Tanzania.

1.5 Significance of the study.

- i Understanding how foreign aid affects economic growth in Tanzania is of great concern in formulating sound and appropriate economic policies necessary for stabilizing the economy and accelerates to economic growth.
- ii It will also provide insights to policy makers on whether there is proper use of development budget in stimulating economic growth and if the government expenditure is too excessive to harm the economy, as in terms of increased taxation or government borrowing. Hence, the knowledge obtained from the investigation will help economist and planners as it will raise the concerns of formulating appropriate policies on investment.
- iii Also the study will help in understanding the efficient way of using this aid, so as to yield better results and stimulate the economic growth of Tanzania.

iv Finally, this research report is an important “reference” for other scholars intending to study the impact of foreign on economic growth: as it offers a wide range of theoretical and empirical evidence

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This part briefly explains the meaning of the key concepts which appear mostly in the study including, ODA, FDI, development expenditures and economic growth.

2.2 Definition of the key concepts

2.2.1 Official Development Assistance (ODA)

Official development assistance is the form of aid that is being provided to the government by the donor countries, for the aim of promoting the welfare of the people as well as the development of the developing countries. This kind of Aids excludes the credits and loans that are being used for the military purposes, instead the provision is for the development issues and promoting the economic growth of respective countries. Also, these aids can be given through “multilateral development agencies” such as United Nations or the World Bank or can be from donor to receipt (OECD, 2019).

2.2.2 Foreign Direct Investment (FDI)

“Foreign direct investment” (FDI) is designed to promote the capital formation and improve the technology of the respective countries. It is the kind of investments that involves the reflection and the long term relationship of the lasting interest rate and being controlled by resident entity in one economy (foreign direct investors in a present enterprises) (OECD, 1996). FDI gives chances to investors to have a certain power in influencing the decision of the managements.

2.2.3 Development expenditures financed by foreign aid

This are part of Development expenditure that is being financed by foreign aid, it directly deals with development issues such as infrastructures, constructions of roads, railways, communication systems, power projects and irrigation schemes. Development expenditure means expenditure that is usually more flexible and is made available for new or ongoing programs. It raises economic growth and it is regarded as “exogenous force that changes the aggregate output” (Age'nor, 2007).

2.2.4 Recurrent Expenditure Financed by Foreign Aid

These are type of spending financed by foreign aid but implemented by the government, which does not result in acquiring fixed assets. It involves all regular payments used to run day to day operations in conducting Government activities. Recurrent expenditure financed by foreign aid, mostly focus on the investing in human capital, such as technical-know how, funded scholarships and training. Also investment on health sector facilities and improvement of education systems.

2.2.5 Inflation

Inflation rate is the general rise in the price level in an economy over a period of time, resulting in a sustained drop in the purchasing power of money (Robert, 1997). When the general price level rises, each unit of currency buys fewer goods and services, which imply that inflation, reflect reduction in the purchasing power. The common measurement of inflation is inflation rate.

2.2.6 Tax

Taxes in Tanzania are administered by Tanzania Revenue Authority that was established by Act of Parliament No. 11 of 1995 and started operations on 1st July,1996 (TRA, 2016). Tax rate is the ratio (usually expressed as a percentage) at which a business or person is taxed. There are several ways used to present tax rate, statutory, average, marginal and effective.

2.2.7 Economic Growth

Haller (2012) and Nafziger (2006) defines the term “as a raise in the “national income per capita”. This focus on the production side implies the goods and services have increased. This takes into account the estimation of the value of the produced products and items. For the purpose of this proposed study, GDP will be used as the indicator measurement.

2.3 Theoretical Framework of the Study

2.3.1 Theory Linking Foreign aid (ODA) and Economic Growth

The First Study was developed by Harrod and Domar in 1930s and 1940s. they suggested that "foreign aid can increase physical capital accumulation as results economic growth". To them “capital accumulation is an important factor in raising

the economic growth of a country”. The Harrod Domar model concludes that foreign aid serves in “filling the saving gap in developing countries.”

Also two gap model was developed by Chenery and Strout (1966), so as to strengthen the HarrodDomar Model. Two gap models suggested that “foreign exchange gap hinders the importation of capital goods in developing countries”. To them, foreign aid affords capital to the developing countries that is being used for the importation of capital goods. The model is also focused on the issue of human capital, believing that there is a lack of managerial skills and scarcity of technology in the developing countries that lead to inefficient production.

Furthermore, Bacha and Tylor (1990) in the contribution of the three-gap model. They argued that there is a “fiscal deficit gap”, indicating lack of sufficient revenue sources to inject in economic activities.

Generally, the theory indicates how external assistance relates to economic growth, linking the independent variable which is ODA and the dependent variable which is GDP.

2.3.2 The Theory Linking FDI and Economic Growth

Solow growth model emphasized on skills and technology that would lead to the projection of FDI domestic capital and raise total capital stock (Findlay, 1978). Romer (1986) developed the “endogenous growth theory” which hold that, “the economic growth is primarily the result of internal forces and not external forces”. it emphasis much on the importance of investing in the innovation, capital accumulation and technical know-how in promoting economic growth. This framework has extensively been applied in examining how the economy is greatly affected by foreign direct investments. “Through the diffusion of technology” (Barro, 1990).

Generally, the endogenous growth model focuses on the increasing return that is generated from knowledge-based economy that has the spillover effects from investments in technology, capital, innovation and incentives. It also encourages the usefulness of investing in human capital as vital component of growth, and thus directly shows how this variable connects.

2.3.3 Theory Concerning Government Spending and Economic Growth.

Government spending affords goods that are not available in the market including issues such as military defense, police services and contract enforcement. On the other hand, supporters of the standard economic theory think that individuals do not invest on these types of goods and services because they are likely to be used without paying (free rider problem).

Endogenous Growth Theory.

“Endogenous growth theory” was propounded and developed by Romer and Lucas (1990). They noted that whenever there is increase in productivity more resources should be added and labor as working classes must be involved always. In this case, inputs mean physical capital, knowledge and human capital. Consequently, stimulate growth. This suggests that government can only lead to growth through investing in capital, education, research and development. Education generally and training in particular therefore become key elements in reach economic growth.

Keynesian Theory

Keynesian model became one of the popular rationales which stimulated public spending during global financial crises. As governments increase spending there is increase in the tax burden on citizens, leading to the decrease in private spending and investment. This is called “crowding out” effect. “In addition to crowding out private spending, government outlays may also crowd out interest sensitive investment” (Friedmann, 1978)

As result savings in the economy decrease leading to the rise of interest rates, which minimize investment in housing and harming the productive capacity. OECD countries found that government spending negatively correlates with business investment (NBER). However, cuts in government spending stimulate private investment.

2.4 Empirical Literature Review

Empirical review of literatures is a function of “observed and measured phenomena and derives knowledge from actual experience rather than from theory or beliefs”(Ellysa, 2017). Thus, under this Sub-title some of the empirical literatures related to the study are going to be discussed as follows.

Tsunekawa (2014) has analyzed the objective and institutions for Japan official development assistance, the study reveals on the diversification of the objective and goals of ODA. ODA goals have been diverse because o the lack of an entity managing it. Further, lack of clear priorities has meant poor coordination between and among ministries and various agencies involved in ODA. Recently, emphasis has been on economic growth and “out-put oriented aid” towards effective development instead of vague poverty reduction. This tendency fits the traditional approach of Japan. However, shows that the Japanese government should clarify its aid philosophy using the concept of human society. An ODA control center is necessary, and should be under a national strategy deliberation council, free from any ministries or agencies.

The study by Blaise (2005) investigated the “effectiveness of Japan’s official development assistance in promoting foreign direct investments inflows in the case of the People’s Republic of China”. Outcomes shows that between 1980 and 1999, Japanese aid flows to China positively affected choices made by private investors with regards to location although other factors such as profit-maximizing concerns also played role. Results concluded by stressing the importance of harmonizing processes where overseas benefit enhances infrastructure development, preparing for future investments while the public sector needs to better cooperate in development assistance program.

Rotarou and Ueta (2009) used Tanzanian case to show the association of external aid and development as well as poverty issue. The results stimulated significant dependence between GDP growth and ODA inflows and aid insignificant impact on poverty resulted by aid. It advises the Tanzanian Institution to look for other sources of financing as aid flows are decreasing due to global financial woes.

Nurudeen and Usman (2010) studied about “Government expenditure and economic growth in Nigeria”. They focused on the period from 1979 and 2007 and found that recurrent and government expenditures had no positive impact on the economy while expenditures in areas of transport and communication increased economic growth.

By using worldwide sample, Wahab (2011) studied “the effect of aggregate and disaggregate government spending on economic growth”. The study revealed that growth of output is positively exaggerated by aggregate spending of the Nation. While consumption spending shows no significant output growth impacts.

Njeru (2003) researched on the impact of foreign aid on public expenditure, used Heller’s utility model. The study indicated positive and statistically significant relationship between the share of the government expenditure in gross domestic product (GDP), and the share of the net disbursement of overseas development assistance (ODA).

Das and Choudhary (2011) analyzed aid growth nexus-South East Asian, used both time series methods and panel co integration. They have reported that there is long run positive relationship between foreign aid and per capita income in Nepal, Sri Lanka, Bangladesh and Pakistan.

Sokang (2003) researched on the impact of foreign direct investment on the economic growth in Cambodia. The study used time series data throughout 2006-2016. The correlation matrix and multiple regression analysis techniques were used to analyze the collected data. The study revealed that foreign direct investment has positive impact on economic growth.

2.5 Conceptual framework of the study

The conceptual framework presented below is derived from the the underlying theoretical and empirical review, showing the relationship that exists between Foreign aid and economic growth. Foreign aid in this study is considered to be independent variable, while economic growth is considered to be dependent variable. On the other hand, the control variablefactors which affect economic growth are also included.

From the below figure, Foreign aid is being determined by analyzing one of its component which is Official development assistance in relation with economic growth. Also the impact of foreign aid on economic growth is being determined through development and recurrent expenditure financed by foreign aid. On the other hand, economic growth is being defined by gross domestic product. The analysis has kept control variables such as foreign direct investment, tax rate and inflation rate in determining the impact of foreign aid on economic growth.

“The direction from conceptual x and conceptual y explains the underlying theory that has been explained in the literature review”. The theory is being tested through determine the impact of foreign aid on economic growth through the operational terms.

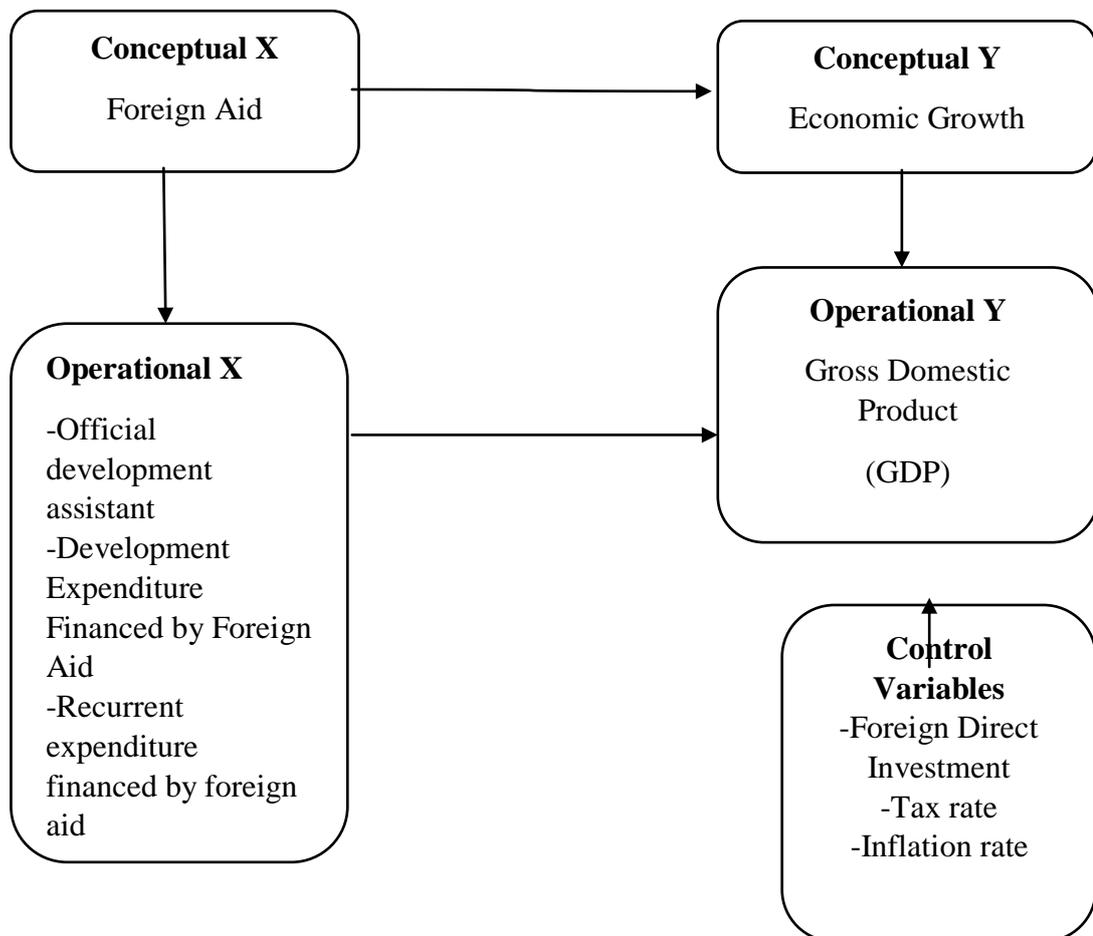


Figure 2.1: Conceptual Frame Work

Source: Developed by Author from Reviewed Theoretical and Empirical Evidence

CHAPTER THREE

METHODOLOGY

3.1 Research Design

This is “the conceptual structure within which research is conducted, it constitutes the blueprint for the collection, measurement and analysis of data” (Kothari, 2004).

The study adopted “time series research design” this is suitable for the purpose of this study because it involves the same variables that are being measured at a different period of time. It includes the study of social trends of a given behavior that are being measured repeatedly over a certain period of time. As well as the temporal of measurements is preserved. (Kalpan & Glass, 1995). The study uses statistical techniques to find out the behavior of one or more variables over time based on their statistical regularities over the past behavior in order to estimate patterns in this variables.

3.2 Data and Data Source

Secondary data from different sources was used in this study. Data base used for this learning is annual time series data for forty years recently, showing the trend of Economic growth for 1978 to 2018 period obtained from the Bank of Tanzania source. The Data for FDI has been obtained from The United Nations Conference on Trade and Development (UNCTAD). The statistical information of ODA has been obtained from the Organization for Economic Co-operation and Development (OECD). In case of Foreign aid financial Development expenditure and foreign aid financial recurrent expenditure, data has been obtained from Bank of Tanzania (BOT).

Variables' Description

Variables	Definition	Source
Official Development Assistance	Official development assistance is the form of aid that is being provided to the government by the donor countries, for the aim of promoting the welfare of the people as well as the development of the developing countries	Organization for Economic Co-operation and Development (OECD)
Foreign Direct Investment	Foreign direct investment (FDI) is designed to promote the capital formation and improve the technology of the respective countries.	The United Nations Conference on Trade and Development (UNCTAD)
Recurrent Expenditure	These are type of spending financed by foreign aid but implemented by the government, which does not result in acquiring fixed assets. It involves all regular payments used to run day to day operations in conducting Government activities.	Bank of Tanzania (BOT)
Development Expenditure	This are part of Development expenditure that is being financed by foreign aid, it directly deals with development issues such as infrastructures, constructions of roads, railways, communication systems, power projects and irrigation schemes.	Bank of Tanzania (BOT)
Inflation Rate	Is the common measurement of inflation	Bank of Tanzania (BOT)
Tax Rate	Is the common measurement of tax	Bank of Tanzania (BOT)
Economic Growth	Is the raise in the national income per capita. This focus on the production side implies the goods and services have increased. This takes into account the estimation of the value of the produced products and items.	Bank of Tanzania (BOT)

3.3 Data Analysis

This part demonstrates the whole process of managing secondary data after data entry using Stata software packages such. It shows how various tests were conducted including unit root test, co integration test and estimation of the parameters.

3.3.1 Test of Stationarity and Unit Root Test.

The time series data of the macro-economic variables were employed for estimation of the model in order to examine the impact of foreign aid on economic growth. Sometimes the time series data of the most macro-economic variables tends to be non-stationary, which might lead to spurious regression and misleading conclusion. Stationarity of stochastic process necessitates that the “variance and auto covariance remain constant and independent of time” (Verbeek, 2004). Therefore, “the process is said to be stationary when it has a constant and time independent mean, a finite and time independent variances and the covariance between successive terms is time independent, otherwise the time series is said to be non-stationary” (Verbeek, 2004).

“Preliminary test that was used to check whether the time series data are stationary or non-stationary after inference from the visual inspection of time series plot since time series plots also suggest if data are stationary or non-stationary”.

In this study unit root test was also carried out to check for Stationarity of the relevant variables. The aim for this test was to confirm the presence of data are stationary so as to avoid spurious regressions. To test for the unit root, the Augmented Dickey Fuller (ADF) test and Phillips-Perron (PP) were used. Augmented Dickey Fuller (ADF) test relies on rejecting a null hypothesis of unit root in favor of the alternative hypotheses of stationarity. Hence augmented Dickey Fuller test requires estimating the equation $\Delta Y_t = \alpha + (\beta - 1)Y_t + \mu_t$ from the equation null hypothesis of no unit root can be formulated as $H_0 = \beta - 1 = 0$ in favor of $H_1 = \beta - 1 \neq 0$. The test statistic used to test the unit root hypothesis is the t-statistics. If the calculated t-value of the coefficient $\beta - 1$ is greater than the critical value then the null hypothesis that there is a unit root accepted implying thatis non stationary. But if the computed t-value is less than the critical value we strongly reject the null hypothesis and accept the alternative hypothesis that there is no unit roots implying that the series is stationary (Dickey, 1981).

Dickey-Fuller test is chosen for this test: seems to be the best choice because it uses a parametric auto regression to approximate the structure of errors, not like other unit root test that ignores any serial correlation.

Though it has some weakness of autocorrelation in the error term which causes the defective of the significance level of the normal test. But this can be determined by Generalizing the **Dickey-Fuller test** is into the **Augmented-Fuller (ADF) test**.

3.3.2 Lag Order Selection

The results of the granger causality are very sensitive to the selection of the lag length (Alam, 2010). According to Alam (2010) if the chosen length is less than the true lag length, the omission of relevant lags can cause bias. But if the chosen lag length is more than the true lag length, the irrelevant lags in the equation cause the estimates to be inefficient. Given the fact that “BIC and AIC assess a given model depending on the fitted values to the observed values its closeness, the statistics suggest the best and simplest the model for the available data with minimum number of parameters and also discourages over fitting through penalizes the complex model for having more parameters”(Oeching, 2016). The below equations are used to calculate the values of BIC and AIC as follows.:

$$BIC = n \ln(\sigma^2) + 2(p + q + P + Q + 1) \ln(n)$$

$$AIC = n \ln(\sigma^2) + 2(p + q + P + Q + 1)$$

Where n stands for the number of observations σ is stand for the mean square error (MSE), and p, q, P and Q has been defined in the SARIMA model.

By using STATA software's both values of BIC and AIC were obtained. The model with a lowest value of both BIC and AIC is the most adequate and selected.

3.3.3 Test for Co integration

The condition for co integration is that each of the variables should be integrated of the same order (at first difference) or that all series should contain a deterministic trend (Granger, 1986). Co integration is the statistical implication of the existence of long run relationship between the variables which are individually non stationary at their level form but stationary after difference (Gujarati, 1995). Therefore, co

integration test is important to determine if the variables have long term relationship. Thereafter, Johansen test for co integration was performed with appropriate assumptions on trends and lags to test whether the variables under consideration are co integrated or not integrated (Johansen, 1988).

Within the Johansen's framework, both trace ($\lambda trace$) and maximum Eigen-value (λmax) statistics were used to ensure robustness of the results. But, when conflict occurred between them, $\lambda trace$ was preferred because it is more powerful than λmax as it takes into accounts all the smallest Eigen-values (Johansen and Juselius, 1990). Following Verbeek (2004), $\lambda trace$ and λmax statistics are defined as presented in equation.

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^k \log(1 - \lambda_i)$$

$$\lambda_{max}(r) = -T \log(1 - \lambda_{r+1})$$

3.3.4 Econometric model

The study used Autoregressive Distributive Lag models since the study have more than variables. Also it best way determines the overall fit of the model and relative contribution of each of predictors to total variance explained.

Objective One:

Foreign Direct Investment Is used as control variable in this model because economic growth is influenced by other factors also including (FDI)

$$Y_t = \beta_0 + B_1X_1 + \beta_2X_2 + \varepsilon_t \dots \dots \dots \text{equation (1)}$$

Whereby:

y – *economic growth*

x_1 – *Official development assistance (ODA)*

x_2 – *Foreign direct investment (FDI)*

e – *error term*

β_0 – *intercept term*

β_1, β_2 , –coefficients of the variables

Objective Two

$$Y_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon_t \dots \dots \dots \text{Equation (2)}$$

Whereby:

y – economic growth

x_1 – Development expenditure financed by foreign aid

x_2 – Tax revenue

e – error

β_0 – intercept term

β_1, β_2 , –coefficients of the variables

Objective three

$$Y_t = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \varepsilon_t \dots \dots \dots \text{Equation (3)}$$

Whereby:

y – economic growth

x_1 – Recurrent expenditure financed by foreign aid

x_2 – Inflation rate

e – error

β_0 – intercept term

β_1, β_2 , –coefficients of the variables

3.3.5 Directional Causality Test

The Granger causality test is a statistical hypothesis test for determining whether one-time series is useful in forecasting another. According to Granger (1969), Granger causality from a variable X to a variable Y is established when knowledge of past values of X improve prediction of future of Y, over and above the prediction that is based on knowledge of past values of Y alone.

3.4 Validity and Reliability of the Instruments

“These are important issues in research conceptual issues because they ensure the accuracy of the assessment and evaluation of the actual research work” (Tavakol & Dennick, 2011)

To determine the presence of autocorrelation Lagrange Multiplier (LM) test was used Instead of Durbin Watson (DW) test because the latter is biased towards accepting null Hypothesis of no autocorrelation when regressors include lagged dependent variable. The presence of autocorrelation in the residuals of estimated model is often a result of Miss-specification (Mukherjee at al. 1998). Following (Maddala, 1992), LM test takes this form:

$$LM = \sum_{t=1}^k \chi\beta_t + \sum_{i=1}^{\rho} \varepsilon_{t-t\rho} + nt$$

Moreover, to establish whether residuals are normally distributed, Jarque – Bera (JB) test was used. The absence of non-normality problem implies that there are no structural breaks originated from the exogenous shocks such as wars, terrorism, financial crises, etc (Green, 1995). Following Gujarati (2004), JB test takes the following form:

$$JB = n \left(\frac{s^2}{6} + \frac{(k-3)^2}{24} \right)$$

Where;

n = the sample size

S = skewness coefficient

K = kurtosis coefficient

3.5 Ethical Consideration

Ethics is an accumulation of principle and values that address of what is good or bad in human affairs. Ethics searches for reasons for” acting or refraining from acting”, for “approving or not approving conduct”, for “believing or denying something about virtuous or vicious conduct” or “good or evil rules”(Austarlian Law Reform Commission (ALRC) and Australian Health Ethics Committee, 2001).Ethics

measures ethical thought or accountability. In this study, secondary data and reliable information will be obtained from different sources such as the Organization for Economic Co-operation and Development (OECD), International Monetary Fund (IMF) and UNCTAD.

The study will provide knowledge on how to examine the impact of foreign aid on economic growth in Tanzania for the period between year 1978 up to 2018 and thus will benefit the economist and public as whole. Language used is of great sensitivity and information provided will remain confidential and the identity will not be revealed, due to the privacy and confidentiality of information and to ensure that the misreading of data does not occur.

Therefore, for the protection of privacy and confidentiality of the information, the researcher will make the consent form for the provider of the information which will clearly guarantee the confidentiality of the information. An introduction letter will be obtained from the director of graduate studies.

CHAPTER FOUR
RESULTS AND DISCUSSION

4.1 The impact of official Development Assistance on Economic Growth of Tanzania.

Time Series Plot

The Figure 4.1 presents the time series plot for Gross domestic product, official development assistance and Foreign Direct Investments.

Before estimating, the time series data is recommended to draw the time series plot of the time series data in order to captures different characteristics of time series data such as seasonality, trend ,stationary and so on (Wagofya, 2019). Before unit root test, the time series plot can be used to test the stationarity of the variables as a preliminary test. Figure 1 below depict that variables are nonstationary since, as the time goes the fluctuation increase in Gross domestic Product, Official Development Assistance and foreign direct investments. So transformation Must be done to make the time series data stationary.

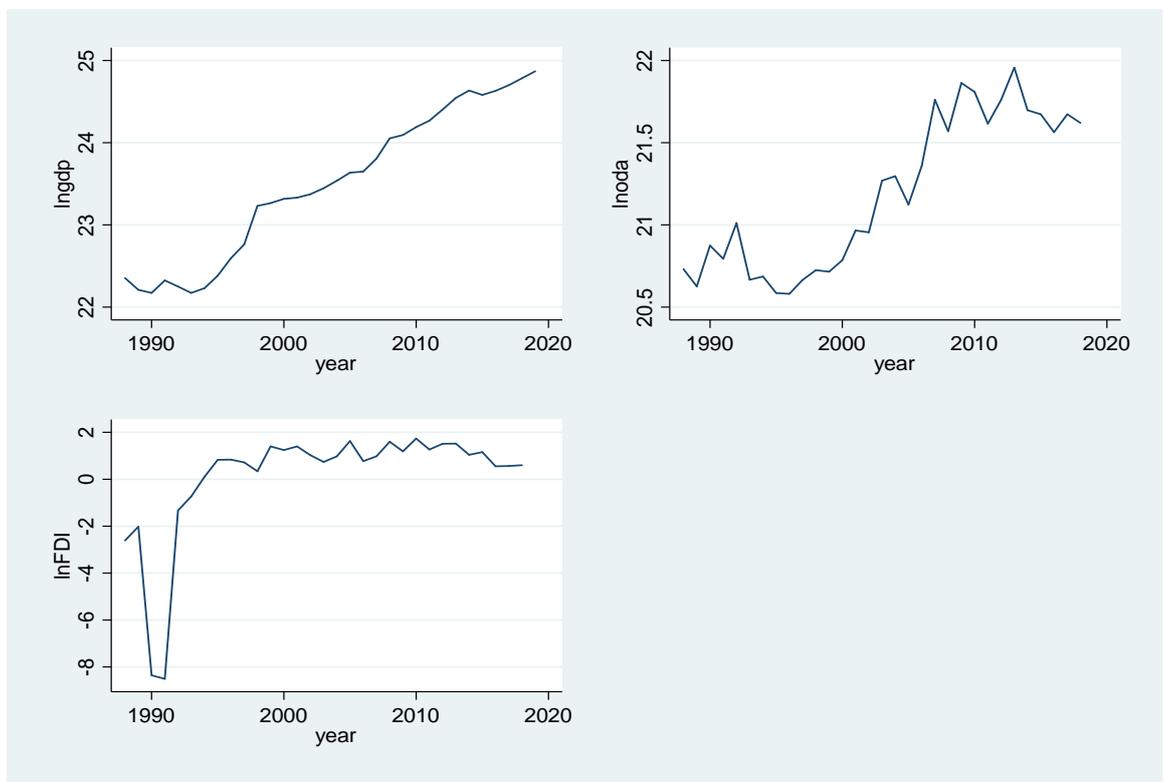


Figure 4.1: Trend of Official Development Assistance, Foreign Direct Investment and Economic Growth

4.1.1 Descriptive Statistics

Table 4.1 provides descriptive statistics based on the summary statistics namely, sample, means, maximums, and standard deviations.

Table 4.1: Descriptive Statistics Results

Variable	Observation	Mean	Std. Dev.	Minimum	Maximum
Lngdp	32	23.4938	0.9220	22.172	24.8692
Lnoda	31	21.1929	0.4680	20.5808	21.9568
lnFDI	31	0.0696	2.4906	-8.5085	1.7341

Table 4.1 shows the summary statistics of both independent and dependent variables. Where gross domestic product observations, which were quarterly ranging from the year 1992 to 2019. The gross domestic product records the percentage mean of 23.4938 with a minimum of 22.172 and a maximum of 24.8692 while the official development assistant indicates the highest percentage mean of 21.1929 with a minimum of 20.5808 and a maximum of 21.9568. Also a foreign direct investment indicates a percentage mean of 0.0696, with a minimum of -8.5085 and maximum of 1.7341.

4.1.2 Estimation Results

This section presents estimation results related to the impact of official development assistance on economic growth of Tanzania. The results are presented in six main steps; Lag length selection, unit root test, co-integration test, co-integrating vectors, Autoregressive Distributive Lag Model.

Unit Root Test

First, all variables were transformed into logarithm form and differenced prior to statistical analysis to stabilize their mean and variances (Mukherjee et al, 1998). Augmented Dickey - Fuller (ADF) and the Phillips - Perron (P-P) tests were performed for each variable in log - levels and log - differences to establish the presence of the unit root. Table 4.2 reveals that all variables were not stationary at their levels, as evidenced by their test statistics which are greater than their corresponding critical values at 5% levels of significance. However, after taking their

first differences all variables became stationary, as supported by their test statistics which are now less than their corresponding critical values at 5% levels of significance. Therefore, the null hypothesis of the unit root or non-stationary was rejected at 0.05 levels of significance; suggesting that all variables of interest are integrated of order one 1(1).

Table 4.2: Test for Stationarity both Augmented Dickey Fuller Test and Phillips Perron Test.

ADF Test						
Variable	Level	Critical		First difference		order of integration
		Test statistics	value	Test statistics	value	
ln GDP	-0.487	-2.986	-3.653	-2.989**	I(1)	
ln ODA	-0.910	-2.989	-4.524	-2.992**	I(1)	
lnFDI	-4.565	-2.992	-3.768	-2.994***	I(1)	

The PP Test						
Variable	Level	Critical		First difference		order of integration
		Test statistics	value	Test statistics	value	
ln GDP	0.122	-2.983	-4.561	-2.989**	I(1)	
ln ODA	-0.921	-2.989	-7.388	-2.989**	I(1)	
ln FDI	-2.165	-2.986	-5.269	-2.989**	I(1)	

NOTE: GDP: the natural logarithm of Gross domestic product; ODA: natural logarithm of official development assistance; FDI: natural logarithm of foreign direct investment; and ** indicates the “null hypothesis of non-stationary “at 5% level of significance.

Lag Length Selection

The optimal lag length included in the cointegration test was determined by Final Akaike Information Criterion (AIC), Hannan and Quinn Information Criterion (HIQC), and Schwarz Bayesian Information Criterion (SIBC). Table 4.3 shows the lag length criteria results for economic growth, official development assistant and foreign direct Investments

Table 4.3: Shows Lag Length Selection for economic growth, official development assistance and foreign direct investments.

lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-52.4384				0.0122	4.1066	4.1494	4.2505
1	23.9924	152.86	9	0	0.0001	-0.8883	-0.7171	-0.3124
2	41.9406	35.896	9	0	.0000*	-1.5512*	-1.2515*	-.5433*
3	44.6957	5.5103	9	0.788	0.0001	-1.0886	-0.6604	0.3512
4	54.9601	20.529*	9	0.015	0.0001	-1.1822	-0.6257	0.6895

*indicates the lag order selected by the criterion

The information table 4.3 suggests that the second lag is most appropriate to consider for VAR model since three selection criteria have their minimum values of AIC, HQIC and SBIC.

Hence lag 2 is preferred for this selection due to the fact that the smallest value of all four criteria lies at lag 2.

Co-integration Analysis

After conforming that all variables are stationary, Johansen test was used to determine whether these variables are bound together in the long-run. The results of co-integration test in Table 4.4 reveal that $\lambda trace$ tests rejected the null hypothesis of no co-integration ($r = 0$) against the alternative; as evidenced by test statistics which are greater than critical values at 5% significance levels. The table reveals conflict decision between $\lambda trac$ and λmax statistics, but $\lambda trace$ was preferred because it is more powerful than λmax as it takes into accounts all the smallest Eigen-values (Johansen and Juselius, 1990).

Apart from that, the Johansen co-integration approach confirmed the existence co-integrating vectors (relationships) in the regression equation. Both the $\lambda trace$ and λmax test statistics accepted the null hypothesis that there are at most one $r \leq 1$ co-integrating vectors (relationships). This outcome is strongly substantiated by the test statistics which are smaller than their corresponding critical values at 5% significance levels.

Table4.4: show the Johansen's cointegration test results

Null Hypothesis	Trace Statistic	Critical Value	Max Statistic	Critical Value
$r = 0$	31.04	29.68	20.5334	20.97
$r \leq 1$	17.61	15.41	4.0514	14.07
$r \leq 2$	1.5618	3.76	1.5618	3.76

Note: r : represents co-integrating vectors or relationships; when λ_{trace} and λ_{max} tests are in conflict decision is made based on λ_{trace} statistics; ** indicates rejection of the null hypotheses at 5% levels of significance

Decision rule: Reject the null hypothesis of no cointegration, if the Trace statistics is less than the critical value.

Model Result

Following the existence of long run relationship between official development assistance, foreign direct investment and economic growth as determined by Johansen test for co integration, Error correction Model was used to estimate the equations and the results has been reported in table 4.5.

Table4.5: Showing the results of the impact of official development assistance on economic growth

D.lngdp	Coef.	Std. Err.	T	P>t
ADJ				
Lngdp				
L1.	-0.1716	0.0652	-2.63	0.016
LR				
Lnoda	0.895	0.3149	2.84	0.01
LnFDI	0.2343	0.0821	2.85	0.01
SR				
Lnoda				
D1.	-0.1705	0.1207	-1.41	0.173
LnFDI				
D1.	-0.0521	0.0186	-2.8	0.011
LD.	-0.0406	0.0134	-3.04	0.007
L2D.	-0.0191	0.0128	-1.49	0.151
_cons	0.8665	1.0199	0.85	0.406

NOTE: GDP: the natural logarithm of Gross domestic product; ODA: natural logarithm of official development assistance; FDI: natural logarithm of foreign direct investment; and P>t indicates the “significance level “at 5% level of significance: LR: Indicate Long-run and SR: Indicate Short-run: ADJ: Indicate the coefficient of error correction, the adjustment speed toward equilibrium.

Having confirmed that variables are bound together in the long –run, the co-integrating equations were estimated. The results in table 4.5 reveal that GDP and ODA has a positive relationship in the long-run which is statistically significant, implying that one percent increase in ODA will cause an increase in economic growth by 0.895 percent. On the short run, ODA has a negative impact on economic growth, and it is statistically not significant.

Rotarou (2009) used Tanzanian case to show the association of external aid on economic growth. The paper analyzed also development and poverty issue. The results stimulated significant dependence between GDP growth and ODA inflows and aid insignificant impact on poverty resulted by aid. The results depict that ODA had a negative impact on economic growth of Tanzania.

Albiman (2016) also researched on the impact of foreign aid on economic growth, the result found that ODA had a negative impact on economic growth. Also in the short run the study found that foreign aid does not granger cause economic growth.

The results reveal that official development assistance positively influences economic growth in Tanzania for the period under investigation, specifically in the long run. The results are in line with theoretical expectations that ODA which is there to compliance the government effort in development issues should result into positive growth effects. As explained in the Harrod and Domar model, “that foreign aid can increase physical capital accumulation as a results economic growth”. The theory concluded that foreign aid serves in filling the saving gap in developing countries.

Also the results might have been influenced by the Current government efforts of creating conducive environment in obtaining this aids as well as the implications of the ODA funds on the major sectors. As it can be seen that ODA has contributed positively even in some project that can be seen clearly such as the The Improvement of Tazara Intersection known as “Mfugale Flyover”, this was being done under the financing of ODA Yen Loans as well as Grants Aid by JICA. The Tazara fly-over has become a long-lasting symbol in opening a new era of Tanzania, it has contributed to better life of the citizen of Dar es salaam, and for the economic growth of not only Tanzanian but also of neighboring landlocked countries.

Moreover, the consistent between the Assistance programs and Tanzania’s development programs, might be one of the reasons for the significant results. For example Tanzania Development Vision (2025) shares the same emphasis with Assistance program (2000) on the poverty reduction and self-sustained socioeconomic development. Another program is MKUKUTA (2005-2008) share the

same theme with Assistance program (2000-2008) on attainment of socioeconomic development toward poverty reduction. ODA is intended to address the issues indicated on the Sustainable Development Goals (SDGs) on the expectation to fulfill the gaps left on the MDGs as well as addressing the emerging global issues, emphasizing that “no one will be left behind”. For that aspects, ODA provides funds and loans supporting developing countries by providing low-interest, long-term and concessional funds to finance their development efforts.

Furthermore, the results demonstrate that foreign direct investment has positive relationship which is also statistically significant, indicating that one percent increase in foreign direct investment will lead to an increase in economic growth by 0.2343 percent. FDI has a negative relationship with economic growth in the short run, and it's highly significant implying that, other factor remain constant, a percentage increase in FDI will cause a decrease in economic growth by 0.0521 percent. On the other side, the foreign direct investment is being influenced negatively by the previous foreign direct investment. The positive relationship in the long run and the negative relationship in the short run might be due to time factor, that in the long-run the economy has fully adjusted in the equilibrium and all factors of production are vary. While in the short run the economy below full employment and the factors of production is still fixed.

A great number of studies have also investigated the relationship between foreign direct investments and economic growth. Some of this studies show a positive relationship such as Wang and Blomstrom (1992), Podrecca and Carmeci (2001) revealed that investment is the most important economic growth determinant; others indicate negative impact such as Li and Liu (2004).

Apart from the findings are being supported by the neoclassical and endogenous growth models by postulating that investment is one among the important determinants in influencing growth. The Government of Tanzania (GoT) has done many efforts in enhancing business environment and investments, such creating suitable policies towards Foreign Direct Investments, create quality employments and improving awareness of Tanzania's investments climate and opportunity. The Tanzania Investment Center (TIC) is among the efforts made by GoT in creating

creating Openness to and Restrictions upon Foreign Investments. TIC acts as “one stop center for investors, helping to obtain permits, licenses, visas, and land access among other supports”. Also on the Industrial Policies, TIC offers a package of investment benefits and incentives to both domestic and foreign investors.

Furthermore, Government of Tanzania postulates its endless efforts though it’s Budget for the financial year 2019/2020 by making the industrial sector as the main theme of the budget. The budget main theme is “Building Industrial Economy for Stimulating Employment and Sustainable Social Welfare”(Attorney, 2019)

The coefficient of error correction is -0.17 implying that 17 percent the adjustment speed towards the equilibrium following a shock is about 17 percent after a single period. The negative sign and the significant probability signify the existence of co integration among the variables in the long run.

Diagnostic test of the model

Table4.6: Show the Breusch-Godfrey LM test for autocorrelation

lags(p)	chi2	Df	Prob> chi2
1	0.164	1	0.6852

show that the model do not suffer from the serial autocorrelation since the p-value is greater than 0.05 and further from the Durbin-Watson d-statistic (7, 29) =1.859671 which is approximate to two this also suggest the same that model do not suffer with serial autocorrelation.

Table4.7: Cameron & Trivedi's decomposition of IM-test

Source	chi2	Df	P
Heteroskedasticity	18.51	27	0.8873
Skewness	4.27	6	0.6409
Kurtosis	1.29	1	0.2566
Total	24.06	34	0.8971

Table 4.7 show that the residual are normally distributed since the p-value for skewness and Kurtosis is greater than 0.05 and not only that table 4.7 above show that the model do not suffer with heteroscedasticity since the P-value for heteroscedasticity is greater than 0.05 this result is same as from the white's test for homoskedasticity always the null hypothesis there is homoskedasticity is rejected when P-value is less than 0.05. So from the white's test for homoskedasticity the p-value ($\text{Prob} > \chi^2 = 0.8873$) was greater than 0.05 therefore the null hypothesis was accepted.

4.2 Impact of foreign aid financed development expenditure on economic growth

The figure 4.2 presents the time series plot for Gross domestic product and development expenditure financed by foreign aid.

Before estimating the time series data is recommended to draw the time series plot of the time series data in order to captures different characteristics of time series data such as seasonality, trend ,stationary and so on (Wagofya, 2019). From figure 2 above depict that both variable were nonstationary since the as the time goes the fluctuation increase in GDP and Development expenditure financed by foreign aid.

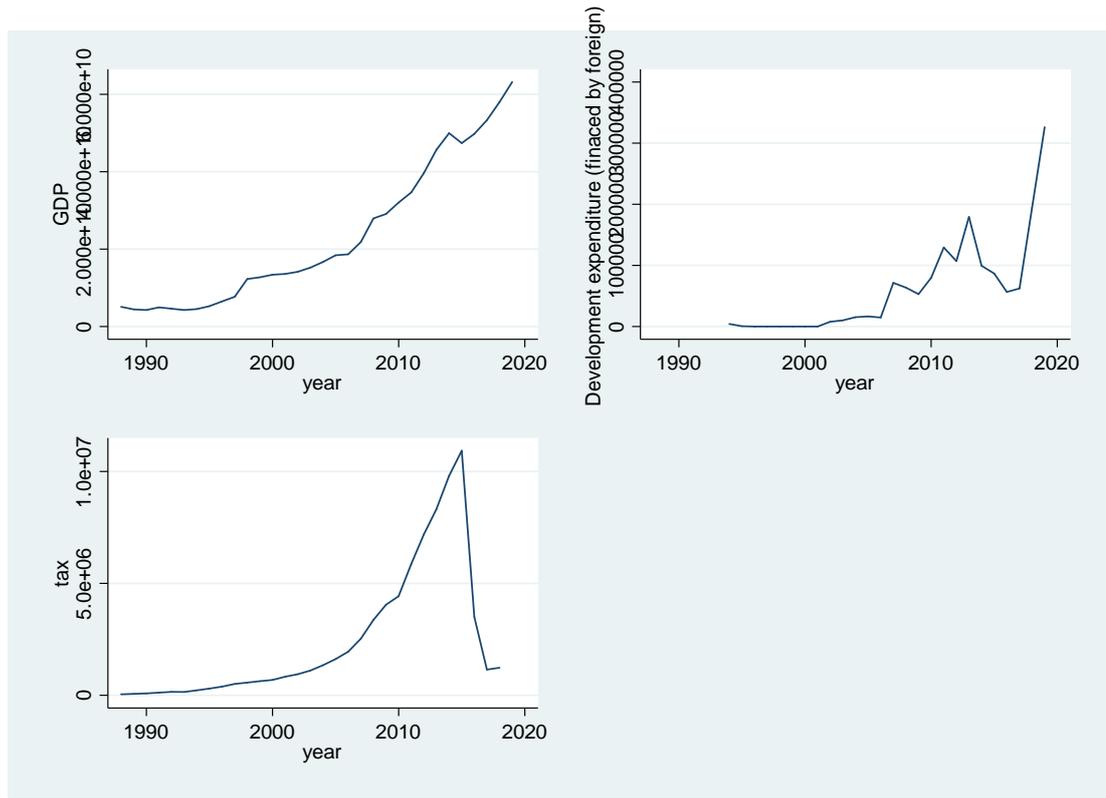


Figure 4.2: Trend of Development Expenditure Financed by Foreign Aid, Tax Rate and Economic Growth

4.2.1 Descriptive statistics

Table 4.8 provides descriptive statistics on the variables which includes the summary statistics namely, sample, means, maximums, and standard deviations.

Table 4.8: Descriptive Statistic Results

Variable	Observation	Mean	Std. Dev.	Min	Max
Lngdp	32	23.4936	0.9220	22.172	24.8692
lnDevelop	23	9.4471	3.3504	0	12.6952
Lntax	31	13.7615	1.5573	10.6586	16.2067

Table 4.8 shows the summary statistics of both independent and dependent variables. Where gross domestic product observations are 32 and the observations of natural logarithm of development expenditure financed by foreign aid are 23, and observation of natural logarithm of tax rate are 31 which were quarterly ranging from

the year 1992 to 2019. The gross domestic product records the percentage mean of 23.49375 with a minimum of 22.172 and a maximum of 24.86921 while the natural logarithm of development expenditure indicates the highest percentage mean of 9.447076 with a minimum of 0 and a maximum of 12.69516 and natural logarithm of tax rate indicate mean of 13.76153 with a minimum of 10.6586 and maximum of 16.20673.

4.2.2 Estimation Results

This section presents estimation results related to the impact of official development assistance on economic growth of Tanzania. The results are presented in six main steps; Lag length selection, unit root test, co-integration test, co-integrating vectors, Autoregressive Distributive Lag Model.

Unit Root Test

First, all variables were transformed into logarithm form and differenced prior to statistical analysis to stabilize their mean and variances (Mukherjee et al, 1998). Then number of lags was determined based on (AIC) for all variables to be used in the study. The lags were used to eliminate any serial correlation among the variables. Augmented Dickey - Fuller (ADF) and the Phillips - Perron (P-P) tests were performed for each variable in log - levels and log - differences to establish the presence of the unit root.

The ADF and PP tests results presented in Table 4.4 reveal that all variables were not stationary at their levels, as evidenced by their test statistics which are greater than their corresponding critical values at 5% levels of significance. However, after taking their first differences all variables became stationary, as supported by their test statistics which are now less than their corresponding critical values at 5% levels of significance. Therefore, the null hypothesis of the unit root or non-stationary was rejected at 0.05 levels of significance; suggesting that all variables of interest are integrated of order one $I(1)$.

Table 4.9: Test for Stationarity both Augmented Dickey Fuller Test and Phillips Perron Test

ADF Test					
Variable	Level		First difference		order of integration
	Test statistics	Critical value	Test statistics	Critical value	
ln GDP	-0.899	-2.986	-3.653	-2.989**	I(1)
ln Develop	0.531	-3.000	-4.560	-3.00**	I(1)
ln tax	-1.846	-2.989	-3.619	-2.992	I(1)

The PP Test					
Variable	Level		First difference		order of integration
	Test statistics	Critical value	Test statistics	Critical value	
ln GDP	0.122	-2.983	-4.561	-2.986**	I(1)
ln Develop	-0.598	-3.000	-6.656	-3.00**	I(1)
Ln Tax	-2.217	-2.986	-4.217	-2.986	I(1)

NOTE: GDP: the natural logarithm of Gross domestic product; Development expenditure: natural logarithm of development expenditure financed by foreign aid; and ** indicates the “null hypothesis of non-stationary “at 5% level of significance.

Lag Length Selection

. Table 4.10 shows the lag length criteria results for economic growth and development expenditure financed by foreign aid.

Table 4.10: Lag selection for Economic Growth

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-26.4809				0.018738	4.53553	4.50873	4.6659
1	17.1823	87.326	9	0	.000096*	-0.797279	-0.904469	-0.275787
2	27.4145	20.464	9	0.015	0.00011	-0.98685	-1.17443	-0.07424
3	41.9247	29.02	9	0.001	0.000143	-1.83457	-2.10255	-0.530842
4	1086.3	2088.8*	9	0	.	-161.123*	-161.472*	-159.428*

*indicates the lag order selected by the criterion

The information in table 4.10 suggest that the forth lag is most appropriate to consider since three selection criterions have their minimum values of AIC, HQIC and SBIC.

Hence lag 4 is preferred for this selection due to the fact that the smallest value of all four criterions lies at lag 4.

Co-integration Analysis

The results of co-integration test in Table 4.11 reveal that $\lambda trace$ tests rejected the null hypothesis of no co-integration ($r = 0$) against the alternative; as evidenced by test statistics which are greater than critical values at 5% significance levels. The table reveals conflict decision between $\lambda trac$ and λmax statistics, but $\lambda trace$ was preferred because it is more powerful than λmax as it takes into accounts all the smallest Eigen-values (Johansen and Juselius, 1990).

Apart from that, the Johansen co-integration approach confirmed the existence co-integrating vectors (relationships) in the regression equation. Both the $\lambda trace$ and λmax test statistics accepted the null hypothesis that there are at most one $r \leq 1$ co-integrating vectors (relationships). This outcome is strongly substantiated by the test statistics which are smaller than their corresponding critical values at 5% significance levels.

Table 4.11: show the Johansen's cointegration test results

Null Hypothesis	Trace Statistic	Critical Value	Max Statistic	Critical Value
$r = 0$	40.5539	29.68	13.9625	20.97
$r \leq 1$	19.5913	15.41	7.0174	14.07
$r \leq 2$	2.5740	3.76	2.5740	3.76

Note: r: represents co-integrating vectors or relationships; when $\lambda trace$ and λmax tests are in conflict decision is made based on $\lambda trace$ statistics; ** indicates rejection of the null hypotheses at 5% levels of significance

Decision rule: Reject the null hypothesis of no cointegration, if the Trace statistics is less than the critical value.

Model Result

Table 4.12: Showing the results of the impact of development expenditure financed by foreign aid on economic growth

	D.lngdp	Coef.	Std. Err.	T	P>t
ADJ					
	Lngdp				
	L1.	-0.3310	0.0582	-5.69	0.000
LR					
	lnDevelop	0.5629	0.0557	10.1	0.000
	Lntax	-0.1746	0.0706	-2.47	0.033
SR					
	lnDevelop				
	D1.	-0.0953	0.0298	-3.2	0.01
	Lntax				
	D1.	-0.0604	0.0335	-1.8	0.102
	_cons	6.9126	1.1860	5.83	0

NOTE: GDP: the natural logarithm of Gross domestic product; lnDevelop: natural logarithm of Development expenditure financed by foreign aid; lntax: natural logarithm of tax revenue; and P>t indicates the “significance level “at 5% level of significance; LR: Indicate Long-run and SR: Indicate Short-run; ADJ: Indicate the coefficient of error correction, the adjustment speed toward equilibrium.

The results in table 4:11, shows that variables are co integrated meaning that there is a long-run relationship among the variables. Hence ARDL model was estimated and the results from table 4:12 indicate that development expenditure financed by foreign aid has a positive relationship in the long run and it is highly significant, implying that one percent increase in development expenditure financed by foreign aid will cause an increase in economic growth by 0.5629 percent. On the short run, development expenditure financed by foreign aid has a negative relationship and it's

highly significant at 5% significant level. This implies that, other factor remain constant, one percentage increase in development expenditure financed by foreign aid will cause economic growth to decrease by 0.095 percent. The positive relationship in the long run and the negative relationship in the short ru might be due to time factor, that in the long-run the economy has fully adjusted in the equilibrium and all factors of production are vary. While in the short run the economy below full employment and the factors of production is still fixed.

Nyasha (2019) researched on the impact of public expenditure on economic growth. The result found that government spending influence economic growth and it's positively related.

Kweka and Morrisey (2000) studied the impact of Government spending and economic growth in Tanzania. The study revealed that, consumption spending, human capital, and physical investment does not influence economic growth. the results also found out that economic is positively influenced by foreign aid as a determinant of Government Spending.

The results found that Development expenditure financed by foreign aid influence economic growth both in the long run and in the short run. The results are in line with theoretical review as supported by Keynesian theory. Keynesian theory postulates that economic growth increase as the result in the increase in government spending leading to expansionary fiscal policy. The idea lies on the fact that increase in foreign aid on the development expenditure will boost production, leading to aggregate demand stimulation and therefore increase in economic growth.

Also the result might be influenced by the current government effort of establishing a conducive implementation of the development project that is being financed by development expenditures. The government of Tanzania accomplished different projects that were financed by aids and grants, such projects are Mfugale fly over, kikonge Dam and Hydropower project that was financed by African Development Bank's African Water Facility (AWF) thus 2 million euro was provided as a grant for the feasibility study. The World Bank also financed the Tanzania Rural Electrification Expansion program, the project that will connect 2.5 million poor

Tanzanian households to the national electricity grid by 2021. Apart from that, Development expenditure results into development projects such as infrastructures, energy, that influence important sectors of the economy. Some of the policy such as “Tanzania yaViwanda” depend on physical infrastructures in its attainment. Example, TAZARA railway was built by chines, as a link between Dar essalaam and Zambia. The railway was materially and symbolically liberating for the country. It also marked an important function of trade and means of transportation.

Furthermore, the study revealed that, In the long run, tax has a negative relationship with economic growth and it is highly significant. This implies that, under ceteris paribus, other factors remain constant; a percentage increase in tax will cause economic growth to decrease by 0.1746 percent. On the short run, tax has a negative relationship with economic growth and its statistically significant at 5% level of significance. This indicates that, under ceteris paribus, other factors remain constant, one percent increase in tax will cause a decrease in economic growth by 0.0604.

Several studies have investigated the impact of tax revenue on economic growth. Some of these studies reveled negative impact of tax revenue on economic growth, such studies are Gurdal and Inal (2020), Rudolf (2014), Seward (2008), Atems (2015), Szarowska (2010). Other studies indicate positive relationship between tax and economic growth, such studies are Tosun and Abizahed (2005), Orcan (2009). Apart from finding are being supported by empirical findings, tax revenue demonstrate its contribution on economic growth. Government of Tanzania currently collects approximately USD 6 billion in tax revenue per year, its equivalent to 12 percent of the total GDP. It covers almost three quarter of the Government expenses (Bank, 2015).

The coefficient of error correction is -0.33 implying that 33 percent the adjustment speed towards the equilibrium following a shock is about 33 percent after a single period. The negative sign and the significant probability signify the existence of co integration among the variables in the long run.

Diagnostic test of the model

Table 4.13: Show the Breusch-Godfrey LM test for autocorrelation

lags(p)	chi2	df	Prob> chi2
1	0.004	1	0.9485

Table 4.13 show that the model does not suffer from the serial autocorrelation since the p-value is greater than 0.05 and further from the Durbin-Watson d-statistic $(4, 22) = 1.6936$ which is approximate to two this also suggest the same that model do not suffer with serial autocorrelation.

Table 4.14: Cameron & Trivedi's decomposition of IM-test

Source	chi2	Df	P
Heteroskedasticity	7.09	9	0.6276
Skewness	1.73	3	0.6298
Kurtosis	0.29	1	0.5879
Total	9.12	13	0.764

Table 4.14 show that the residual are normally distributed since the p-value for skewness and Kurtosis is greater than 0.05 and not only that table 4.27 above show that the model do not suffer with heteroscedasticity since the P-value for heteroscedasticity is greater than 0.05 this result is same as from the white's test for homoskedasticity always the null hypothesis there is homoskedasticity is rejected when P-value is less than 0.05. So from the white's test for homoskedasticity the p-value (Prob> chi2 = 0.6276) was greater than 0.05 therefore the null hypothesis was accepted.

Test for Normality

Table 4.15: Show the test for Normality

Variable	chi2(2)	Prob>chi2
Residual	1.14	0.5644

Jarque - Bera (JB) test results in Table 4:15 show that residuals are normally distributed; as supported by p-values which are greater than 5% level of significance. This implies that the data used for analysis followed normal evolution over the sample period.

4.3 Impact of foreign aid financed recurrent expenditure on economic growth

The figure above presents the time series plot for Gross domestic product and recurrent expenditure financed by foreign aid.

Before estimating, the time series data is recommended to draw the time series plot of the time series data in order to captures different characteristics of time series data such as seasonality, trend ,stationary and so on (Wagofya, 2019). From figure 1 above depict that both variable were nonstationary since the as the time goes the fluctuation increase in GDP and Recurrent expenditure financed by foreign aid.

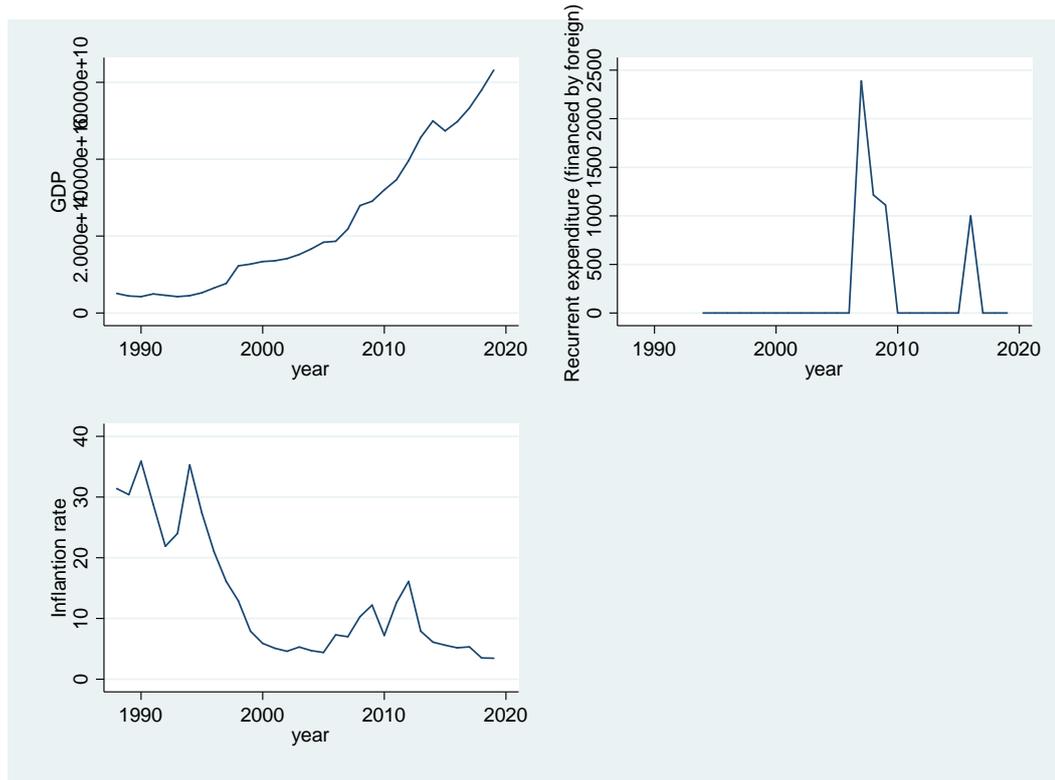


Figure 4.3: Represent the Time Series Plot of Recurrent Expenditure Financed by Foreign Aid, Inflation Rate and Economic Growth

4.3.1 Descriptive statistics

Table 4.29 provides descriptive statistics on the variables used on the analysis. It includes the summary statistics namely, sample, means, maximums, and standard deviations.

Table 4.16: Descriptive Statistic Results

Variable	Observation	Mean	Std. Dev.	Min	Max
Lngdp	32	23.4936	0.9220	22.172	24.8692
Recurrent	26	219.8231	571.3857	0	2388.9
Inflation~e	32	13.5234	10.3898	3.45	35.9

Table 4:16 show the summary statistics of both independent and dependent variables. Where gross domestic product observations are 32 and the observations of recurrent expenditure financed by foreign aid are 26, and the observation of natural logarithm of inflation rate are 32 which were quarterly ranging from the year 1992to 2019. The natural logarithm of gross domestic product records the percentage mean of 23.4936 with a minimum of 22.172 and a maximum of 24.8692while the recurrent expenditure indicates the highest percentage mean of 219.8231 with a minimum of 0 and a maximum of 2388.9, and the natural logarithm of inflation rate indicate the highest percentage mean of 13.5234 with a minimum of 3.45 and a maximum of 35.9.

4.3.2 Estimation Results

This section presents estimation results related to the impact of official development assistance on economic growth of Tanzania. The results are presented in six main steps; Lag length selection, unit root test, co-integration test, co-integrating vectors, Autoregressive Distributive Lag Model.

Unit root test

The ADF and PP tests results presented in Table 4.32 reveal that all variables were not stationary at their levels, as evidenced by their test statistics which are greater than their corresponding critical values at 5% levels of significance. However, after taking their first differences gross domestic product and recurrent expenditure financed by foreign aid became stationary, as supported by their test statistics which are now less than their corresponding critical values at 5% levels of significance. Therefore, the null hypothesis of the unit root or non-stationary was rejected at 0.05 levels of significance; suggesting that all variables of interest are integrated of order one 1(1).

Table 4.17: Show test for stationarity both augmented dickey fuller test and Phillips perron.

ADF Test					
Variable	Level		first difference		order of integration
	Test statistics	Critical value	Test statistics	Critical value	
lnGDP	-0.487	-2.986	-3.653	-2.989**	I(1)
Recurrent ex	-2.501	-3.00	-3.739	-3.000**	I(1)
Inflation	-1.687	-2.986	-5.555	-2.989	I(1)

The PP Test					
Variable	Level		first difference		order of integration
	Test statistics	Critical value	Test statistics	Critical value	
lnGDP	0.122	-2.983	-4.561	-2.989**	I(1)
Recurrent ex	-3.266	-3.750	-6.733	-3.00**	I(1)
Inflation	-1.653	-2.983	-5.314	-2.986	I(1)

NOTE: GDP: the natural logarithm of Gross domestic product; Recurrent expenditure financed by foreign aid; Inflation rate; and ** indicates the “null hypothesis of non-stationary “at 5% level of significance.

Lag Length Selection

The appropriate number of lags was selected basing on selection-order criteria and the results have been reported in table 4.18. From the table 4.18 the appropriate number of lags according to Akaike Information Criterion (AIC), Hannan-Quin Information criterion (HIQC) and Schwarz Bayesian Information Criterion (SIBC) is four.

Hence lag 4 is preferred for this selection due to the fact that the smallest value of all four criterions lies at lag 4.

Table 4.18: show the lag length selection for economic growth and recurrent expenditure financed by foreign aid.

Lag	LL	LR	Df	P	FPE	AIC	HQIC	SBIC
0	-247.809				1.60E+06	22.8008	22.8359	22.9496
1	-196.31	103	9	0	34060.1	18.9372	19.0774	19.5324*
2	-191.192	10.236	9	0.332	51286.7	19.2902	19.5355	20.3316
3	-184.86	12.665	9	0.178	75680.4	19.5327	19.8832	21.0205
4	-162.9	43.919*	9	0	31883.1*	18.3545*	18.8102*	20.2887

*indicates the lag order selected by the criterion

Co-integration Analysis

Johansen test for the long-run relationship was performed and the results are reported in the table 4.19. The table present test statistics and their critical values of the null hypothesis of no co integration. Following the researcher's computation of the Johansen test for co integration, the trace statistics is greater than the critical value at 5% significant level, thus the null hypothesis of 0 co integrating vectors can be rejected in favor of >0 . Therefore the null hypothesis of no co integration is strongly rejected in acceptance of the alternative hypothesis of existence of co integration to imply that there exists long run relationship between the variables.

Apart from that, the Johansen co-integration approach confirmed the existence co-integrating vectors (relationships) in the regression equation. Both the $\lambda trace$ and λmax test statistics accepted the null hypothesis that there are at most one $r \leq 1$ co-integrating vectors (relationships). This outcome is strongly substantiated by the test statistics which are smaller than their corresponding critical values at 5% significance levels.

Table 4.19: show the Johansen's cointegration test results

Null Hypothesis	Trace Statistic	Critical Value	Max Statistic	Critical Value
$r = 0$	30.0090	29.68	21.8424	20.97
$r \leq 1$	6.1667	15.41	5.1832	14.07
$r \leq 2$	4.5740	3.76	0.9835	3.76

Note: r: represents co-integrating vectors or relationships; when $\lambda trace$ and λmax tests are in conflict decision is made based on $\lambda trace$ statistics; ** indicates rejection of the null hypotheses at 5% levels of significance

Table 4.20: Showing the results of the impact of recurrent expenditure financed by foreign aid on economic growth

	D.lngdp	Coef.	Std. Err.	T	P>t
ADJ					
	Lngdp				
	L1.	-0.1334	0.0334	-3.994	0.002
LR					
	lnrecurrent	64.8494	29.3436	2.21	0.006
	Inflation_rate	0.4837	1.3114	0.37	0.719
SR					
	lnrecurrent				
	D1.	-0.0049	0.0049	-2.10	0.005
	Inflation_rate				
	D1.	-0.0079	0.0048	-1.63	0.12
	LD.	-0.0055	0.0045	-1.13	0.272
	_cons	-0.6618	1.1630	-0.57	0.58

NOTE: GDP: the natural logarithm of Gross domestic product; lnrecurrent: natural logarithm of Recurrent expenditure financed by foreign aid; Inflation rate: and P>t indicates the “significance level “at 5% level of significance: LR: Indicate Long-run and SR: Indicate Short-run: ADJ: Indicate the coefficient of error correction, the adjustment speed toward equilibrium.

From the results in table 4:20 shows that, on the long run GDP and recurrent expenditure financed by foreign aid has a positive relationship which is statistically significant. The coefficient of recurrent expenditure indicates that, under ceteris paribus, other things remain constant, one percent increase in recurrent

expenditure financed by foreign aid will cause economic growth to increase by 64.8494 percent. On the short run, recurrent expenditure has a negative relationship indicating that, under ceteris paribus, other factors remain constant, and one percent increase in recurrent expenditure financed by foreign aid will cause a decrease in economic growth by 0.0049 percent.

James Njeru (2003) researched on the impact of foreign aid on public expenditure in Kenya. The results found that there is a positive and statistically significant relationship between the share of Government expenditure in gross domestic product (GDP) and the share of net disbursement of overseas development assistance. The results revealed that Government uses foreign aid to finance its recurrent expenditures.

Fintan Paul and Godlove Furahisha (2017) investigated the validity of Wagner's law and Keynesian hypothesis of the long-run relationship between government expenditure and economic growth in Tanzania, Using time series data. The results revealed that development and recurrent expenditure financed by foreign aid promote economic growth hence supporting Keynesian hypothesis.

Recurrent expenditure financed by foreign aid seems to have influence in economic growth due to the fact that it is used to pay salaries and wages, that goes direct on the consumption channel and hence affect the economy directly. Also it enhances human capital such as technical-know how, health sector and education system. Achievement of Economic growth depends on the contribution of skills, knowledge and health of its citizen. World Bank's Human Capital Index (HIC) and Human Capital Wealth Data suggest ways in which the country could invest in its people for faster poverty reduction. The emphasis was based on the human capital.

Apart from that, inflation rate has a positive relationship in the long run and a negative relationship in the short run which is insignificant. Inflation rate has no impact on economic growth. On the other side, the inflation rate is being influenced negatively by the previous inflation rate. This means that, other factor remains constant, for each increase in one unit of the previous inflation rate leads to decrease in current inflation rate by 0.0055 percent. The coefficient of error correction is -0.13

implying that 13 percent the adjustment speed towards the equilibrium following a shock is about 33 percent after a single period. The negative sign and the significant probability signify the existence of co integration among the variables in the long run.

Diagnostic test of the model

Table 4.21: Show the Breusch-Godfrey LM test for autocorrelation

chi2	Prob> chi2
0.436	0.5092

Table 4.21 show that the model does not suffer from the serial autocorrelation since the p-value is greater than 0.05 and further from the Durbin-Watson d-statistic (6, 26) = 2.2299 which is approximate to two this also suggest the same that model do not suffer with serial autocorrelation.

Table 4.22: Cameron& Trivedi's decomposition of IM-test

Source	chi2	Df	P
Heteroskedasticity	17.34	18	0.5001
Skewness	5.15	5	0.3984
Kurtosis	1.35	1	0.245
Total	23.83	24	0.4712

Table 4.22 show that the residual are normally distributed since the p-value for skewness and Kurtosis is greater than 0.05 and not only that table 4.22 above show that the model do not suffer with heteroscedasticity since the P-value for heteroscedasticity is greater than 0.05 this result is same as from the white's test for homoskedasticity always the null hypothesis there is homoskedasticity is rejected when P-value is less than 0.05. So from the white's test for homoskedasticity the p-value (Prob> chi2 = 0.5001) was greater than 0.05 therefore the null hypothesis was accepted.

Jarque - Bera (JB) test results in Table 4:23 show that residuals are normally distributed; as supported by p-values which are greater than 5% level of significance. This implies that the data used for analysis followed normal evolution over the sample period.

Test for Normality

Table 4.23: Show the test for Normality

Variable	chi2(2)	Prob>chi2
Residual	3.863	0.1450

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary

This study investigated the impact of foreign aid to economic growth taking into account certain control variables. In analyzing time series data along periods 1978 up to 2018, the study used right models as done in previous and other studies to capture the impact.

The study performed the pre-estimation test to ensure the consistent of the results, these includes, multicollinearity, heteroscedasticity, presence of serial correlation. Other test includes the ADF and PP test for unit root. The ADF and Phillips-Perron (PP) test were preferred to be the best choice because it uses a parametric auto regression to approximate the structure of errors, not like other unit root test that ignores any serial correlation. The lag length of each variable was determined using the five criteria but AIC, BIC and HIQC were preferred in selecting the optimal lag.

Johansen test for cointegration was applied for the test of co integration, and the null hypothesis of no co integration was rejected at 5% level of significance, if the trace statistics is greater than critical value. Thereafter, ARDL model was applied to estimate results.

5.2 Conclusion

Generally, there are mixed conclusion from the previous literatures that analyzed the impact between foreign aid and economic growth. Specifically, for the case of foreign aid some studies found that foreign aid has a direct and a positive impact to the economic growth. However, some studies empirically proved that, good economic environment is the main focus to ensure the positive impact of foreign aid to the economic growth. Furthermore, several studies have shown that, foreign aid has negative impact on the economic growth.

The study represents the impact of three factors (ODA, development expenditures financed by foreign aid, and recurrent expenditures financed by foreign aid) on economic growth of Tanzania. This study finds that foreign aid influence economic growth. The findings show that there is a positive relationship between ODA and

economic growth, in the long-run. ODA influence economic growth in the long-run, also the results shows that foreign direct investment has a positive impact on the economic growth. Development expenditures financed by foreign aid is also statistically significant and has a positive impact on economic growth, while recurrent expenditures financed by foreign aid seems to have a long term relationship with foreign aid with a positive impact toward economic growth. On the other hand, tax rate has a positive relationship with economic growth and inflation rate result into negative impact on economic growth of Tanzania

Since the study concentrate on the development expenditure financed by foreign aid and recurrent expenditures financed by foreign aid. The results show that development expenditure financed by foreign aid has a positive impact on economic growth, and recurrent expenditure financed by foreign aid has a positive impact on economic growth. This implies not all aid inflows are spent for development purpose, some of the aid is being allocated on the recurrent expenditure too. As the same way Government seeks outside investment to build newer infrastructures, it also invest in human capital, health facilities and education system in order to boost the economy beyond its impressive economic growth rate.

5.3 Policy Implications and Recommendations

These part present policy recommendations regarding the findings obtained from the regression analysis and deliberate measures to be taken by policy maker in dealing with the phenomenon. The findings obtained from this study provide an important basis for economic policy analysis and recommendations. Following the empirical results of the study both short run and long run policies can be recommended holding other factor constant.

5.3.1 Regarding the Impact of Official Development Assistance on Economic Growth.

The findings revealed that ODA has a positive and significant relationship on economic growth in the long-run. ODA is one of the kinds of foreign aid used by most of the developing countries to finance its development projects. For the case of Tanzania if it wishes to raise its economic growth through ODA, it has to enhance strong diplomatic relations with countries providing Official development assistance.

The diplomatic relation will also contribute to strengthening the economic relationship that might yield better result. Tanzania should create conducive environment for obtaining this kind of assistance, by creating appropriate process of obtaining this aids. Also Government of Tanzania should make sure that the development programs are consistent with Assistance programs.

5.3.2 Regarding the impact of development expenditure financed by foreign aid on Economic Growth

The findings revealed that Development expenditure financed by foreign aid has a positive relationship with economic growth, but it is statistically not significant. This is signal of which foreign aid used to finance development project does not have impact in economic growth. The government should focus on the Aid commitment, it should make sure that, aid are being used in more productive projects as it was intended. As well the avoidance of divergence of aid into other activities that was not on the intended list. Furthermore, there is a need of policy reform and implications. Also the study recommends that efficiency of foreign aid in the development expenditure should be analyzed over time. Lastly, the allocation into general administration of the government should be reduced to support development projects.

5.3.3 Regarding the impact of recurrent expenditure financed by foreign aid on economic growth.

The results found the recurrent expenditure financed by foreign aid has positive relationship in the long-run and negative relationship in the short-run. But the results are statistically significant in both, long run and short run, hence recurrent expenditure financed by foreign aid influence economic growth. The study recommend on the establishment of policies that will enhance good cooperation with donor countries, and direct its expenditure on the development sector like social service and human capital skills. It should also increase more recurrent expenditure so as to speed up consumption and hence promote economic growth.

5.4 Limitation of the study

The study required a large sample for time series study but due to the data available being limited and inconsistent the result may be comprised. Other limitations of the study are the quality and reliability of data due to inconsistent between publications.

5.5 Areas of Further Research

No one study can be exhaustive, and this is also true for the empirical work presented in the thesis. The following questions have been left unanswered, and this merit further exploration:

- i To analyze the impact of human capital investment on economic growth.
- ii To assess the impact of government budget support on the reduction of poverty in Tanzania.

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APPENDICES

Appendix 1: Consent Form

Dear research participant, I am Katra Ismail, M, a Master of Arts in Economics student from the University of Dodoma with the registration number HD/UDOM/00544/T.2018. You are kindly requested to provide your informed consent to participate in the research titled *Impact of Foreign Aid on economic Growth of Tanzania*. This research is a part of the Master of Arts in Economics I am undertaking at the University of Dodoma. You have been identified as one of a number of resourceful persons in this important research.

- a) **The purpose of this research:** The purpose of this research is to fulfil partial requirement for the award of Master of Arts in Economics at the University of Dodoma.
- b) **Names of the research team:** The Research will be conducted by Katra Ismail, M.
- c) **Procedures:** As a respondent, you will be responding by providing the official published data that are published by your Institution to the public.
- d) **Risks:** As a respondent, your participation in the study will not involve or associated with any risks.
- e) **Benefits:** The study will provide the knowledge on how the industrialization process affect Tanzania economic growth and how the manufacturing sector is performing and thus will benefit the economists and public as a whole.
- f) **Time commitment:** Data is requested to be given at appropriate time that will be convenient for both the researcher and respondent so as to fasten the research analysis process.
- g) **Privacy and confidentiality:** Information you will provide will remain confidential and your identity will not be revealed. Data that will be given will be revealed by the authorization from your Institution.
- h) **Voluntary Participation:** You are free to participate, decline or withdraw your participation in this study at any point without consequence. Your decision will have no influence on your job. You are free to ask any question for more clarification before making decision on whether to participate or not in this research.
- i) **Compensation:** The researcher will not be forced in any way to compensate you for participation in this study.
- j) **Sharing of results:** The findings of this study will be published online in peer reviewed journals. The hardcopy of this research report will be available at the

University of Dodoma, College of Business Studies and Law library.

k) **Contact information:** You may contact the following for any information:

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l) **Declaration:** “I have read what is required of me if I take part in this research. I understand what I am required to do. I agree to participate in the research”.

Name.....Signature..... (Research participant)

Name: Katra Ismail, M. Signature..... (Researcher)

Appendix 2: Data Set

ODA	FDI	year	GDP	Develop	recurrent	Interest_rate	Inflantion_rate	export	Export	exchange	tax	lngdp
1.01E+09	0.07372	1988	5.10E+09	0	2300.9	21.3	31.4	27042	10.20515	125	42557	22.35259
9.07E+08	0.132122	1989	4.42E+09	0	2100.9	26	30.4	52777	10.87383	192.3	63085	22.20944
1.16E+09	0.000235	1990	4.26E+09	0	2188.9	26	35.9	66561	11.10587	196.6	81471	22.17224
1.07E+09	0.000202	1991	4.96E+09	0	1214.6	26	28.8	75981	11.23824	233.9	118257	22.32398
1.33E+09	0.264476	1992	4.60E+09	0	1214.6	30	21.9	123966	11.72776	335	153356	22.24963
9.44E+08	0.480488	1993	4.26E+09	0	1214.6	30	24	181148	12.10707	479.87	146420	22.172
9.64E+08	1.108459	1994	4.51E+09	4158	2218.9	33.4	35.3	265177	12.48815	523.45	220358	22.22975
8.71E+08	2.282238	1995	5.26E+09	515.6	2388.9	36	27.4	390378	12.87487	550.36	299898	22.38249
8.67E+08	2.310066	1996	6.50E+09	80	2228.9	35.3	21	455419	13.02897	595.64	383744	22.59448
9.44E+08	2.054764	1997	7.68E+09	0	1814.6	24.5	16.1	459549	13.038	624.6	505355	22.76239
1.00E+09	1.404238	1998	1.23E+10	0	1714.6	22.5	12.9	423424	12.95613	681	566123	23.23046
9.92E+08	4.06492	1999	1.27E+10	1	1614.6	18.7	7.9	455657	13.0295	797.3	630108	23.26575
1.06E+09	3.464426	2000	1.34E+10	5	1214.6	23.1	5.9	587403	13.28347	803.3	685107	23.31673
1.28E+09	4.044211	2001	1.36E+10	0	2000.9	20.1	5.1	746742	13.52347	916.3	827788	23.33199
1.26E+09	2.797102	2002	1.41E+10	7797	1765.9	16.4	4.6	948603	13.76275	976.3	939267	23.37242
1.73E+09	2.091408	2003	1.52E+10	10100	1820.9	14.5	5.3	1.30E+06	14.05459	1063.62	1.10E+06	23.44616
1.77E+09	2.653759	2004	1.67E+10	15295.4	1388.9	14.1	4.7	1.60E+06	14.28965	1042.96	1.30E+06	23.53723
1.49E+09	5.084615	2005	1.84E+10	16575.5	1688.9	15.2	4.4	1.90E+06	14.45768	1165.51	1.60E+06	23.63556

1.89E+09	2.161115	2006	1.87E+10	14770	1214.6	15.7	7.3	2.40E+06	14.69288	1261.64	1.90E+06	23.64909
2.82E+09	2.66217	2007	2.18E+10	71467.1	2001.9	16.1	7	2.80E+06	14.8316	1132.09	2.50E+06	23.80717
2.33E+09	4.950615	2008	2.79E+10	63733.3	1214.6	15	10.3	4.30E+06	15.2696	1280.3	3.40E+06	24.05337
3.13E+09	3.275734	2009	2.91E+10	52995.2	1111.9	15	12.2	4.30E+06	15.28545	1313.29	4.00E+06	24.09336
2.96E+09	5.663728	2010	3.20E+10	79790.4	1328.9	14.5	7.2	6.10E+06	15.62258	1453.54	4.40E+06	24.18945
2.44E+09	3.547209	2011	3.47E+10	129228.7	1208.9	16.1	12.6	8.00E+06	15.88903	1566.66	5.90E+06	24.26877
2.82E+09	4.538769	2012	3.97E+10	107035.2	2128.9	16.7	16.1	9.30E+06	16.04083	1571.62	7.20E+06	24.40337
3.43E+09	4.569258	2013	4.57E+10	179222.6	1008.9	16.7	7.9	8.40E+06	15.94485	1574.01	8.30E+06	24.54494
2.65E+09	2.834172	2014	5.00E+10	99404.2	1028.9	15.6	6.1	8.80E+06	15.99168	1725.78	9.80E+06	24.63458
2.59E+09	3.178703	2015	4.74E+10	86663	1214.6	16.2	5.6	1.10E+07	16.25207	2148.52	1.10E+07	24.58144
2.32E+09	1.735926	2016	4.98E+10	56500.2	1000.6	0	5.17	0	0	2177.1	3.50E+06	24.63076
2.59E+09	1.758607	2017	5.33E+10	62257.7	2198.9	0	5.32	0	0	2228.9	1.10E+06	24.69959
2.45E+09	1.820637	2018	5.80E+10	194054.6	2000.9	0	3.51	0	0	2263.8	1.20E+06	24.78373
0	0	2019	6.32E+10	326164.1	1214.6	0	3.45	0	0	0	0	24.86921