

THE IMPACT OF FOREIGN AID ON PUBLIC EXPENDITURE IN KENYA

(1970 - 2018)

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DECLARATION

This research project is my original work and it has never been presented for a degree award in any other university or institution

Sign..... Date.....

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This research project has been submitted with my approval as the University Supervisor

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DR. THOMAS ONGORO

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DEDICATION

I dedicate this project work to Dr. Rattansi, the Chair of Rattansi Educational Trust for the financial support and constant encouragement to be a change actor in emerging leaders in the non-profit sector. I also dedicate it to my classmate Akama Maiko who has been of constant help during this project.

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ACRONYMS AND ABBREVIATIONS

IMF:	International Monetary Fund
ACT:	Advanced corporation tax
AD:	Anti-Dumping
ADAS:	Aggregate Demand-Aggregate Supply
AfDB:	African Development Bank
AFDC:	Aid to Families with Dependent Children
AFL-CIO:	African Federation of Labor and Congress of Industrial Organizations
ARIMA:	Autoregressive Integrated Moving Average
ARM:	Adjustable Rate Mortgage
ARMA:	Autoregressive Moving Average
BIS:	Bank for International Settlements
BNB:	Basic Needs Budget
BOF:	Balance for Official Financing
CETA:	Comprehensive Employment and Training Act
CEV:	Constant Elasticity of Variance
CFA:	Communaute Financiere Africaine; Chartered Financial Analyst
DIDMCA:	Depository Institutions Deregulation and Monetary Control Act
DLO:	Direct Labour Organization
DME:	Decentralized Market Economy
ODA:	Official Development Assistance
VIF:	Vector Integrating Factor

DEFINITION OF TERMS

Concessionary debts: These are loans that are extended on terms substantially more generous than market loans. The concessionality is achieved either through interest rates below those available on the market or by grace periods, or a combination of these.

Commercial debts: This is debt owed by a commercial entity and used to fund expenditures. It can be secured or unsecured

ABSTRACT

The main objective of this study was to investigate the impact of foreign aid on public expenditure in Kenya in the period 1970-2018. Specifically, the study sought to establish the impact of foreign aid on government development, recurrent and total expenditure. To achieve the specific objectives, this study employed a time series data for the period 1970 to 2018 of targeted values rather than actual values and estimated using OLS estimation techniques. The study findings indicates that our main variable of interest, foreign aid was statistically significant in influencing total government expenditure and development expenditure but was not significant in influencing recurrent expenditure in the period under study. Equally, the study revealed that the targeted consumption in the public Sector (recurrent expenditure), targeted tax revenue as well as targeted flow of public borrowing from both domestic and foreign source were statistically significant in influencing government expenditure in the period under study. We thus recommend that the government should strengthen tax collection exercise so as to achieve the targeted tax as it improved government expenditure. In accordance to the study findings, the study recommended that government should reduce borrowing especially from domestic sources due to the significance negative implication on state expenditure.

CHAPTER ONE: INTRODUCTION

1.1. Background of the study

Foreign aid describes the grants and loans that are advanced to developing countries by developed nations and multilateral organizations purposefully for the development of the economy and the enhancement of the welfare of its citizenry. Grants are given by donor countries purely on technical bases such as technical assistance and they often lack obligatory repayments (Fowler, 2013; White, 1992; Beerier et al., 2015). On the other hand, loans are given by donor nations with obligations for repayment at maturity at the agreed interest. The loans can be categorized into hard loans and soft loans. Soft loans are funds that are given at concessionary interest rates (at below market rate), while hard loans are given at current market rate of interest and mostly repaid in foreign currency (Barone & Spratt, 2015; Ali et al, 1999).

Kenya, like other developing nations of the world, has consistently faced budget deficits occasioned by unmet revenue targets and persistent shocks (internal and external). At a time of market liberalization, fiscal policy that is supported by foreign aid has remained one of the main tools for bridging the fiscal gap and targeting economic growth for many developing economies. This could have been the main reason why majority of the developing nations used to receive huge external financing from the traditional donor communities. The recent massive financial commitments by international donors to fight extreme poverty in the world through economic aid in the 2016 Annual World Bank and IMF convention in Indonesia and other global economic summits demonstrate the rising pledges and payments of development aid to developing nations in recent years.

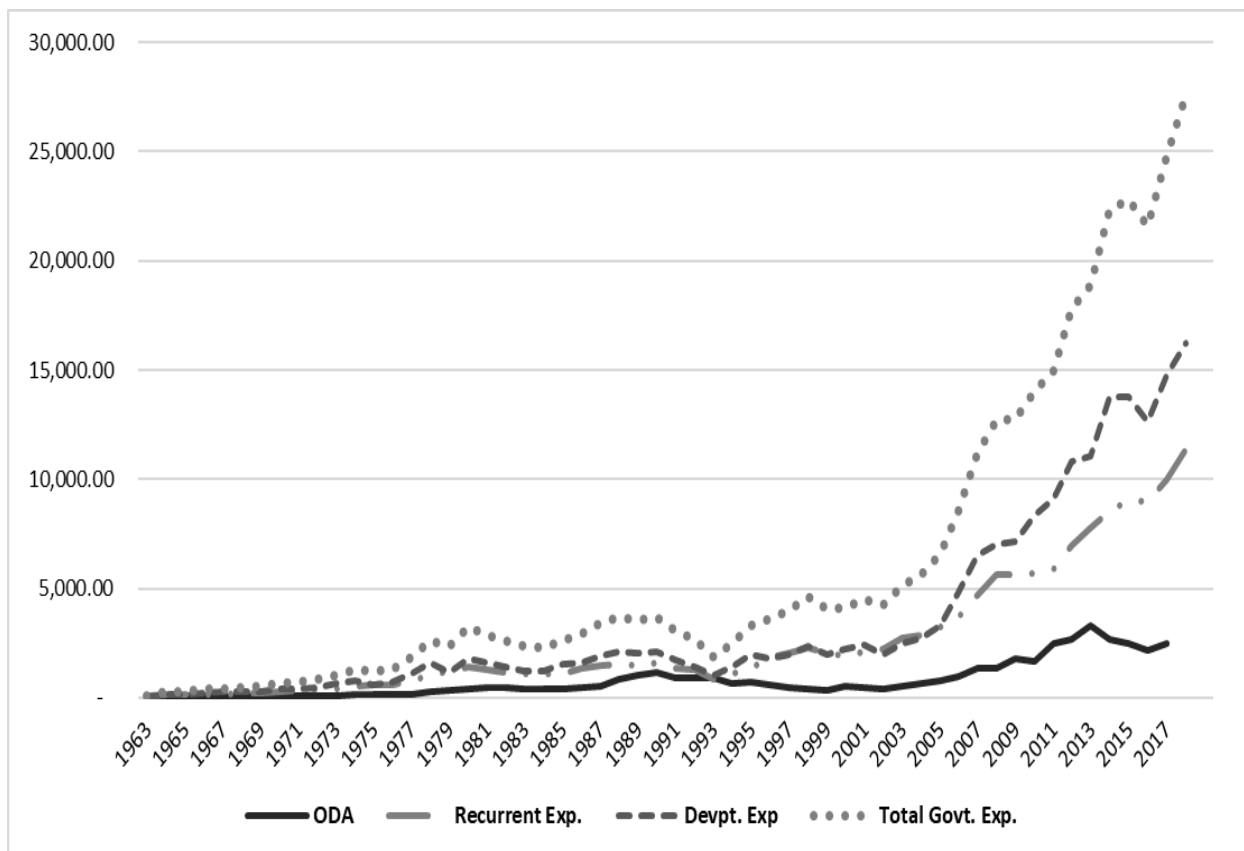
On a theoretical basis, it is assumed that as aid increases to developing countries, public spending and economic activities rises, hence leading to development and poverty alleviation. However, the evidence suggests that despite the vast foreign aid financing projects and

programs in the past, there has been a minimal reduction in the levels of poverty and little to no economic growth. Consequently, both the donors and the recipients of financial aid are highly interested in determining whether the immense aid that developing nations have been receiving over the years is having the intended economic consequences in order to shape the international aid policy.

1.2. Contextual View of the External Aid in Kenya

Kenya, like other developing nations in Africa, has been a significant beneficiary of external aid from other countries since the attainment of independence. The immense value of foreign aid to the budgetary process in the country has been explored extensively in the past, especially given the country's frequent struggles with budget deficits. The trend analysis for the donor aid growth and government spending is illustrated in figure 1.

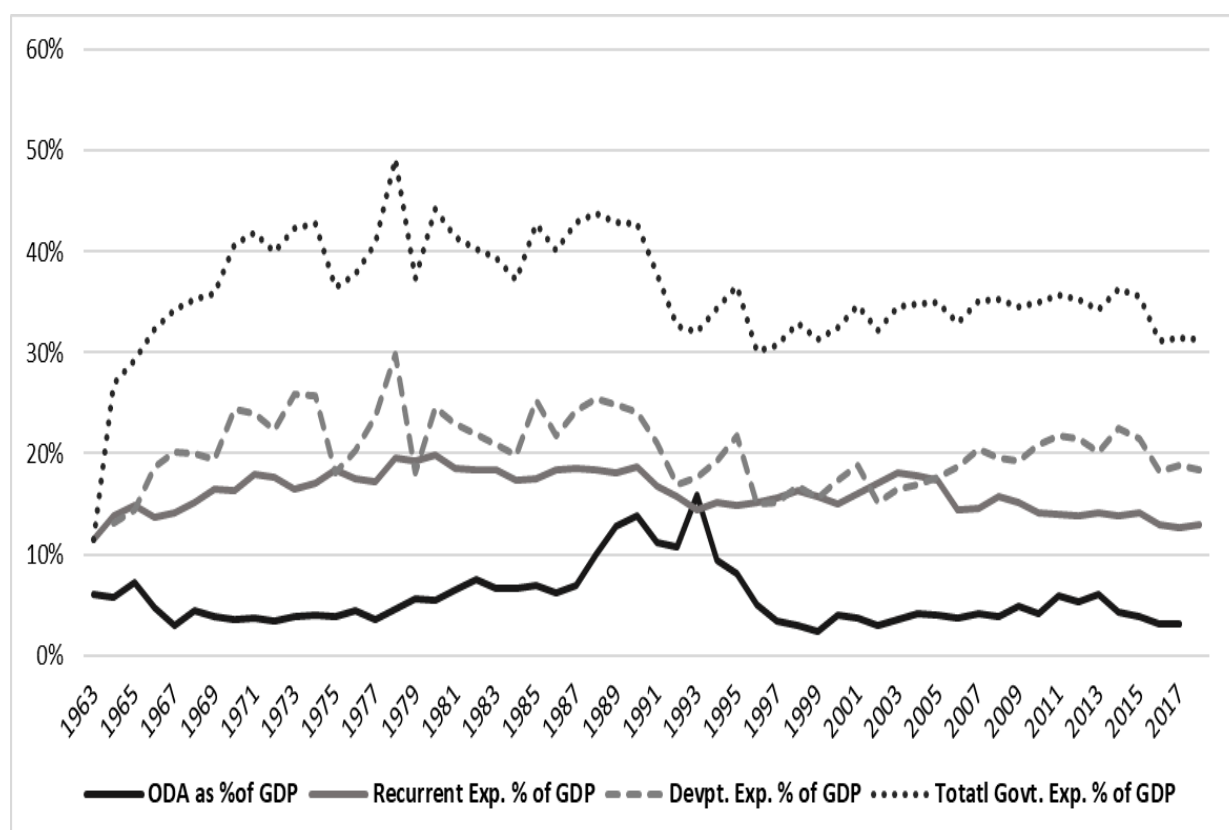
Figure 1: Public Expenditure and Foreign aid inflows in Kenya (US\$ Millions)



Sources: (World Development Indicator, 2018)

Njeru (2003) contends that the earliest sums of external aid at the time of independence were advanced by the British government to the state in support of land settlement schemes and addressing the pre-independence recession. Furthermore, Lagat (2010) notes the remarkable increases in the levels of foreign aid inflows during the two decades following independence. Kenya received a high foreign aid between 1988 and 1990 before it started declining all through to early 2000's. Markedly, the spiraling government expenditure fueled by high levels of aid inflows and a stable macroeconomic environment in the country in the '60s and '70s was followed by the 1980s placement of the country under a structural adjustment program (SAP) as multilateral donors, especially the World Bank, became highly concerned with the deteriorating economic conditions during the period. Consequently, the level of aid in the 1980s remained high similar to the preceding decade.

Figure 2: Government Expenditure and Foreign aid inflows to Kenya (% of GDP)



Sources: (World Development Indicator, 2018)

The average flow of foreign aid to Kenya since independence in 1963 has been about 6% as a percentage of GDP as shown in figure 2. The flow of incoming donations between 1970 and 1999 averaged approximately 9% of the GDP, 20% of the total budget, and four fifths of the country's total development expenditure. Particularly, there was a remarked increase in aid flow to an average of 12 percent between 1988 and 1993 due to the earlier explanation owing to the introduction of structural adjustment programs. However, the trend changed gradually due to the profound reductions in the amounts of donor inflows a decade before and after 2000 due to the freezing of external donor funding. During this period, donors were not only concerned with the slow economic reform, but also with worsening political conditions in the country. Notably, the show of fiscal discipline and satisfactory delivery policies, as well as the change in the political focus of the country due to a regime change in 2002 saw the resumption of foreign aid inflows to Kenya. Since then, the country has had a consistent marginal rise in external aid.

1.3. Statement of the Problem

The ODA inflows to Kenya since independence have not been very consistent (Veledinah, 2014). Though there has been an overall growth in the inflows over the years, the observed trend has not been constant. The significant increases witnessed in the mid-years from 1963 to 2018 ODA have not missed controversy either especially in recent time. This is because most of the recipient economies of the ODA have not attained substantial economic growth and poverty eradication as envisioned (Anyanwu, 2014)

Similar to other African nations, the slowdown in foreign aid inflows experienced in Kenya in the 2000s has been replaced by the growth in non-domestic aid as the base of foreign donors gradually expands to include traditionally non-donor economies (Veledinah, 2014). Evidence shows that the inflows of concessionary and commercial debt from China to Kenya have expanded tremendously in the recent years, accompanied by unprecedented growth in public

debt. New sources of external aid have particularly contributed to the growth in bilateral aid that has tremendously increased the public debt. According to Treasury data, China's aid accounted for approximately 62% of the total bilateral aid to Kenya in 2015, exceeding the combined amounts of aid from the traditional donors (Clapp, 2015). Furthermore, the nominal foreign debt consistently increased from \$9.65 billion in 2012 to \$16.49 billion in 2015, making up 26.4% of the GDP (IMF and IDA, 2016).

The trend in aid inflows to Kenya over the years has not been in sync with the trend of government expenditure as can be observed from the previous statistics presented. For instance, the period between 1965 and 1977 experienced a decline in flow of ODA whereas the same period witnessed consistent growth in government expenditure more so the capital expenditure. In addition, whereas the period from 1980s to early 1990s saw a remarkable leap in flow of ODA, the total government expenditure did not exhibit any consistent trend during the period. In the past, the debate regarding the economic impacts of the foreign aid in Kenya has been marred by the vast inconsistencies (Njeru, 2003).

Despite, the renewed donor commitments and increase in foreign aid inflows to the economy, there has been no substantial influence on the total government expenditure. This raises questions on whether government spending and external aid are related.

1.4. Research questions

The following are the primary questions guiding the study:

- I. What is the impact of foreign aid on public development spending in Kenya?
- II. What is the impact of foreign aid on public recurrent spending in the Kenya?
- III. What is the impact of foreign aid on total public spending in Kenya?

1.5. Research Objectives

The main objective of the study is to investigate the impact of foreign aid on government expenditure in Kenya.

1.5.1 Specific objectives

- I. To investigate the impact of foreign aid on public development spending in Kenya.
- II. To investigate the impact of foreign aid on public recurrent spending in the Kenya.
- III. To examine the impact of foreign aid on total public spending in Kenya.

1.6. Significance

The current study unveils the impact that external aid has on state spending. Being an important source of financing Kenya's budgetary deficit, it is fundamental to analyze its impact on public expenditure. While most of the literature has studied the effects of financial aid on government spending, little has been done to systematically analyze the impact of foreign on state spending by separating development and recurrent elements of the expenditure especially in the case of Kenya. The research will enrich the literature and data on this topic specifically filling the gap existing when the expenditures are disintegrated into the two components namely development and recurrent expenditures. The study will also benefit the policy makers on how to budget for Kenyan budget that seems to be deeply rooted in a vicious cycle of deficits. It will also benefit investors who have interest in putting resources in the various sectors in the country. The study will also identify possible gaps that can be explored in future within the academic body for recommended research in the future.

1.7. Structure of the paper

Chapter 2 follows this introduction and provides highlights of the theoretical and empirical literature review as well as the overview of the two. Chapter three presents the methodology that discusses the theoretical and empirical models, the variables and expected signs, the pre-estimation tests. Chapter Four presents results from the empirical estimation and their interpretations while chapter Five discusses the summary and conclusion as well as policy relevance of the findings.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

This chapter discusses the theoretical and empirical literature reviews of past studies on the impact of foreign aid on public expenditure in Kenya. The theoretical literature focuses on main theories used in the study. The empirical literature shall focus on relating or arguing positively with the study hypothesis. The chapter finally provides the overview of the two, pointing out clearly the gap that the study seeks to fill.

2.2 Theoretical literature review

The theoretical proposition of Leontief (1965) was very categorical on the impact of flow of capital to least developed economies on their long run economic growth. Based on his study, the main source of this capital flow was foreign aid, and since domestic investments are as a result of domestic savings, Leontief interpreted external aid as supplementary to domestic borrowing as a means of boosting domestic investment. His suggestion pointed out that the inflowing aid would finance capital investments and therefore the higher the foreign aid to a nation, the faster the investment and hence faster growth rate. Leontief however warns that domestic investments may have a limited impact if a portion of the aid is put forward to finance consumption or any other sector that it was not meant for-what is commonly known as fungibility. Theorist scholars like Sakyi, (2011) have argued that in many instances, fungibility is very common as foreign aid has led to reduction of domestic savings through increased consumption and thus leading to insignificant impact on domestic investment.

Kitano, (2016) discuss fungibility in detail. Concerned with the influence of donor aid on compositions of public spending, they disaggregated government expenditures item and thus put forward two methodological approaches of examining the impact of external aid. One of the models provides a dozen expenditures of linear equations obtained from a utility

maximizing equation that is subject to budget constraints on government spending (Liang and Mirelman, 2014). The other approach estimates a set of simultaneous where the government is assumed to have a community indifference curve and faced with a budget constraint. Demand curves are then obtained from the optimization decision (Nunnenkamp and Öhler, 2012). The belief that increasing aid promotes investment is one of the most prominent factors behind the increased outflows of aid from developed nations to third world countries in a bid to alleviate poverty.

2.3 Empirical literature review

The effect of external aid on the fiscal account has drawn much attention from the past to the present time with conclusion still divided across the world. For instance Acht et al., (2015) studied data from sub-Sahara African countries on the impact of foreign aid on the fiscal accounts using tax revenue, government investment, government consumption and domestic borrowing as his variables. The research found out that external aid had a negative impact on tax revenue and public consumption. It also concluded that public expenditure had a positive connection with external aid but was inconclusive on domestic borrowing

Similar study was conducted by Ahmed, (2012) using India data with the same variables. Their findings confirmed that foreign aid was inconclusive to domestic borrowing just like Acht et al., (2015) but differed with him on tax revenue, government investment and government consumption where they found no significance influence (Brown, 2012).

Asongu (2015) carried same study as Acht et al., (2015) but used data from twelve Asian nations. Their paper showed that the aid had a greater positive impact on tax revenues, investment by the government and consumption. On domestic borrowing, they were unable to conclude just like the previous studies.

Asongu and Nwachukwu, (2016) on their research that focused on how external aid impacts on domestic borrowing, government investment and tax revenue using Indonesia data reveals

that external aid had a negative influence on the investments by the government, tax revenue and government consumption but was also unable to conclude on how the external aid impacts on domestic borrowing

Bjørnskov, (2010) used the same test on Pakistan data on the impact of foreign aid on domestic borrowing, government investment and consumption as well as tax revenue, their study showed that external aid had a positive influence on domestic borrowing and investments by the government. Their study pointed to the fact that external aid had a negative impact on tax revenue and public consumption.

Botting et al., (2010) assessed how foreign aid affects government spending in India using annual numerical data which is pointing in successive order from 1970 to 1995. They established no evidence that foreign aid which is measured as total annual disbursement of concessional loans and grants from all bilateral and sources has led to a reduction in the tax of revenue of the central government. An increase in aid by one rupee does not have impact on development expenditure while a rupee increase in aid has impact on non-development expenditure by about 0.9 rupee. Therefore, assistance from other countries is not used for economic growth purpose meaning it is being used to expenditures not associated with growth such as repayment of debt both internal and external, defense, general service and administration in the country. However, the same findings show that central government transfers on account of external aid are not truly supplementary as it does not benefit on account of externally funded projects which implies that states which are able to procure aid end up getting less assistance from the central government.

Carter, (2013) using Costa Rica data to determine how external aid impacts on the fiscal account found out that while foreign aid had a positive influence on the tax revenue and government consumption, it showed a negative effect on domestic borrowings and government investment.

Dandan, (2011) used Cote d'Ivoire to determine how external aid impacts on tax revenue, government consumption, government investment and domestic borrowing. The study found out that while the impact of external aid showed a negative impact on government investments, tax income and government consumption, there was a positive influence on the domestic borrowings.

More recent empirical studies have attempted to disaggregate the foreign aids since they believe that their influence on the fiscal account may vary significantly. For instance, Fasanya and Onakoya, (2012). while investigating the impact of external aid on fiscal account using data from Uganda, disaggregate external aid into development aid, aid in form of subsistence, and technical assistance. His findings showed different impacts of these aids on tax collections, government investments, government revenue and domestic borrowing. To start with, development assistance impacted negatively on all the four variables considered in the study. Programme aid showed a negative influence on tax income and domestic borrowing but was negative to public investments and public consumption. Technical assistance had a negative influence on tax revenue and domestic borrowing but recorded a negative influence on the public investment and consumption. Finally, subsistence assistance had a negative influence on public investment, public consumption as well as domestic borrowing but showed a positive influence on the tax revenue.

Similar study was carried by Feeny, et al., (2014) using Code d'Ivoire data in which the effects of both aggregated and disaggregated foreign aid was investigated on the impact of the fiscal account. Their study pointed out that external aid showed a negative impact of all variables except for the public consumption in which it had a positive impact. Project aid showed a negative influence on domestic borrowings, tax revenue and public investment but was positive to the public consumption from the same data. Programme aid on the other hand was negatively affecting domestic borrowing, public consumption and tax revenue but a positive

influence on the public investment. Assistance of technical nature and subsistence aid showed a positive result to all variables under investigation except public consumption.

Kaya, et al., (2013) investigated the determinants of fixed capital formation in Kenya using disaggregated data covering the period 1973 to 2007. The study employed two- stage multiple regression analysis by using OLS. The outcomes affirmed that government expenditure was the most significant. Foreign inflows both multilateral and bilateral are used in the development expenditure thereby enhancing capital formation. This implies there is need to encourage the flow of foreign direct investments to augment to the low domestic savings in a stable macroeconomic environment.

2.4 Overview of literature

The decision to use aid for other purpose other than its intended use is called fungibility. It is part of the untied loan. In this study we will simply the definition of fungibility by simply referring it to the decision to use the aid to finance what could otherwise be financed by tax (Tierney et al., 2011; Swaroop et al, 2000; Van de Sijpe, 2013). The significant amount of the previous studies regarding foreign aid and the way it affects development in third world countries has aimed to determine connection between financial and the economic growth through international cross-section statistical research instead of individualized enquiry (Obasi, 2015). Even so, the results vary per the individual country, with once popular assumptions that increases in aid result in reduced savings disproved on research.

The evaluation of panel and time series data shows that increases in foreign aid are related to rising government expenditure, thus making it vital to interrogate changes in the flow of aid as manifested by declines and surges. Previous research (check Corden (1984), Killick (1991), Nyoni (1997), and Cassen, 1986)) affirms that for developed nations, surges in aid has impacts on growth that resemble those experienced during the discovery of valuable natural resources, thus putting the countries at risk of the Dutch disease. Bevan et al. (1993), argues nonetheless

that the impacts of surges in financial resources is pegged on the expenditures that the resources will be used to fund. In the case the country's economy is able to handle the aid surges in ways that promote economic growth, then economists have little reasons to worry. However, given the imperfect nature of the financial markets in the country, the rising price caused by aid surges spurs the movement of resources towards trade. As a result, we would expect rising economic growth similar to the experiences of an economic boom narrowing down to our areas of interest. Is there any substantial level of correlation between the tremendous increases in aid spurred by a ballooning external debt and government spending? The current research takes interest in answering the question using a utility maximization approach as the basis for assessing the Kenyan situation.

CHAPTER THREE: METHODOLOGY

3.1 Theoretical Framework

From the seminal work by Heller (1975) on consumer behaviour, the fiscal response assumes that public sector decision-makers tried to maximize utility from various types of expenditures (whether at recurrent expenditure or capital expenditure) subject to a budget constraint. That is, public officials are faced with the task of providing resources among the two types of expenditure (public sector investment and recurrent expenditure) subject to assumed budget constraints. Further, we assume that these public decision-makers are treated as single persons with homothetic preference map and utility function given as

$$Utility_t = f(I_{gt}, C_{gt}, B_t, A_t) \dots \dots \dots (1)$$

Where

I_{gt} = represents public investment (capital expenditure) in period t; C_{gt} = consumption in the public Sector (recurrent expenditure) in period t; B_t = is the borrowing from public sources (both foreign and domestic) in period t while A_t = is foreign aid in period t

From the theoretical point of view, two strands of modelling exist: including foreign aid into utility function as an exogenous variable (Heller, 1975) or as an endogenous variable (Franco-Rodriguez and colleagues, 1998) modified the original utility function of by including aid. Whichever the case, the utility function in equation 1 converges to a quadratic loss function in both cases to

$$Utility_t = \alpha_0 - \frac{\alpha_1}{2} (I_{gt} - I_{gt}^*)^2 - \frac{\alpha_2}{2} (C_{gt} - C_{gt}^*)^2 - \frac{\alpha_3}{2} (B_t - B_t^*)^2 - \frac{\alpha_4}{2} (T_t - T_t^*)^2 \dots \dots \dots (2)$$

Where, I_{gt} , C_{gt} and B_t are as defined in equation 1 while T_t is the tax revenue in period t.

The asterisks denote exogenous target levels of the endogenous variables. And $\alpha_i > 0$ for all values of $i = 0, 1, \dots$. This assumption makes sure that principle of diminishing marginal

utility is ensured for all levels of T_t , I_{gt} , C_{gt} and B_t and that α_0 is the maximum unconstrained value.

Equation 2 gives some economic intuition: that the economy will maximize its utility when all targets are achieved, otherwise, it will not. Heller (1975) model is founded in two major assumes: that T_t is endogenously determined while foreign aid is exogenously determined. And that foreign aid is not directly used in public expenditure but rather used to finance government investments. Thus according to the model by Heller (1975), the government decision maker will try to maximize equation two subject to

$$I_{gt} + C_{gt} = B_t + A_t + T_t \dots \dots \dots (3)$$

We should note that equation 3 (government revenue equals to government expenditure) must hold for the government in question to be optimizing her objectives, otherwise it will not.

From equation 3, both I_{gt} and C_{gt} can be gotten as

$$I_{gt} = B_t + (1 - \rho_1)T_t + (1 - \rho_2)A_t$$

And

$$C_{gt} = \rho_1 T_t + \rho_2 A_t$$

Note that $\rho_i \in [0,1]$ and that ρ_1 and ρ_2 measures the proportion of tax revenue and foreign aid that goes to government consumption respectively.

According to Franco-Rodriguez et al. (1998), foreign aid largely remain a government policy and as such, it is more of endogenous variable that can be included in the utility function as

$$Utility_t = \alpha_0 - \frac{\alpha_1}{2} (I_{gt} - I_{gt}^*)^2 - \frac{\alpha_2}{2} (C_{gt} - C_{gt}^*)^2 - \frac{\alpha_3}{2} (B_t - B_t^*)^2 - \frac{\alpha_4}{2} (T_t - T_t^*)^2 + \frac{\alpha_5}{2} (A_t - A_t^*)^2 \dots \dots \dots (4)$$

Where A is the actual foreign aid disbursements and the target A* is the commitment of foreign aid by donors. Theoretically, any rational social planner will try to maximize the utility given in equation 4

Subject to

$$I_{gt} + C_{gt} = B_t + A_t + T_t \dots \dots \dots (5)$$

And

$$C_{gt} \leq \rho_1 T + \rho_2 A + \rho_3 B \dots \dots \dots (6)$$

3.2 Empirical model specification

The theoretical framework in section 3.1 enables us to develop two structural equations to be used in accessing both the indirect and direct effect of external aid on government spending behavior in the country. This is done by use of Lagrangian equation given as

$$L = [\alpha_0 - \frac{\alpha_1}{2} (I_{gt} - I_{gt}^*)^2 - \frac{\alpha_2}{2} (C_{gt} - C_{gt}^*)^2 - \frac{\alpha_3}{2} (B_t - B_t^*)^2 - \frac{\alpha_4}{2} (T_t - T_t^*)^2 + \frac{\alpha_5}{2} (A_t - A_t^*)^2] + \mu_1 (I_{gt} + C_{gt} - B_t - A_t - T_t) + \mu_2 (C_{gt} - \rho_1 T - \rho_2 A - \rho_3 B) \dots \dots \dots (8)$$

Where μ_1 and μ_2 are the Lagrangian multiplier. Taking the first derivative of equation 8 with respect to $T_t, I_{gt}, C_{gt}, B_t, A, M_1$ and M_2 will have the following systems of equations

$$\frac{dL}{dI_{gt}} = -\alpha_1 (I_{gt} - I_{gt}^*) + \mu_1 = 0 \dots \dots \dots (9)$$

$$\frac{dL}{dC_{gt}} = -\alpha_2 (C_{gt} - C_{gt}^*) + \mu_1 + \mu_2 = 0 \dots \dots \dots (10)$$

$$\frac{dL}{dT_t} = -\alpha_4 (T_t - T_t^*) - \mu_1 - \mu_2 \rho_1 = 0 \dots \dots \dots (11)$$

$$\frac{dL}{dA_t} = -\alpha_5 (A_t - A_t^*) - \mu_1 - \mu_2 \rho_2 = 0 \dots \dots \dots (12)$$

$$\frac{dL}{dB_t} = -\alpha_3 (B_t - B_t^*) - \mu_1 - \mu_2 \rho_3 = 0 \dots \dots \dots (13)$$

$$\frac{dL}{d\mu_1} = I_{gt} + C_{gt} - T_t - A_t - B_t = 0 \dots \dots \dots (14)$$

$$\frac{dL}{d\mu_2} = C_{gt} - \rho_1 T_t - \rho_2 A_t - \rho_3 B_t = 0 \dots \dots \dots (15)$$

From equations 9 to 14, the following simultaneous equations can be generated

$$I_{gt} = (1 - \rho_1)\phi_1 I_{gt}^* + (1 - \rho_1)\phi_2 C_{gt}^* + (1 - \rho_1)[1 - (1 - \rho_1)\phi_1 - \rho_1\phi_2]T_t^* + [(1 - \rho_2) - (1 - \rho_1)(1 - \rho_3)\phi_1 - (1 - \rho_1)\phi_2\rho_2]A_t + (1 - \rho_3)(1 - \rho_1)(1 - \rho_3)\phi_1 - (1 - \rho_1)\phi_2\rho_3]B_t \dots \dots \dots (16)$$

$$C_{gt} = (\rho_1)\phi_1 I_{gt}^* + (\rho_1)\phi_2 C_{gt}^* + \rho_1[(1 - (1 - \rho_1)\phi_1 - \rho_1\phi_2)T_t^* + [\rho_2 - \rho_1(1 - \rho_2)\phi_1 - (\rho_1)\rho_2\phi_1]A + [\rho_3 - \rho_1(1 - \rho_3)\phi_1 - (\rho_1)\rho_3\phi_2]B] \dots \dots \dots (17)$$

$$T_{gt} = \phi_1 I_{gt}^* + \phi_2 C_{gt}^* + [(1 - (1 - \rho_1)\phi_1 - \rho_1\phi_2)T_t^* - [(1 - \rho_2)\phi_1 + \rho_2\phi_2]A_t - [(1 - \rho_3)\phi_1 + \rho_3\phi_2]B] \dots \dots \dots (18)$$

$$A_{gt} = \phi_3 I_{gt}^* - \phi_4 C_{gt}^* + [(1 - \rho_1)\phi_3 + \rho_1\phi_4]T_{gt} + [(1 - (1 - \rho_2)\phi_3 - \rho_2\phi_4)A_t^* - [(1 - \rho_3)\phi_3 + \rho_3\phi_4]B] \dots \dots \dots (19)$$

$$B_{gt} = \phi_5 I_{gt}^* + \phi_6 C_{gt}^* - [(1 - \rho_1)\phi_5 - \rho_1\phi_6]T_{gt} - [(1 - \rho_2)\phi_5 + \rho_2\phi_6]A_{gt} \dots \dots \dots (20)$$

Since our main objective was to determine the influence of foreign aid on government expenditure in Kenya. To capture the three specific objectives of the study, three equations are estimated based on equation 6 as shown below:

$$Y_t = (\rho_1)\phi_1 I_{gt}^* + (\rho_1)\phi_2 C_{gt}^* + \rho_1[(1 - (1 - \rho_1)\phi_1 - \rho_1\phi_2)T_t^* + [\rho_2 - \rho_1(1 - \rho_2)\phi_1 - (\rho_1)\rho_2\phi_1]A + [\rho_3 - \rho_1(1 - \rho_3)\phi_1 - (\rho_1)\rho_3\phi_2]B] + \epsilon_t \dots \dots \dots (21)$$

Where Y_t are the dependent variables that include the recurrent expenditure, the total government expenditure and development spending? The coefficients of interest are $[\rho_2 - \rho_1(1 - \rho_2)\phi_1 - (\rho_1)\rho_2\phi_1]$ in all the three models.

3.3 Data Sources, Measures, and Variables

Table 1: Data Sources, Measures, and Variables

Variable	Sign / proxy	Measurement	Expected sign	Source
Government expenditure	C_{gt}	Is the actual Recurrent Expenditure	Dependent variable	WDI
Target for Recurrent Expenditure	C_{gt}^*	<p>This is fitted values form a linear regression on its value in the previous year.</p> $C_{gt}^* = \partial_0 + \partial_1 C_{gt-1}$ <p>Reason</p> <p>The rationale is that, as argued in much of the literature of the fiscal response model, large share of the recurrent expenditure is accounted for civil consumption expenditures, which are fundamental and continuous activities in the budget</p>	+	Partly from WDI and Computed by author
Target for Capital Expenditure	I_{gt}^*	<p>This is the fitted values of regressing</p> $I_{gt} = \partial_0 + \partial_1 Y_{t-1} + \partial_2 Private\ Inv_t$ <p>Reason</p> <p>Usually, from theory, it is related positively to the level of output in the economy in the previous period and negatively to the private sector investment</p>	+	Partly from WDI and Computed by author
Target for taxation and other recurrent revenue	T_t^*	<p>This is the fitted values of the equation</p> $T_t = Y_t + M_{t-1}$ <p>Reason</p> <p>This is because, in Kenya, trade policy is towards encouraging export, and it is</p>	+	Partly from WDI and Computed

		expected that tax from this sector has little contribution to government revenue. Rather, tax from import of goods and services accounts for the largest share of tax revenue.		ed by author
Total Expenditure	ToT_E XP	This represents all the expenditures inclusive of those of an operating and capital nature. It is believed, therefore, that the government's expenditure plan significantly impacts the degree and constitution of imports	+	WDI
Development spending	Dev_E XP	This is the amount directed to creativity works with the aim of increasing knowledge and devising new applications.	+	WDI

3.4 Pre-estimation Tests

3.4.1 Autocorrelation

Autocorrelation is an econometric problem that is commonly present in time series. Autocorrelation occurs when the current error term is related to preceding error term. Despite the fact that this econometric problem doesn't affect unbiasedness of the estimates it affects the variance-covariance matrix rendering inference testing inapplicable. The study adopted Breusch Godfrey test to check for presence of autocorrelation.

3.4.2 Multicollinearity

Multicollinearity is another econometric problem. It is a case where some or all of the explanatory variables are related. If it is present, the expected sign of the explanatory variable may not be obtained. It also inflates variance of the coefficients resulting into small t ratios.

This may translate into wrong conclusion. The study adopted Variance inflation factors (VIF) test in testing for presence of multicollinearity.

3.4.3 Unit Root Test

Following from our regression equation 17 we sort to determine whether all variables were stationary or not i.e. their mean and variance are finite and changes not over time (Wooldridge, 2009). However, when variables do not meet the assumption of covariance stationarity, the cointegration methodology presents a framework interpretation and inference from the estimations. The preceding step is therefore to test stationarity properties of the variables, using a unit root test in the analysis. A unit root in the time series means the independence assumption of the ordinary least squares methodology will be violated thus invalidating the results, i.e. no spurious regression problem and the results might be incorrect and misleading.

The study adopted ADF in ascertaining the level of integration among the units. Phillips Perron (PP) test is the best substitute to ADF since it's non-parametric. It does not require a model specification and lagged parameter in the regression model for the test. However, PP may not be the best unit root test since it's based on asymptotic theory. The literature does not show consensus on the best unit root test. In fact, the various unit root test may give different results regarding the stationarity status of the variables.

The estimates of OLS shown in equation 24 and 25 have been used to carry out the ADF and PP tests respectively

$$\Delta Y_t = \beta_0 + \alpha T + \delta Y_{t-1} + \sum_{i=1}^k \beta_i \Delta Y_{t-i} + \mu_t \dots\dots\dots 24$$

$$\Delta Y_t = \beta_0 + \alpha T + \delta Y_{t-1} + \mu_t \dots\dots\dots 25$$

Where $\alpha = (\rho - 1)$, Y_t is the variable of interest subjected to unit root test, β_0 is the intercept, T is a linear time trend. μ_t is the error term that is identical and independently distributed having a mean of zero. The μ_t also has a constant variance.

Lags are introduced as a remedy for serial correlation. A problem however arises on deciding lag length. On one hand, choosing many lags affects the sample power of the test. On the other hand, choice of few lags not only renders the test incorrect but also asymptotical. The lag length is usually dictated by the frequency of the time series. If it's quarterly, then 4 lags are appropriate but if it is monthly then 12 lags are appropriate. However, there is no rule to follow in any of these cases (Wooldridge, 2009). Said and Dickey (1984) suggest choice of one third of observations as the lag length. Given lack of consensus on suitable lag length selection criterion, this study select lag length based on AIC.

3.4.4 Johansen Cointegration Test

There are two popular cointegration tests used in empirical works. These tests include Engel Granger and Johansen test. This study adopted Johansen cointegration test because of its merit over Engel Granger. Unlike Engel Granger test, Johansen cointegration test does not need prior assumption of variable exogeneity and endogeneity (Ender, 2003). The mathematical function of the Johansen Cointegration test is as shown in equation 12.

$$W_t = \vartheta + A_1 W_{t-1} + \dots + A_p W_{t-p} + \mu_t \dots \dots \dots 26$$

Where W_t represents a vector of endogenous variables, ϑ is a vector of parameters, μ_t is the error term and A_1-A_p are sets of matrices of parameters. Equation 12 can be rewritten in VECM as shown in equation 13.

$$\Delta W_t = \vartheta + \pi W_{t-1} + \sum_{i=1}^{p-1} \hat{\Gamma}_i \Delta W_{t-i} + \mu_t \dots \dots \dots 27$$

Where $\pi = \sum_{j=1}^{j=p} A_j - I_K$ (I_K is a $K \times k$ identity matrix) and $\hat{\Gamma}_i = - \sum_{j=1}^{j=p} A_j$.

CHAPTER FOUR: DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter outlines the results/estimation as well as interpretations. It includes the descriptive statistics, the normality test, autocorrelation test, unit root test, multicollinearity test and lastly, the estimation model that is used to answer the study objectives.

4.2 Descriptive statistics

This was carried out to confirm the statistical characteristics of the model-specific data. Time-series data for the years 1970 -2018 was used for the research. The dependent variable is the natural logarithm of government expenditure while the independent variables includes the natural logs of targeted values of consumption in the public Sector (recurrent expenditure); tax revenue; public investment (capital expenditure); foreign aid and public borrowing (domestic and foreign). See Table 2.

Table 2: Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Recurrent Expenditure	48	25.47487	1.016483	24.31232	27.58183
Total Expenditure	49	.3701879	.0444915	.3018439	.4930406
Development Expenditure	49	.20634	.0335258	.1500382	.2978929
Foreign Aid	48	.0569858	.0304628	.0241354	.1591904
Tax Revenue	37	21.16949	1.783781	16.38812	23.34066
Public Investment	43	17.72092	2.397784	14.16529	22.18188
Public Borrowing	43	22.32441	1.226504	19.08878	24.70409

4.3 Diagnostic tests

4.3.1 Normality Test

Shapiro-Wilk test was used to ascertain the normality of variables. Equal mean, mode and median depict a normal variable. Four options, namely W, V, Z and the P-value are given by the test. Normality is inferred through the P-value. The p-value is compared against the critical value. The results of the tests are shown in Table 3. From the results, three variables

were found to be normally distributed while the rest of the variables in our data set was non-normally distributed. Since normality test gives a clue on the type of model to adopt this study utilizes the log-log (or double log).

4.3.2 Unit root test

Variable stationarity is tested using the ADF test. In this test, a t-calculated smaller than t-critical indicates a stationery variable. From both the ADF test (Table 4), the result reveals that only development expenditure and tax revenues were stationary at levels, while the rest of the variables were non-stationary. To achieve stationarity of all the variables, they were differenced at respective order of differencing as shown in table 4

4.3.3 Lag selection criteria

To determine how many lags we should use in our VECM, several criteria's are employed: LL, LR, HQIC, FPE, AIC as well as SBIC. Form the result in Table 5 in appendix A, most of the criteria used were in agreeing that lag three was the best.

4.3.4 Vector ranks

To test whether there was cointegration in the dataset used in our regression, we tested for presence of cointegration vectors. According to this test, alternative using the trace statistic and the critical values. At rank zero

H₀: There is no cointegrating vector in the dataset

H_a: There is at least one cointegrating vector in the dataset

The result showed that there were gaps in our data set and thus could not be able to get the vector ranks. This means that VECM was not appropriate model in our study and thus used the OLS model on the stationary variables.

4.4 Estimation Tests

4.4.1 Multicollinearity Test

A multicollinearity test is important when there exists a high correlation between independent variables. According to Gujarati (2012), collinearity between two variables occur when they have a correlation of 0.8 and above. In testing for multicollinearity, this paper uses the VIF and Tolerance (1/VIF). When using the test in Stata, it is crucial to perform a regression and then a VIF command. An inference is then made based on the magnitude of the VIF value. Variable multicollinearity exists if the VIF value is more than 10, otherwise non-multicollinearity is inferred. From table 6, the mean VIF of 5.58 reveals that multicollinearity is not a serious problem in the data set.

4.4.2 Autocorrelation test

To test for the presence of autocorrelation, our study utilized Breusch-Godfrey test. The result in Table 7, in Appendix shows that autocorrelation is absent in the dataset.

4.5 Regression results

4.5.1 Objective one: Recurrent Expenditure and Foreign Aid

Table 3: Objective One: Regression result of Recurrent Expenditure

Source	SS	df	MS	Number of obs	=	32
Model	41.0034505	5	8.20069011	F(5, 26)	=	21.50
Residual	9.91494589	26	.381344073	Prob > F	=	0.0000
				R-squared	=	0.8053
				Adj R-squared	=	0.7678
Total	50.9183964	31	1.64252892	Root MSE	=	.61753

ln_C_gt	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ln_C_target	2.267251	.7698037	2.95	0.007	.6848964	3.849605
ln_T_target	.4905689	.1667172	2.94	0.007	.1478767	.8332611
ln_I_target	-.0337196	.1162604	-0.29	0.774	-.2726964	.2052572
ln_B_t	-2.008001	.7489983	-2.68	0.013	-3.547589	-.4684134
ln_A_t	.1847305	.3169294	0.58	0.565	-.4667273	.8361882
_cons	-1.006306	8.120325	-0.12	0.902	-17.69787	15.68526

From Table 8 the study reveals that 80.53% of the variation of the dependent variable (government expenditure) is explained by the explanatory variables in the model as indicated by an R^2 of 0.8053. Further, an F statistic with p_value of 0.000 implies that the coefficients in our regression are jointly significant and can be trusted. The result also reveals that our variable of interest, foreign aid was not statistically significant in explaining the government expenditure in the period under study. However, the targeted consumption in the public Sector (recurrent expenditure), targeted tax revenue as well as targeted public borrowing flow from both foreign and domestic source were statistically significant in influencing government expenditure in the period under study. For instance, a unit percentage increase in targeted consumption in the public Sector (recurrent expenditure) led to 2.27% increase in government expenditure when all other factors were held constant. Further, holding all other factors constant, a one percentage increase in targeted tax revenue led to a 0.49% increase in the government expenditure. Lastly, when all other factors were held constant, a one percentage increase in the flow of public borrowing from both domestic and foreign source led to a decline in government expenditure by 2.00%.

4.5.2 Objective two: Development Spending and Foreign Aid

Table 4: Objective Two: Regression result of Development Spending

Source	SS	df	MS	Number of obs	=	1,010
Model	4.02374358	4	1.00593589	F(4, 1005)	=	209.79
Residual	4.81887771	1,005	.004794903	Prob > F	=	0.0000
				R-squared	=	0.4550
				Adj R-squared	=	0.4529
Total	8.84262129	1,009	.008763748	Root MSE	=	.06925

ln_Tot_Exp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]
ln_FOR_Aid	.0067254	.0029739	2.26	0.024	.0008897 .0125611
ln_Tax	-.0423546	.0040531	-10.45	0.000	-.050308 -.0344012
ln_INV	.0335832	.001848	18.17	0.000	.0299568 .0372095
ln_BOR	-.0682411	.0074006	-9.22	0.000	-.0827636 -.0537187
_cons	.8192429	.0961769	8.52	0.000	.6305123 1.007973

Table 9 shows the regression results of the objective which sought to establish the impact of foreign aid on development spending in Kenya. The study revealed that 45.5 % of the variation of the dependent variable (Development spending) is explained the explanatory variables in the model as indicated by an R^2 of 0.4550. Further, an F statistic with p_value of 0.000 implies that the coefficients in our regression are jointly significant and can be trusted. Consequently, the result also reveals that our variable of interest, foreign aid was statistically significant (10% level of significance) in explaining the development spending in Kenya. government expenditure in the period under study. Furthermore, all the other independent variables were statistically significant across the three levels (1%, 5% and 10%) in explaining the dependent variable. For instance, a unit percentage increase in foreign Aid led to 0.67% increase in development spending when all other factors were held constant.

4.5.3 Objective three: Total Government Expenditure and Foreign Aid

Table 5: Objective Three: Regression result of Total Government Expenditure

Source	SS	df	MS	Number of obs	=	1,010
Model	7.99984861	4	1.99996215	F(4, 1005)	=	177.30
Residual	11.3363149	1,005	.011279915	Prob > F	=	0.0000
				R-squared	=	0.4137
				Adj R-squared	=	0.4114
Total	19.3361635	1,009	.01916369	Root MSE	=	.10621
ln_DEV_Exp	Coef.	Std. Err.	t	P> t	[95% Conf. Interval]	
ln_FOR_Aid	.0234937	.0045613	5.15	0.000	.014543	.0324444
ln_Tax	-.0582655	.0062165	-9.37	0.000	-.0704643	-.0460667
ln_INV	.0668708	.0028344	23.59	0.000	.0613089	.0724328
ln_BOR	-.0847648	.0113509	-7.47	0.000	-.1070391	-.0624906
_cons	.3853583	.1475142	2.61	0.009	.0958873	.6748294

Table 10 shows the regression results of the objective which sought to establish the impact of foreign aid on Total government expenditure in Kenya. The study revealed that 41.37 % of the variation of the dependent variable (Total government expenditure) is explained the explanatory variables in the model as indicated by an R^2 of 0.4137. Further, an F statistic with

p_value of 0.000 implies that the coefficients in our regression are jointly significant and can be trusted.

The result also reveals that foreign aid, which is our variable of interest was statistically significant across all the three levels (1%, 5% and 10% levels of significance). Additionally, all the independent variables were statistically significant across the three levels of significance in explaining the dependent variable. From the results, a unit percentage increase in foreign Aid led to 2.34 % increase in development spending when all other factors were held constant.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This sections give the summary and conclusion, policy relevance of the findings, limitations of the study, and ends by proposing further areas of research.

5.2 Summary and Conclusion

This work sought to investigate the effect of foreign aid on government expenditure in Kenya. More specifically, the study aimed determining the impact of foreign aid on government development expenditure, foreign aid and total government expenditure in Kenya. Using data from 1970 to 2018 of targeted values rather than actual values and OLS estimation techniques, the result reveals that that our main variable of interest had no statistical significance in influencing any of the recurrent government expenditure in the period under study. However, the targeted consumption in the public Sector (recurrent expenditure), targeted tax revenue as well as targeted flow of government borrowing from both domestic and foreign source were statistically significant in influencing government expenditure in the period under study. For instance, a unit increase in percentage in targeted consumption in the public Sector (recurrent expenditure) led to 2.27% increase in government expenditure when all other factors were held constant. Further, holding all other factors constant, a one percentage increase in targeted tax revenue led to a 0.49% increase in the government expenditure. Lastly, when all other factors were held constant, a one percentage increase in the flow of public borrowing from both domestic and foreign source led to a decline in government expenditure by 2.00%.

Equally, the result also reveals that our variable of interest, foreign aid was statistically significant (10% level of significance) in explaining the development spending in Kenya. Government expenditure in the period under study. For instance, a unit percentage increase in foreign Aid led to 0.67% increase in development spending when all other factors were held

constant. And lastly, the results revealed that foreign aid had a statistical significance in explaining the variation in total government expenditure. For instance, a unit percentage increase in foreign Aid led to 2.34 % increase in development spending when all other factors were held constant.

5.3 Recommendations

Based on the study result, where the study revealed a positive association between targeted values of tax revenue and various government expenditures, the government should strengthen tax collection exercise so as to achieve the targeted tax as it improved government expenditure. We also recommend that government should reduce borrowing especially from domestic sources due to the negative association with government spending.

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APPENDICES

Appendix Table 6: Shapiro Swilk Normality Test

Variable	Obs	W	V	z	Prob>z	Commend
Recurrent Expenditure	48	0.89950	4.577	3.236	0.00061	Not normal
Total Expenditure	49	0.94781	2.416	1.879	0.03015	Normal
Development Expenditure	49	0.97487	1.163	0.322	0.37362	Normal
Foreign Aid	48	0.80016	9.102	4.698	0.00000	Not normal
Tax Revenue	37	0.91888	3.020	2.315	0.01030	Normal
Public Investment	43	0.88970	4.611	3.230	0.00062	Not normal
Public Borrowing	43	0.98563	0.601	-1.077	0.85932	Normal

Appendix Table 7: ADF Unit Root Test

Variable	Levels		Comment	Order of differencing	Difference		Comment
	Statistic	P-Value			Statistic	P-Value	
Rec Exp	6.674	1.0000	Non- Stationary	1	-3.196	0.0202	Stationary
Tot Exp	-2.592	0.0947	Non- Stationary	1	-9.822	0.0000	Stationary
Dev Exp	-3.633	0.0052	Stationary	0	-3.633	0.0052	Stationary
For Aid	-1.681	0.4410	Non- Stationary	2	-5.263	0.0000	Stationary
Tax Rev	-8.251	0.0000	Non- Stationary	0	-8.251	0.0000	Stationary
Pub Inv	-0.032	0.9558	Stationary	1	-5.116	0.0000	Stationary
Pub Bor	-3.113	0.0256	Non- Stationary	1	-8.253	0.0000	Stationary

Appendix Table 8: Lag selection criteria

Selection-order criteria								
Sample: 1982 - 2018, but with gaps					Number of obs		=	32
lag	LL	LR	df	p	FPE	AIC	HQIC	SBIC
0	-871.249				3.8e+22	54.8281	54.9192	55.1029
1	-867.731	7.0361	1	0.008	3.3e+22	54.6707	54.777	54.9913
2	-866.382	2.6997	1	0.100	3.2e+22	54.6488	54.7703	55.0153
3	-860.992	10.778*	1	0.001	2.4e+22*	54.3745*	54.5112*	54.7868*
4	-860.497	.99098	1	0.320	2.5e+22	54.4061	54.5579	54.8641

Appendix Table 9: Multicollinearity test

Variable	VIF	1/VIF
Public Borrowing	10.76	0.092913
Tax Revenue	6.16	0.162294
Public Investment	4.01	0.249402
Foreign Aid	1.40	0.715549
Mean VIF	5.58	

Appendix Table 10: Autocorrelation test

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Breusch-Godfrey LM test for autocorrelation

lags (<i>p</i>)	chi2	df	Prob > chi2
1	0.065	1	0.7985

H0: no serial correlation