

Effects of Government Expenditure on Household Consumption in Kenya

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Abstract: *The research project sought to investigate the effect of government spending on household consumption in Kenya. The study sought to find out the effects of components of government's spending on household consumption focusing on four components namely health, infrastructure, defence, public order and security in order to find out if spending on these areas encourages household consumption or stifles it. The study uses secondary annual time-series data over the period 1963 – 2012 to estimate a Vector Error Correction Model. The main source of data was the World Bank and the Government of Kenya official Statistical Abstracts. The study found out that all the four variables health, security, infrastructure and defence have positive impact on household consumption. The coefficients for infrastructure, public order and security and defence were found to be significant at 5% level while that of health was significant at 10% level. However the t-statistics for health and defence were found not to be significant. Therefore only infrastructure and security were significant. The study concludes that both infrastructure and security improves business environment in the long-run and thereby having a positive effect. The positive impact of health can be attributed to the increase of disposable income as a result of improved health status of the people i.e. will spend less on health expenses.*

Keywords: Government Expenditure, Household Consumption, Vector Error Correction Model

1. Introduction

1.1 Background

The effect of government consumption on household consumption still remains a divergent topic in macroeconomics literature. Three schools of thought have emerged; Keynesian theory, substitutability hypothesis; and Ricardian equivalence. Each of the school has a set of explanations on the effect of government consumption on households' consumption that is different from others. In addition to the divergent views of the theories, empirical literature has also been diverse. (Kormendi, 1983; Aschauer, 1985; and Karras, 1994).

Keynesian theory states that; a given change in government spending will produce a multiplier effect on the aggregate demand. This argument was refuted by Martin Bailey (1962) who developed the substitutability hypothesis. The substitutability hypothesis argues that household consumption would be substituted one for one for a given change in government consumption regardless of the way it is financed. A number of empirical studies have been conducted to test the substitutability hypothesis and has had mixed results. Some studies such as ones undertaken by Kormendi (1983) and Aschauer (1985) has found existence of incomplete substitution. However other studies such as Karras (1994) have differed from them. According to Karras conclusion the relationship between government and household consumption can best be described as "complementary or unrelated". This finding by Karras of the relationship between government spending and household consumption as unrelated is supported by the explanation offered by Ricardian Equivalence. Ricardian Equivalence predicts that government spending, regardless of the way of financing, does not affect household consumption. This happens because households internalize government's budget constraint into their own life time budget constraints.

Ricardian Equivalence is also known as Barro-Ricardian Equivalence

The differing observations led to a number of empirical research works geared towards gauging the effect of public spending on consumption. Unfortunately, the forecasts of these empirical studies have turned out to be quite mixed in the backing of some theories. A number of studies have found out that vector auto regressions shocks to government spending seems to be associated with increases in household consumption (Blanchard and Perotti, 2002, Canzoneri, Cumby, and Diba, 2002, Fatas and Mihov, 2002, Gali, Lopez-Salido, and Valles, 2004). Nevertheless, the experimental outcome has appeared not to hold for all countries, as well as sample periods (Perotti 2004). Nonetheless, it has received much attention in the theoretical literature (Canzoneri, Cumby, and Diba 2005). Several recent empirical studies focusing on vector auto regressions (VARs) have found that an increase in public spending leads to a significant and persistent rise in household consumption (Fatas and Mihov 2001; Perotti 2004; and Gali, Lopez-Salido, and Valles 2005).

The standard real business cycle (RBC) model predicts that a surge in government spending creates an undesirable wealth effect by lowering the households' stable income. To avoid a huge reduction in consumption, households raise their supply of labour, but the substitution effect does not appear sufficiently strong to offset the wealth outcome. This results to a decline in consumption equilibrium. Such predictions led some researchers to reach a conclusion that the neoclassical approach may not be a suitable framework to the study of macroeconomic implications brought about by the fiscal policy shocks (Baxter and King 1993).

Conclusions drawn from the empirical literature conducted on the effect of government consumption on household consumption appear to be mixed and also vary between

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regions, countries and time periods. Though a number of researches on the topic have been conducted at country and cross country levels, the study was unable to find a sound empirical work in light with the contentious economic theories regarding the Kenya economy. With this conclusion the researcher, make an attempt to carry out the empirical research in the context of a small open economy namely Kenya.

1.2 Statement of the problem

The study seeks to find out if different government spending allocations have different effects on household consumption. The study seeks to inform policy makers on how to allocate government expenditure efficiently in order to spur GDP growth through fiscal multiplier by increasing aggregate demand.

The study seeks to find out if these different empirical findings can be explained by the hypothesis that different government allocations will affect household consumption differently. Governments seek economic growth which is measured by growth in gross domestic product growth. One of the means to ensure this growth is through fiscal multiplier effect. According to Keynesian theory, to spur growth, there is need to increase aggregate demand. The increased demand will reduce unemployment and lead to GDP growth. Aggregate demand is a combination of four components which are household consumption, investment, government spending and net exports. When governments spending increases, there is likelihood of a multiplier effect resulting from an injection of new demand brought about by government spending. The multiplier effect happens because an injection of extra income creates a ripple effect of more income resulting from more spending. The study seeks to find out which government allocations can increase the multiplier effect.

1.3 Objectives

1.3.1 General Objective

To explore the effect of public spending components on household consumption in Kenya

1.3.2 Specific Objectives

The specific objectives of the study were:

- 1) To examine the effect of government's health expenditure on household consumption in Kenya
- 2) To determine the relationship between defence expenditure by the government and household consumption in Kenya
- 3) To determine the effect of government's infrastructure expenditure on household consumption in Kenya.
- 4) To determine the effect of government's public order and security expenditure on household consumption in Kenya.

1.4 Justification

From the Gross Domestic Product (GDP) identity i.e. $Y = C + I + G + (E - M)$, household consumption (C) is one of the major components in GDP calculation. The other three variables are investment (I), Government expenditure (G)

and net exports (exports minus imports). Any increase in government expenditure will result in a Fiscal multiplier effect, which will increase National income. The ripple effect mechanism that give rise to a multiplier effect holds that an initial incremental amount of government spending will lead to an increased consumption spending which in turns increases income further, resulting to an even further consumption. The increased government spending will then have an impact even on other components of the GDP equation.

From theories it is argued household consumption will rise with an increase in government expenditure but various studies have shown that various government allocation affect household consumption expenditure differently. This study endeavours to develop a logical framework to examine the effect of various government expenditure allocations on household consumption. This study seeks to inform policy formulation on sectors that government can invest in to spur GDP growth through increased demand through programs such as fiscal stimulus package.

1.5 Scope

The study will use data from World Bank's Africa Development Index for Kenya and Kenya statistical abstracts focusing on years 1963 to 2012. The study will focus on the years before county governments came into place (1963-2012), thereby focusing only on national government expenditure.

2. Literature Review

2.1 Introduction

In this chapter a review of theoretical and empirical literature on effects of government expenditure on household consumption is conducted. This chapter is divided into parts; theoretical literature and empirical literature.

2.2 Theoretical review

2.2.1 Keynesian Theory

The activities of government used to be disregarded in the analysis of consumption until Keynes (1936) explained the significance of "multiplier process" in generating preferred effect from a fiscal shock. Since then, consumption remained at the core of the Keynesian analysis. The effective demand will rise as a result of a rise in government expenditure due to the increased income opportunities. According to Keynesian view additional income among the people will boost aggregate demand as they will consume more. The Keynesian theory offers the hypothesis that government consumption will have a positive effect on household consumption through the multiplier effect.

2.2.2 Substitutability Hypothesis Theory

Regardless whether government spending remains on "investment goods" or "consumer goods", the total resources available to household consumption by households reduces. As such, a single unit increment in expenditure by

government decreases household spending by a similar amount. That phenomenon has become regarded as “substitutability hypothesis” of household and public consumption. Irrespective of the government’s spending financing, the inevitability of substitution effect remains real (Bailey, 1962). The Substitutability hypothesis theory offers the research hypothesis that government expenditure will have a negative effect on household consumption.

2.2.3 Ricardian Equivalence Theory

According to Ricardian equivalence, any fiscal shocks should not impact on the consumption-saving plan by households, and hence refuted the Keynesian Multiplier effect. The correspondence forecasts an inverse connection between government’s undertakings and the households’ consumption decision. It assumes that households comprise of perfect foresight as well as knowledge on economic matters, and thus alters the consumption plan between periods. That occurs due to government choices concerning tax, as well as debt financing.

The household’s segment short-sightedness as well as information asymmetry relating to government policy has become the factors behind the experimental evidence of the multiplier effect resulting from fiscal shock. Ricardian observes that a consumer makes decision based on their prevailing disposable income, as well as future tax obligations. In that regard, Feldstein (1982) brought about the idea of ‘fiscal signals’. The notion suggests that events of government expenditure shocks at one point, creates ideas to the household sector similar or at least higher spending times in the future. Again, an increase in a given year’s tax may indicate higher taxes for individuals, hence motivating them to adjust their expectations on a future founded on the fiscal signals. Further, Feldstein has provided empirical evidence contradicting Ricardian implications while validating the strength of fiscal policy. He claims evidence of ex-ante crowding out did not exist after the expansionary fiscal shock (Feldstein, 1982).

This theory differs from both Keynes (1936) multiplier effect and Bailey’s (1962) Substitutability hypothesis on the fiscal policy influence. This theory helps to build a neutral hypothesis as to the direction of change in household consumption as a result of government expenditure

2.3 Empirical literature

2.3.1 Effects of defense spending on household consumption

Economic researchers have propagated two views on the relationship between defense spending and household consumption. The first view holds that, increases in military spending will lead to decreases in government purchases of nonmilitary goods and services. Government will either impose taxes or result to borrowing to finance this increases in military spending. This view argues that; an increase in defense spending will results in a tradeoff between military spending and household consumption. This view holds the assumption of a constrained government budget

While testing this view Boulding (1973) and Edelstein (1990) found out that change in military spending have significant negative impact on household consumption. This view supports the substitutability hypothesis as discussed by Bailey (1962) which states that increase in government expenditure will reduce the total resources available for household consumption. The effect of government increase in expenditure will be a reduction in disposable income and households will be forced to spend less.

The second view was espoused by Pechman (1971). This view argues that military spending will affect different categories of household consumption such as durable goods, services, and nondurable goods differently. At times of peace the government is likely to reduce taxes. This tax cut will lead to a rise in disposable incomes especially for individuals in the lower income groups. The additional incomes received by persons in lower income groups will be spent on necessary goods rather than on luxury goods.

Evans and Karras (1998) undertook to investigate substitutability between household consumption and military and non-military government spending. They used data from 66 countries and found out that household consumption and non-military government spending are substitutes. On the other hand household consumption and military spending are complements. This complimentary effect confirms the Keynesian theory that government expenditure (in defense) will lead to increases in household consumption.

Looney (1989) sought to determine the relationship between defense spending and economic growth for developing countries. The study attempted to find out how indigenous arms production influence how defense spending will affect the local economies of arms-producing and non-arms producing countries. The study concludes that increases in military expenditure will have positive effect on household consumption in the non-arms producing countries but the reverse will happen for the arms-producing countries.

2.3.2 Effects of infrastructure spending on household consumption

Investment on productivity enhancing infrastructure is important in maintaining good economic performance of a country. In developing nations low level of infrastructure investment has been held partly responsible for their poor growth performance (Dissou and Didic, 2011; Foster, 2008).

According to World Bank Annual Report (2001) improved infrastructure helps create jobs and raise workers’ productivity. Better infrastructure also, saves time and human effort used to transport commodities. This view is also supported by Sambo, (2005) and Stern, (2004) who considered energy infrastructure to be a major source of economic growth through improved productivity and increased production. This increase in production generates employment opportunities which are sources of additional income.

Furthering this view, Airey, (1992) argues that transport infrastructure increases agricultural output through increased access and reduced costs of key inputs. This increase in

agricultural output will increase income to households. This same argument is propagated by Jalan and Ravallion (2002) who in their study in poor regions of China found out that road density has a significant positive effect on the household consumption of the rural farm households. They found out that household expenditure increased by 0.8 percent for every 1% increase in kilometers of roads per capita.

2.3.3 Effects of health expenditure on household consumption

Empirical studies on the effect of health expenditure on household consumption have diverse views. Some view health expenditure to have significant effect on household consumption while others disagree.

Hussain and Rehman (2012) applied co-integration and Error Correction Mechanism (ECM) to study how government spending in various sectors affects poverty reduction in Pakistan for the years 1972-2008. In the model poverty is the dependent variable and is measured using headcount index while the independent variables were: government spending on health; education; law and order; economic and community service and budget deficit. The study found the coefficient for health expenditure to be insignificant. Sourya, Sainasinh and Onphanhdala (2014) conducted similar study using panel regression analysis, for Lao PDR. They found the coefficient of domestic health to be both significant and positive. This meant that poverty rose as spending on health sector increased. However foreign health funding was found to be insignificantly related to poverty.

Were (2001) argues that the health expenditure has a negative impact on economic growth. The negative impact results from health expenditure not directly going in to the country's investment and thereby do not contribute to economic growth. The study by Were concludes that most of the health expenditure in developing countries results in huge spending of foreign reserves to import drugs and medical equipment as most of them are not involved in their manufacture. This not only negatively affects economic growth but also cause deficit in balance of payment.

2.3.4 Effects of Public order and security expenditure on household consumption

Dada (2013) conducted a study to find out the effects of government expenditure on household consumption in Nigeria. The study found out that government spending on administration and social security will in the long run have positive effects on household consumption. It concludes that increases in government expenditure on Public order and security will give a rise in household consumption

Were, (2001), conducted a study on the effect of government expenditure on economic growth. The study finds out that that public order and security has a positive impact on economic growth. This author argues it is because of the improved business environment. Public order and security promotes a healthy business environment by increasing investor's confidence. Therefore expenditure in public order and security would trigger and or support economic growth. The positive impact is however refuted by Jerono (2009).

2.4 Critique of the existing literature relevant to the study

As per the literature review, it can be presumed that the empirical investigations have not reached any consensus, and hence it presents an opportunity to conduct such a study on the developing nation like Kenya. As the country features diverse structural properties compared to the United Kingdom, United States and other OECD countries which are high income countries, it will be worthwhile to establish whether it posts different outcomes or just settles with existing findings. Also of important to note is that majority of studies have focused on effect of government spending on economic growth without much focus on the composition effect of the government spending. Although a study of composition effects have been done in Nigeria, it will be important to know if same results can be deduced for Kenya. The studies done in Kenya have focused on effect of government spending on economic growth.

2.5 Research gaps

The review of literature identified two research gaps. First gap, is the composition effects of government spending household consumption in a developing nation like Kenya. Do different sector allocations have different impacts on household consumption? Though there are studies on composition effects of government spending on private investment and economic growth; there was none on household consumption for Kenya. The second gap is that few researches have been undertaken to study how the choice of government funding affect household consumption. Whether a debt funding will have any effect on household consumption

3. Methodology

3.1 Introduction

The chapter begins by methodology and research design specifications that will be applied in examining correlation between household consumption and public spending components in the Republic of Kenya. Again, it will as well include a description of variables applied, data sources, as well as the investigative tests engaged during the study.

3.2 Research Design

During this study, a descriptive research design will be applied to determine the effect of public spending components on Kenya's household consumption. Further, the design will focus at providing the picture of the occurrence of the variations between the two, evaluating the current approaches in the country. It will assist in drawing the necessary conclusions as well as develop the theories further.

3.3 Data collection instruments and procedure

The study will make use of time series secondary data available from World Bank and government of Kenya official documents. The study will utilize information

covering the period between 1963 and 2012, as per the World Bank Africa Development Indices compilation. The data has been posted on their website and hence easily retrievable. Besides that, it will also employ resource materials from the government's official documents including Statistical Abstracts, Public Expenditure Reports, Economic Reports, Economic Surveys, as well as Sessional Papers where necessary.

3.4 Data Processing and analysis

The collected data will be exposed to a robust time series property tests which includes the following:

3.4.1 Testing for Stationarity

When conducting empirical analysis of time series data set it is important to test for stationarity to avoid the conducting analysis on a non stationary data. This testing helps the researcher to avoid estimating and getting spurious results. To test for stationarity and establish the order of integration the study used Augmented Dickey Fuller and Philips Perron tests.

In the case of household consumption, the (ADF) test involves estimating the equations.

$$\Delta HHC = \alpha_0 + \beta t + \theta y_{t-1} + \dots + \rho \Delta HHC_{t-1} + e_t \quad (\text{This is for levels})$$

$$\Delta \Delta HHC = \alpha_0 + \beta t + \theta \Delta y_{t-1} + \dots + \rho \Delta \Delta HHC_{t-1} + e_t \quad (\text{This is for first differences})$$

Where α_0 is a drift, m is the number of lags and e is the error term and t is trend. Similar equations will be estimated for the rest of the variables.

In the example above there exist both a drift (intercept) and a trend but there exist cases where ADF doesn't have a drift and a trend

The null hypothesis will be $H_0: (\alpha_0, \dots) = (\alpha_0, 0, 1)$ (No-stationarity)

The alternative hypothesis $H_1: (\alpha_0, \dots) \neq (\alpha_0, 0, 1)$ (Stationarity)

The variable is said to be stationary if the leads to rejection of the null hypothesis.

3.4.2 Testing for Co-integration

To test for co-integration the study used the Johansen Co-integration test. Co-integration test seeks to test the existence of a long-term relationship (co-movement) between the dependent variable and independent variables. In order to conduct co-integration test, the order of integration of the individual variables must be determined. For example a variable will be said to be integrated of order t if it becomes stationary for the first time after being differenced t times. Co-integration asserts that variables integrated of order (1) can be estimated using regression method and produce non spurious results

After conducting the above tests are a Vector Error Correction Model (VECM) will be used to estimate the regression. VECM modelling technique adds error correction features to a multi-factor model in this case a vector auto-regression model.

The study will address six core objectives. First it will investigate the correlation between household consumption and total government expenditure in Kenya. The objective will be achieved through an estimation equation of household consumption taken as a function of the total public expenditure. The other objectives will investigate the effect of government spending on components such as infrastructure, public order and security, health, defence, as well as education, on household consumption in Kenya. This estimation will employ the Vector Error Correction Modelling (VECM).

3.5 Specification of the Theoretical Model

Theoretical model forms the basis on which the econometric model is anchored. In this section we derive the equation of interest using the dynamic macroeconomic model with government sector. The theoretical model in this section is based on the standard text 'Economic Growth' by Barro and Sala-I-Martin (1992).

3.6 The Econometric model

The theoretical model specification puts household consumption as a function of government expenditure components.

$$hhc = f[(gdfn, ghlth, ginf, gpos), Ut] \dots \dots \dots (1)$$

The econometric model to be used in VECM regression is derived from the above function and stated as follows:

$$hhc = \beta_0 + \beta_1 gdfn + \beta_2 ghlth + \beta_3 ginf + \beta_4 gpos + U_t \dots \dots \dots (2)$$

For better analysis we transform equation (2) into log linear as follows:

$$lhhc = \beta_0 + \beta_1 Lgdfn + \beta_2 Lghlth + \beta_3 Lginf + \beta_4 Lgpos + U_t \dots \dots \dots (3)$$

Where:

L = Natural Logarithm of variables

hhc = Household Consumption

$gdfn$ = Government Expenditure on Defence

$ghlth$ = Government Expenditure on Health

$ginf$ = Government Expenditure on Infrastructure

$gpos$ = Government Expenditure on public order and security

4. Research Findings and Discussion

4.1 Introduction

This chapter focus is on data analysis, interpretation of the findings and their presentation. The general objective of the study is to investigate the effect of government expenditure on household consumption in Kenya. The specific objectives of the study were; to investigate the effect of government's expenditure on health, infrastructure, defence and public order and security on household consumption.. The researcher makes use of regression analysis to analyze data. The data was converted into log form for easier analysis.

4.2 Unit Roots Tests Results

To avoid spurious results that arise from use of non stationary data in the analysis it is important to conduct unit root testing. The study used two tests; i.e., Augmented Dickey Fuller (ADF) and the Phillips-Perron Unit Root Tests to test for unit roots.

4.2.1 Variables at level

The study tested the five variables for stationarity at level using both Augmented Dickey Fuller (ADF) and the Phillips-Perron Unit Root Tests. All the variables had a p-value of more than 5% and therefore none was stationary at level. The summary of the tests is show in **Table 4.1**: Results of stationarity test (at level) with Intercept and Trend

Table 4.1: Results of stationarity test at level

Variables at level	ADF Statistic	PP Statistic	Conclusion
Household Consumption, LHHC	-2.706003 (0.2389)	-2.955546 (0.1550)	Not stationary
Public Order and Security, LGPOS	-1.854130 (0.6628)	-1.854130 (0.6628)	Not stationary
Health, LGHLTH	-1.876570 (0.6514)	-1.912882 (0.6327)	Not stationary
Infrastructure, LGINF	-3.427817 (0.0679)	-3.419795 (0.0654)	Not stationary
Defence, LDFN	-3.189991 (0.0984)	-3.195927 (0.0972)	Not stationary

All the variables have a unit root at level as all of them have a p value of more than 5% (0.05) and both ADF and PP statistic are smaller than the absolute critical values and hence the null hypothesis H_0 ; The variable have a unit root cannot be rejected. The variables are therefore not stationary at level.

4.2.2 First Differencing

Since the variables are not stationary at level, meaning they have a unit root there was need to carry out the stationarity test at first difference. **Table 4.2** shows results of stationarity test (at first difference) with Intercept and Trend

Table 4.2 Results of stationarity test at first differencing

Variables at 1 st difference	ADF Statistic	PP Statistic	Conclusion
Household Consumption, DLHHC	-6.143080 (0.0005)	-6.195568 (0.0005)	Stationary at First Difference
Public Order and Security, DLGPOS	-7.417606 (0.0000)	-7.826472 (0.0000)	Stationary at First Difference
Health, DLGHLTH	-6.452934 (0.0000)	-6.670989 (0.0000)	Stationary at First Difference
Infrastructure, DLGINF	-5.840034 (0.0002)	-7.379627 (0.0000)	Stationary at First Difference
Defence, DLGDFN	-7.094233 (0.0000)	-7.168533 (0.0000)	Stationary at First Difference

After first differencing all the variables became stationary meaning there was no presence of unit root. The summary of the test at first differencing is shown in **Table 4.2**. The absolute ADF statistic and PP statistic were more than the absolute critical values and the p value was less than 5% (0.05). From the tests, the study concludes that the variables

became stationary after first difference. Having all the variables integrated of order one makes it possible to use the Johansen Test of Cointegration.

4.3 Johansen Test of Cointegration

The stationarity tests conducted revealed that the variables are not stationary at level but are integrated of order one. This indicates that a linear combination of one or more of these variables might exhibit a long run relationship. The study used the multivariate cointegration methodology proposed by Johansen (1990) to capture the extent of the cointegration among the variables.

The decision is made by checking the Trace and Max Eigen-Value statistics and their critical values. The guideline is that if the statistic is more than critical value we reject Null Hypothesis. Using this criteria both Trace statistic and Max Eigen-Value statistic indicates one co-integrating equations at the 0.05 level. The variables are therefore co-integrated and therefore have long-run association-ship. This means in the long-run they move together. Therefore, since the variables are co-integrated we can run restricted VAR, i.e. the Vector Error Correction Model.

4.4 Lag order selection criteria

In making the decision on the optimum lag order the study used the Akaike Information Criteria (AIC). The decision guideline is to choose the model with the lowest value of the information criteria. According to Enders (1995) this guideline ensures that the error term is not misspecified.

Akaike Information Criteria, points to use of one lag. The study therefore employed the use of one lag in estimating Vector Error Correction Model.

4.5 Estimating the Vector Error Correction Model

Vector Error Correction Model estimation requires the variables to be integrated of order one i.e. $I(1)$ and be co-integrated. The stationarity test revealed the variables are integrated of order one and Johansen test confirmed existences of cointegration. The data set therefore fulfilled these two conditions and as such it became possible to estimate the vector error correction model (VECM)

4.5.1 Long run causality

To test if there is long run causality, the study used the estimated value of the error correction term (ECT). Theoretically the estimated ECT term should fall in the range of -1 to 0 and be statistically significant i.e. have a p-value of less than 5%. The model's estimated error correction term is -0.874241 with a p-value of 0.0000, it is highly therefore statistically significant and posses the correct sign. The negative and significant coefficient of the error terms means any deviation from the long run relationship is corrected quickly. It means 87 percent of the deviation from the long run equilibrium is corrected within one period. This indicates there is a long-run causality running from independent variables to dependent variable. **Table 4.3** shows the co-

integrating coefficients of the long-run model with their p-values

Table 4.3: Cointegrating coefficients in the long run equation

	<i>LHHC</i>	<i>LGDFN</i>	<i>LGHLTH</i>	<i>LGINF</i>	<i>LGPOS</i>
Coefficients	1.000000	-0.011135	-0.080705	-0.126018	-0.063292
Standard Error		0.03504	0.06130	0.03251	0.03058
T statistics		-0.31781	-1.31654	-3.87688	-2.06946

Three of the four independent variables were significant at 0.05 (5%) level: defence at 3.5%, public order & security at 3.1%, and infrastructure at 3.3%. Health on the other hand was significant at 10% level with 6.1%. For a sample with 30 or more observations t-statistic is significant if it is greater than 2 or less than -2. From the regression output the t-statistic of *LGDFN* (defence) and *LGHLTH* (health) do not meet this criterion and are therefore not statistically. All the variables have a positive effect on household consumption. The study used the estimated coefficients to formulate the long run equation as follows:

Long Run Equation

$$LHHC = 21.51 + 0.01 * LGDFN + 0.08 * LGHLTH + 0.13 * LGINF + 0.06 * LGPOS$$

Where;

GDFN-Government expenditure on defence

GHLTH-Government expenditure on health

GINF- Government expenditure on infrastructure

GPOS- government expenditure on Public order and Security

L-Logarithm transformation of variables

4.6 Error Correction Model

The coefficient of the estimated error correction term (C1) is negative in sign and significant indicating presence of the long run causality running from the independent variables to the dependent variable. The estimated error term coefficient is -0.874241 with a probability of 0.0000. Since the probability is less than 0.05, the estimated error term is therefore statistically significant. The error term coefficient also indicates the speed of adjustment to equilibrium in the long run which stood at 87.42%. All the variables in the short run model are significant based on the t-statistics. **Table 4.4** shows the results of the estimated error correction model. It also shows the coefficients of the short run equation and their probabilities.

Table 4.4: Short run coefficients

	Coefficient	Std. Error	t-Statistic	Prob.
ECT(-1)	-0.874241	0.125906	-6.943571	0.0000
LHHC(-1)	0.201692	0.104856	1.923520	0.0614
LGINF(-1)	-0.059537	0.029291	-2.032612	0.0486
LGHLTH(-1)	-0.176568	0.088188	-2.002180	0.0519
LGDFN(-1)	0.096964	0.046467	2.086743	0.0432
LGPOS(-1)	0.216231	0.089087	2.427201	0.0197
Constant	0.029318	0.018438	1.590046	0.1195

4.6.1 Short-run causality

In the short run period, household consumption lagged one have a negative impact on the current period's household consumption figure but t 10% significant level. The presiding household consumption period will have a negative impact of 0.20 at 6.1% significance level. Government expenditure on

infrastructure and health has positive impacts on household consumption in the short run period. The coefficient of infrastructure and health are - 0.059 and - 0.18 respectively at 5% significant level. However defence and public order and security have negative impacts on household consumption in the short run period at 5% significance level. Their coefficients are 0.096 and 0.22 respectively

4.7 Results and discussion

The study found out that government expenditure on infrastructure and defence have a positive long run impact on household consumption at 5% significance level. On the other hand; public order and security variable have a negative impact at 5% significance level while health variable is negative at 10% significance level. The four independent variables infrastructure, health, defence and public order & security also had an impact on household consumption in the short-run.

4.7.1 The effect of government's health expenditure on household consumption in Kenya

The study found out that health expenditure is not statistically significant at 5% level but is significant at 10% level in the long run. The t statistic is also not significant in the same period. This finding of the coefficient not being statistically significant in the long run period is supported by Asghar, Hussain and Rehman (2012)

In the long-run government expenditure on health will have a positive impact on household consumption. A 1% increase in health expenditure will increase household consumption by 0.08% at 10% significant level. If health expenditure increases household consumption will also increase. This positive finding is in line with the finding in Gruber and Yelowitz (1999) and Dada (2013).

The coefficient in the short run period is 0.18. This means that in the short run a 1% increase in health expenditure will result in a 0.18 % increase in household consumption.

4.7.2 The effect of public spending on defence has on household consumption in the Republic of Kenya

The p value for defence was significant at 5% level but the t-statistic was insignificant. In the long-run government expenditure on defence have a positive impact on household consumption. A 1% increase in defence expenditure will increase household consumption by 0.011%. In the long run if defence expenditure increases, household consumption will increase.

In the short-run defence will have a significant negative effect at 5% significance level. The coefficient in the short run period is 0.01. This means that in the short run a 1%

increase in health expenditure will result in a 0.01 % decrease in household consumption in the short run period. This negative effect is due to the fact that increase in defence spending signifies threats to business and investment environment which will slow growth in the short run period but this change as tranquillity is restored in the long run.

This study finding on defense expenditure is consistent with Looney (1989) conclusion that increases in military expenditure will have positive effect on household consumption in the non-arms producing countries such as Kenya.

There are also studies that hold a contrary view to the findings of this study. For example Boulding (1973) and Edelstein (1990) studies found out that the effect of military spending on household consumption is significant and negative.

4.7.3 The impact of public spending on infrastructure has on household consumption in Kenya

The study found out that infrastructure spending is statistically significant at 5% level. In the long-run government expenditure on infrastructure have a positive impact on household consumption. A 1% increase in infrastructure expenditure will increase household consumption by 0.13%. In the long run if infrastructure expenditure increases, household consumption will increase. This finding is supported by other previous studies done.

In the short-run defence will have a significant positive effect at 5% significant level. The coefficient in the short run period is 0.06. This means that in the short run a 1% increase in health expenditure will result in a 0.06 % increase in household consumption in the short run period. The presence of short run causality can be explained by the fact that, infrastructural developments require labour and inject money in the local economies. The payments to labour will increase the disposable income of the households who are labour suppliers. This increased disposable income is spent on increased consumption.

The positive effect in the long run period can be explained by the increased productivity brought by better infrastructure. According to World Bank Annual Report (2001) improved infrastructure helps create jobs and raise workers' productivity. It saves time and human effort in transporting water, crops, wood and other commodities. It also improves health (by reducing indoor air pollution and emissions in urban areas and making clean water available) and education (by expanding access to schools, computers and lighting). It is this productivity that has the effect of raising households' consumption.

4.8.4 The impact of public order and security (GPOS) spending on household consumption in Kenya

The study found out that GPOS spending is statistically significant at 5% level. In the long-run government expenditure on GPOS have a positive impact on household consumption. A 1% increase in GPOS expenditure will increase household consumption by 0.06%. In the long run if

public order and security expenditure increases, household consumption will increase.

In the short-run defence will have a significant negative effect at 5% significant level. The coefficient in the short run period is 0.22. This means that in the short run a 1% increase in health expenditure will result in a 0.22 % decrease in household consumption in the short run period. This negative effect is due to the fact that in the short run an increase in public order and security spending signifies threats to business and investment environment which will slow growth in the short run period but this change as tranquillity is restored in the long run.

This finding is supported by findings that Dada (2013), found out when studying composition effects of government expenditure on household consumption in Nigeria. He concluded that government spending on administration and security has positive effects on household consumption in the long run. An increase in public order and security expenditure will increase household consumption.

Were (2001) found out that there is a positive relationship between expenditure on public order, security and economic growth due to increase level of peace and tranquillity. The study argues that the order and peace improves business environment triggering economic growth with increases in incomes. This economic growth will increase people's disposable income.

5. Summary, Conclusions And Recommendations

5.1 Summary

The main objective of this study was to investigate the effect of public expenditure components on household consumption in Kenya. To achieve the objective of the study, time series data for the period 1963 to 2012 was collected for the various macroeconomic variables. Time series tests for stationarity were done and the variables were found to be integrated of order one. Johansen test of Cointegration was done and it was found there exist one cointegrating equation.

From literature review there is conflicting arguments as to how government expenditure impacts household consumption. The study used Vector Error Correction Model to Estimate the regression equation. The study collected data from World Bank Africa Development Index and Kenya statistical abstracts. The study conducted data analysis. The four components of government expenditure were found to have positive effect. However only Infrastructure and security were found statistically significant, health and defence were statistically insignificant. .

5.2 Conclusions

Overall, the analysis shows that government spending affects household consumption. While there has been contradicting results on the direction of the effect, i.e. positive or negative,

it has been shown that different government allocations have different impact on household consumption.

Infrastructure spending has both short-run and long run effect. The presence of short run causality can be explained by the fact that, infrastructural developments require labour. The payments to labour will increase the disposable income of the households who are also the labour suppliers. It is this disposable income that has the effect of increasing consumption. In the long-run infrastructural development improves business environment. This finding is supported by other previous studies done such as the World Bank Annual Report (2001)

The positive effects of security expenditure can be attributed to the improved business environment as the market gains a sense of stability. This view is supported by Were(2001) found out that there is a positive relationship between expenditure on public order, security and economic growth due to increase level of peace and tranquillity. The study argues that the order and peace improves business environment triggering economic growth with increases in incomes. This economic growth will increase people's disposable income.

The positive effect that health expenditure has on household consumption can be attributed to improved health care which reduces amount spent on treatment. Improved health also means the workforce can work optimally thereby increasing disposable income which will increase demand

5.3 Recommendations

On the basis of the study findings the following policy recommendations arose:

On health; an increased expenditure on improving health is justified on the grounds of its impact on labour productivity. Better health will increase productivity leading to increase in disposable income. This supports the case for a continued investment in health as a form of human capital.

On Infrastructure; Kenya has in the recent decade focused on building roads, electricity connection among other infrastructure projects. These investments have paid off by improving the investment climate both for local traders and international investors. Kenya should therefore continue with massive investments in areas of transport and power. This projects not only employ people but increase trading activities and as a result disposable income will increase. This would result in household consumption increase and ultimately gross domestic product will increase.

On defence and public order and security; Kenya investment on defence and security will create confidence and stability in the economy encouraging more investments and trade. This confidence together with improved infrastructural network will lead to economic growth and ultimately growth of disposable income.

5.4 Suggestions for Further Research

It will be necessary to investigate further how government allocations affect household consumption by focusing on other sectors not covered such as education, agriculture social services and housing. Another area that is not clear and worthy of further research is the effect of various modes of government budget financing on household consumption. For example how do taxation, government levies, internal borrowing, and external borrowing affects household consumption.

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