

# The Impact of Government Expenditure, Money Supply and Inflation on Economic Growth in Tanzania

J. Makwandi<sup>1</sup> and G. Raphael<sup>2</sup>

Open University of Tanzania

E-mail: [gwahula.raphael@out.ac.tz](mailto:gwahula.raphael@out.ac.tz)

## Abstract

*This study examines the impact of government expenditure, money supply and inflation on economic growth in Tanzania. Like the case in other countries both developed and developing countries, one of the fundamental objectives of macroeconomic policies in Tanzania is to promote economic growth and to make general price at a low level. Majority of researchers have entered on substantial debate on whether inflation promotes or harms economic growth. Motivated by this debate, the study conducted a study covering the period 1970 to 2011. An Augmented Dickey fuller (ADF) used to test for stationarity of data and the existence of co integration were tested by an ARDL bounds tests. The ARDL model was employed to estimate the impact of government expenditure, money supply, inflation and its relationship to economic growth of Tanzania. Results suggest that inflation has a negative impact on economic growth and also government expenditure and money supply have significant impact to economic growth both in short run and long run though they differ in magnitude. The study suggest the government to maintain a single digit inflation which is less than 3% to avoid its harm to economic growth and to be carefulin implementation of monetary policy and fiscal policy because inflation seems to be a major macroeconomic variable in the economy. In addition, the study proposes to upcoming researchers to add or remove other variable (s) either government*

*expenditure or money supply in the model to observe further effect of inflation to economic growth.*

**Key words:** Government expenditure, money supply, inflation, economic growth.

### **Introduction**

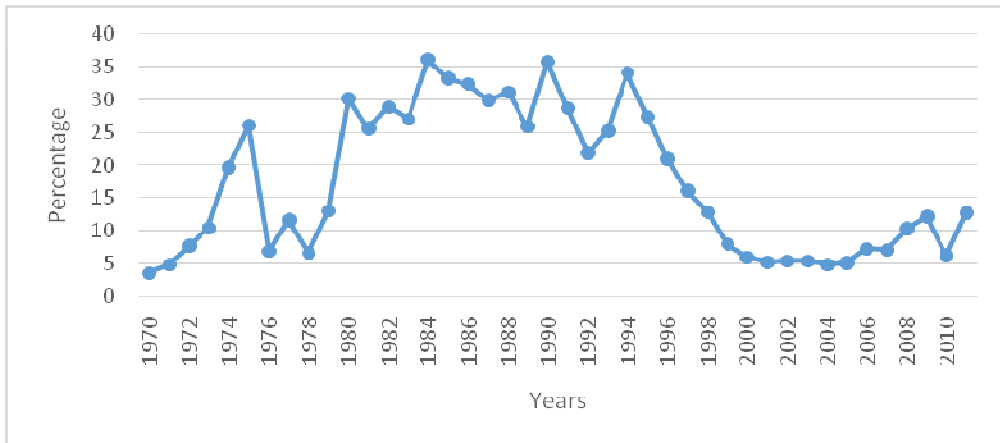
According to the fundamental concept of economics, inflation, money supply and government expenditure have a close relationship and impact to economic growth whereas, inflation has been caused primarily by an excess of money supply and increase of credit (Kweka and Morrissey, 2000). Monetary and fiscal policies initiated usually keeps rising inflation. These increases are dominant because when people are allowed to offer more money for goods or the supply of goods cannot be balanced with supply of money automatically raises the price of goods. The reaction on the negativity of inflation to economic growth started in 1970s, countries, particularly the Latin American nations started to experience a decrease in growth rates because of high inflation and in this manner brought about the ascent of the perspectives stating that inflation effects affects the economic growth rather than the positive impacts.

The sign of negative relationship amongst inflation and economic growth appeared from a portion of the Asian nations, for example, India demonstrated that the growth rate of Gross Domestic Product (GDP) it expanded from 3.5% in the 1970s to 5.5% in the 1980s while the inflation rate optimized consistently from a yearly normal of 1.7% amid the 1950s to 6.4% in the 1960s and further to 9.0% in the 1970s preceding facilitating barely to 8.0% in the 1980s the economic growth diminished (Prasanna and Gopakumar, 2010). From the

perspective the East African Countries experience, demonstrates that Kenya had 5 years of positive economic improvement or more 4% of economic growth for four continuous years. Be that as it may, a normal yearly inflation of Kenya broadened from 18.5% in June 2008 to 27.2% in March 2009, previously sinking marginally to 24.3% in July 2009. The experience demonstrates that; Uganda was one of the snappier developing economies in Africa with consistent growth averaging 7.8% since 2000 with the yearly inflation rate diminishing from 5.1% in 2006 to 3.5% in 2009. In Rwanda the normal yearly genuine GDP growth rate from 1990-1999 was - 0.1 yet from 2006 to 2009, Rwanda had a yearly normal growth rate of 7.3% (Stein, 2010). Thusly late 1970s, Tanzanian economy experienced both interior and outside stuns. All segments of the economy were influenced by stuns, because of vast government budget deficits and non-correlation amongst beneficial and non-profitable exercises. The indicators merely connected with these were high inflation rates, tremendous balance of payments (BOP) deficits, falling in residential savings, developing in government expenditure, declining agricultural production and underutilization of modern limit which lead to decrease in economic growth (Kilindo, 1997).

**Trend of Inflation and Economic Growth in Tanzania** In general, the Tanzanian inflation levels have been recorded to be volatile since 1970s. Reaching the high level of 26% in 1975, single digits were recorded in 1970 (3%), 1971 (4%) and in 1978 the annual inflation rate was 7%. Furthermore, the overall period of 1980s was characterized by relatively high inflation rates. The rates accelerated to as high as 36% in 1984 and maintained levels above 25% throughout the period (World Data Bank, 2012). It was noted that the high inflation rates of this period were mainly generated from both the output and monetary side. Therefore, from the beginning of the second half of 1980s, the government has been concentrating both on tight

monetary policy and deliberate strategy to foster production as one of the strategies of combating high inflation in Tanzania (Solomoni and Wet, 2004).

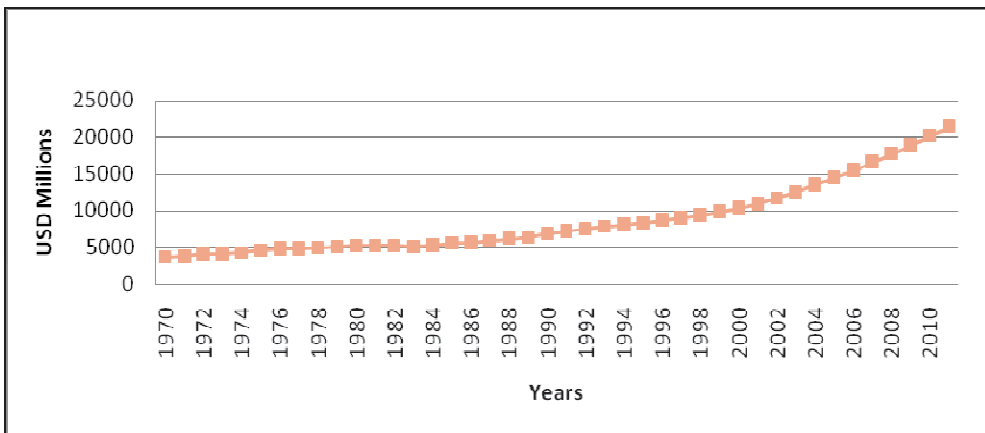


**Figure 1: Trend of Inflation in Tanzania from 1970 to 2011**

From the Figure 1.1, even though in 1990s, the country continued to suffer from high inflation rates, the positive results of the government's efforts began to show some signs in 1995. During which the rates started to go down, recording a drop of 7% from 1995 to 1996 and towards the end of 1990s the government managed to reduce inflation to 7%. This achievement could as well be explained by the BOT strategy of adopting price stability as a primary objective of the bank in 1995 BOT act.

However, it was noted that between 1994 and 1998 the central bank had managed to reduce the growth of money supply from 33% to 7.7% (Solomoni and Wet, 2004). The single digit inflation rates were maintained until 2008 when inflation rose again to double digit (10%). The double-digit inflation persisted continuously until 2010, when it fell to 6%, followed by a sharp increase to almost 20% in 2011 (Adam *et al.*, 2012). From Figure 1, it is evidence that it quite difficult

to say that inflation has a positive impact to economic growth in Tanzania.



**Figure 2: Trend of Gross Domestic Product 1970 To 2011**

Kasidi and Mwakanemela (2012) inspected the inflation effect on economic growth and perceived the presence of inflation growth affiliation. The information for the period 1990 - 2011 was utilized to dissect the inflation sway on the economic growth. The coefficient Association and co-integration strategy built up the association among of GDP versus inflation and Coefficient of elasticity were utilized to discover the level of affectability of progress in GDP to changes price levels. Results propose there is a negative effect on economic growth brought about by inflation. Also the study demonstrates the nonappearance of co-integration amongst inflation and economic growth in the period of study.

No relationship in the long-run between economic growth and inflation was observed in Tanzania. Ayyoub (2011) discovers the nearness correlation of inflation growth in the economy of Pakistan and investigated the effect of inflation on GDP growth of the economy. It investigates further, whether it stimulates or discourages the growth of economy consistently or it carries on distinctively

under various levels. The time-series information for the year of 1972-73 to 2009-10 has been used and analysis is made by utilizing the Ordinary Least Squares (OLS) method. The outcome found the negative and significant relationship in inflation growth for the economy of Pakistan. Idalu, (2015) investigate the effect of inflation on economic growth of Nigeria. Regularly, this relationship has been examined utilizing straightforward correlations and deterministic models. In the analysis, a tri-variate vector autoregressive (VAR) model was utilized. In the wake of checking the series for unit root, uncovered that every one of the variables were stationarity at first distinction, that is I(1).

In the model, one co integrating vector that depicts the long run collaboration of these variables is additional estimated. What's more, estimation of the vector error correction model was done and the outcome showed there is convergence among the variables over the long haul and that takes around 5 back to back years. Hossain (2012) finds that there is a long run relationship among inflation and economic growth in Bangladesh amid the period of 1978 to 2010. The Augmented Dickey-Fuller (ADF) and Phillip-Perron (PP) were connected to discover stationary) and the outcomes discovered stationary at the first contrast at 1% and 5% level of significance. The Co-integration test result observe that for the periods, 1978-2010, no co-incorporating relationship observed among inflation and economic growth for Bangladeshi information. In addition more exertion was made to check the causality association that exists among the two variables by applying the VAR-Granger causality at two distinctive lag periods of time.

## **Methodology**

### **Types and Sources of Data**

The study utilized auxiliary information, yearly series from 1970 to 2011. The information was obtained from the International Financial Statistics (IFS), the Bank of Tanzania (BoT) and United Nations Conference on Trade and Development (UNCTAD).

### **Data Analysis**

To examine the effect of inflation on economic growth of Tanzania, co integration analysis was utilized. The Error Correction mechanism was utilized to give the short run dynamic and the change term after the presence of co integration. The time series period secured the years from 1970 to 2011, which was moderately long series with the upside of getting sufficient degrees of opportunity and additionally having the ability to incorporate different variables as opposed to inflation just into the model and henceforth to yield fair estimates. In this study, the technique known as ARDL bounds test methodology was utilized as depicted beneath embraced from (Karbo, 2012).

### **Stationarity test**

Since the vast majority of macro-economic variables are described with non-stationary or they are integrated at request 1 after some time (Green, 2003; Verbeek, 2004; Gujarat and Porter, 2009), econometric analysis requires differentiating of any non-stationary variables before doing the essential estimations. In stationarity time series, stuns will be temporary and over the time their belongings will rot as the series return to their long run mean qualities. Non stationary series will contain permanent segments and may indicate false relationship.

### **Selection of Lag Length**

The analysis required with the choice of requests of the ARDL ( $p, q$ ) model utilizing Schwartz Bayesian Criterion (SBIC). The ARDL strategy estimated  $(p+1)k$  number of relapses to get ideal lag length for every variable, where  $P$  is the maximum number of lag utilized and  $k$  is various variables in a condition. The lag length for time series is regularly chosen utilizing the model determination criteria like Schwartz-Bayesian Criteria (SBIC) and Akaike's Information Criteria (AIC). In any case, as indicated by the econometricians, for example, Giles, SBIC is known as the tightfisted model by selecting the littlest conceivable lag length, while AIC is known for selecting the maximum pertinent lag length, (Giles, 2014)

### **Co integration Analysis**

Hence, to manage this problem of non-stationary later studies have progressively utilized the standard strategy of co integration and error correction mechanism (ECM) to estimate time series relationship (Giles, 2014; Shrestha, 2004; Verbeek, 2004). Generally, co integration will build up the presence of long run relationship among the variables. The same to this study, which included the utilization of economic variables, which especially were non-stationary, along these lines keeping in, mind the end goal to give vigorous results, the co-integration amongst inflation and economic growth was built up.

The utilization of ADF test was considered to test if there are variables  $I(2)$  in which is not helpful for ARDL approach (Giles, 2014). Pesaran Shin and Smith (2001) demonstrated that the ARDL model outperforms elective methodologies like the Philip and Hansen's Full Modified OLS (FMOLS) when the size is little. At last



Karbo demonstrated that by suitably altering the requirements of the ARDL model is satisfactory to simultaneously redress for leftover serial correlation and the problem of endogenous regressors, in this way giving ARDL preference over different ways to deal with co integration. Thusly, the study embraced an altered ARDL approach (Pesaran and Shin, 1999) as utilized by Karbo (2012). In this way, an ARDL Model was employed in the accompanying structure;

(1)

$$\begin{aligned} \Delta LRGDP_t = & \alpha + \sum_{i=1}^n \beta_i \Delta LRGDP_{t-i} + \sum_{i=0}^n \delta_{1i} \Delta LM3_{t-i} + \sum_{i=0}^n \delta_{2i} \Delta LINF_{t-i} \\ & + \sum_{i=0}^n \delta_{3i} \Delta LGEXP_{t-i} + \theta_1 LRGDP_{t-1} + \theta_2 LM3_{t-1} \\ & + \theta_3 LINF_{t-1} + \theta_4 LGEXP_{t-1} \end{aligned}$$

Where,

$\Theta$ s are parameters of the long run relationship variables,  
 $\beta_i$  and  $\delta_i$  are matrices of parameters

LRGDP = Natural Logarithm of Real Gross Domestic Product  
 (Economic Growth)

LM3 = Natural Logarithm of Money Supply

LINF = Natural Logarithm of Inflation

LGEXP = Natural Logarithm of Government Expenditure

$\alpha$  = Is vector of constants/trend,  $n$  represents maximum lags.

Thus the first part of the equation with  $\beta_i$  and  $\delta_i$  represents the short run dynamics of the model whereas the parameters  $\theta_1$  and  $\theta_2$  represents the long run relationship. The hypotheses of the model were;

1. H0:  $LRGDP_t = LM3_t = LINF_t = LGEXP_t = 0$  there is no long run relationship against

H1:  $LRGDP_t \neq LM3_t \neq LINF_t \neq LGEXP_t \neq 0$  there is a long run

relationship.

2. H0:  $LINF_t = LRGDP_t = 0$  the trend of inflation has no impact to economic growth  
 H1:  $LINF_t > \text{or} < LRGDP_t \neq 0$  the trend of inflation has an impact to economic growth
3. H0:  $LINF_t > 1$  there is high degree of responsiveness of change in economic growth to inflation  
 H1:  $LINF_t < 1$  there is low degree of responsiveness of change in economic growth to inflation

The decision on the null hypothesis (H<sub>0</sub>) on the first hypothesis is done by comparing the calculated F-statistic. The calculated F statistic was 8.9816 greater than the value of both lower bound I(0) and the upper bound I(1), which are 3.5399 and 4.8222 respectively as shown in table 4.2 from Microfit 5.0 output while the rest was done by looking the computed coefficients of inflation in the model. In the second step, it was shown that there was a long run relationship (co integration) among the variables, and hence the following long run model was estimated to find which variables has a significant long run relationship to economic growth in Tanzania, in which all variables are prior defined above.

(2)

$$LRGDP_t = \alpha_0 + \sum_{i=1}^n \varphi_i LRGDP_{t-i} + \sum_{i=0}^n \psi_{1i} LM3_{t-i} + \sum_{i=0}^n \psi_{2i} LINF_{t-i} + \sum_{i=0}^n \psi_{3i} LGEXP_{t-i} + \mu_t$$

In the third step the short run dynamic parameters were estimated by an un-restricted error correction model associated with the long run estimates. The short run estimated model was as follows;

(3)

$$\Delta LRGDP_t = \rho + \pi ECM_{t-1} + \sum_{i=1}^n \beta_i \Delta LRGDP_{t-i} + \sum_{i=0}^n \delta_{1i} \Delta LM3_{t-i} + \sum_{i=0}^n \delta_{2i} \Delta LINF_{t-i} + \sum_{i=0}^n \delta_{3i} \Delta LGEXP_{t-i} + \varepsilon_t$$

## Results

### *Test of Stationarity of Data Series*

Table 1 shows the results of the ADF tests. The results show that LRGD, LINF and LM3 are non-stationary at levels with or /and trend, whereas LGXP appear to be stationary at level I(0). Therefore, LRGD LINF and LM3 are stationary at first difference I(1). This means, the study contains the variables of both I(0) and I(1). Thus, the situation makes ARDL approach more appropriate in this study.

**Table 1: ADF Unit Roots Test Results**

LEVEL			Differenced		Order
Variable	SBIC Lag	t-statistics	SBIC Lag	t-statistics	I(d)
LRGDP	2	-1.917 (0.6459)	1	-3.698*** (0.0041)	I(1)
LINF	1	-2.361(0.1530)	1	-6.952*** (0.0000)	I(1)
LGEXP	1	-1.745** (0.0448)	-	-	I(0)
LM3	2	-2.260 (0.4562)	1	-3.165** (0.0221)	I(1)

Note: \*\*\*, \*\* and \* indicate significance level at 1%, 5% and 10% respectively. Values in parenthesis are probability values.

**Source:** Data Analyses

### *ARDL Estimates and Bounds Test Results*

Table 2 shows the output of an ARDL model estimates, where the F-statistic obtained was 8.9816. The calculated F statistic was used to test the bounds test if they are significant or not (presence of long run relationship).

However it indicated that the F-statistic was greater compared to both I(0) (3.5579) and I(1) (4.8222) limits at 5% significance level, meaning that the null hypothesis of bounds equal to zero or no co integration was rejected at 5 percent of significance level. Thus, there

is long run relationship running from independent variables to dependent variable.

**Table 2: ARDL Estimates and Bounds Test Results**

<b>Regressor</b>	<b>Coefficient</b>	<b>Standard error</b>	<b>T-Ratio</b>
<b><i>LGDP<sub>t-1</sub></i></b>	1.0748	0.019245	55.8496***
<b><i>LGEX</i></b>	-0.046858	0.011385	-4.1159***
<b><i>LINF</i></b>	0.3342E-3	0.0046075	0.072525
<b><i>LM3</i></b>	-0.029420	0.012668	-2.3224**
<b><i>Trend</i></b>	0.0066715	0.0024906	2.6786**

Testing for existence of a level relationship among the variables in the ARDL model

<b>F-statistic</b>	<b>95% Lower bound</b>	<b>95% Upper bound</b>
8.9816	3.5579	4.8222

R<sup>2</sup> = 0.99916      DW-Statistic 2.0372      Adjusted R<sup>2</sup> = 0.99906

Note: \*\*\* Significant at 1%, \*\* Significant at 5%

**Source:** Data Analyses

### *Long run Results*

Table 3 shows the results of the estimated long run coefficients with economic growth as a dependent variable. Money supply and government expenditure have a long run causality running to trade balance in Tanzania. The coefficient of LGEXP is 0.626, which is significant at the 1% percent level ( $p < 0.01$ ) meaning that 1% increase in GEX leads to 62.6% improvement in economic growth. On the other hand the coefficient of the LM3 shows a significant (at the 1% level,  $p < 0.01$ ) positive relationship with economic growth. A change in LM3 by 1% will change economic growth by 39.3%. Finally, the

estimates indicate that inflation do not have significant relationships with economic growth in the long run.

**Table 3: ARDL (1,0,0,0) Model long run results**

Regressor	Coefficient	Standard Error	T-Ratio
<b><i>LGEX</i></b>	0.62630	0.073049	8.5737***
<b><i>LINF</i></b>	-0.0044664	0.060897	-0.073343
<b><i>LM3</i></b>	0.39323	0.090050	4.3668***
<b><i>Trend</i></b>	-0.089171	0.015983	-5.5791***

\*\*\* Significant at 1%

Source: Data Analyses

### *Short Run Results*

Table 4 shows the results of short run dynamic coefficients obtained from an ARDL (1,0,0,0) with ECM. The optimal lag lengths were determined by the SBIC. The results revealed that the economic growth has been influenced by the government expenditure in negative way in the short run, significance at 1% ( $p < 0.01$ ) the same to money supply which has negative relation to economic growth in the short run at 1% ( $p < 0.01$ ) significant levels.

On the other hand inflation tends to have positive insignificant effect to economic growth of Tanzania in the short run. The Error Correction Term (ECT) is negative, significant at 1% ( $p < 0.01$ ) and less than unity (-0.0748). This means that the degree of adjustment to equilibrium is about 7.5% after each 1 month caused by other macroeconomic variable to violet the equilibrium of economic growth and inflation. The Trend is significant at the 5 percent level, which implies that they can be explained with trend of among variables explained in the model and any exogenous variables. When all variables used in this model are zero, there will be an economic

growth of 0.00667%. The small percent is economically attributed to the fact that any economic growth depends on major variables included in the model.

**Table 4: ARDL (1,0,0,0) Model Short Run Results**

Regressor	Coefficient	Standard Error	T-Ratio
<b><math>\Delta LGEX</math></b>	-0.046858	0.011385	-4.1159***
<b><math>\Delta LINF</math></b>	0.3342E-3	0.0046075	0.072525
<b><math>\Delta LM3</math></b>	-0.029420	0.012668	-2.3224**
<b><math>\Delta Trend</math></b>	0.0066715	0.0024906	2.6786**
<b><math>ECM_{t-1}</math></b>	-0.074817	0.019245	3.8876***
R <sup>2</sup> = 0.60385		DW-Statistic 2.0372 Adjusted R <sup>2</sup> = 0.55984	

\*\*\* Significant at 1%, \*\* Significant at 5%

Source: Data Analyses

### Diagnostic Tests Results

Table 4 shows the ARDL Model diagnostic test results. The results show that, there is no serial correlation because LM test statistic 0.046 is not significant, meaning that the null hypothesis of no serial correlation was accepted. The results of testing the function form shows that the model is correctly specified, it is verified by Ramsey RESET test in which statistic 1.774 is not significant at any level. This implies that the null hypothesis ( $H_0$ : Model has no omitted variables) has been accepted against alternative. The Breusch Pagan test for heteroscedasticity of the error term indicates a bit presence of variance of the error term since the statistic 8.856 is significant at 1%. This means that null hypothesis ( $H_0$ : constant variance) was rejected, thus there is an element of heteroscedasticity problem. The results must be used with precaution on that.

**Table 5: Diagnostic Tests**

Diagnostic test	Test	Statistic	P-value
Heteroscedasticity	Breusch Pagan	8.856	0.005
Function form	Ramsey RESET	1.774	0.197
Serial correlation	LM test	0.046	0.832
Breusch Pagan Test	H <sub>0</sub> : Constant Variance		
Ramsey RESET Test	H <sub>0</sub> : Model has no Omitted Variables		
LM test	H <sub>0</sub> :No serial Correlation		

**Source:** Data Analyses

## Discussion

### *Impact of Inflation in Economic Growth*

It has been defined that inflation is a general and persistent in the prices of goods and services in an economy. Inflation has been measured in various methods such as consumer price index, whole sale price index, producer price index and in percentage. To examine the impact of inflation to economic growth, a growth model was formulated by including other two variables (i.e government expenditure and money supply) in addition to inflation. In this study the inflation was measured in percentage form from 1970 to 2011.

To determine the impact of inflation to economic growth in Tanzania was among of the important objective of this study regarding that inflation is affected by many factors such as institutions, fiscal and monetary policy and balance of payments. This study found that, there is a negative impact of inflation to economic growth in Tanzania both in the short run and long run period, though it is not significant for the case of long run results meaning that there are other macroeconomic variables which influence economic growth excluded in the model but have direct relationship with inflation.

The results are consistent by the study of Barro (1997); who found that inflation has negative and significant relationship to economic growth, meaning that inflation has an adverse effect on economic growth. Also the results are strongly agree with the study of Kasidi (2012); Ayyoubet *al.* (2011) and Mamo (2012) concerning to impact of inflation to economic growth of Tanzania where he found that 1% increase in inflation results to 38% slowdown of economic growth of Tanzania. Nevertheless, inflation found to have insignificant to economic growth in Tanzania, the study collaborates with study of Jha and Dang (2011), they found that most developing countries, inflation is no significant in determining economic growth.

### **Trend and Relationship of Inflation and Economic Growth**

The study also intended to investigate the trend of inflation to economic growth in Tanzania from 1970s to 2011. The results show that, holding government expenditure, inflation and money supply constant the trend of inflation sought to have a less significant negative relationship in the short run relationship, in which 1% rise in inflation trend leads to decrease in economic growth by 0.66% and high significant effect in the long run, in which 1% rise in inflation trend leads to decrease in economic growth by 8%. The findings of this study are supported by the study of Mamo (2012) who said that in Sub Saharan African countries, high inflation is the consequence of the country's' economic growth leads to an increase in inflation and that decrease growth reduces inflation (**PARADOX**).

### **Government Expenditure and Economic Growth**

According to Cavallo (2005) the government consumption expenditure consists of two main components: expenditure on final goods and expenditure on wage and salaries accruals. This study is used to measure the government expenditure on final goods and



expected a positive relationship to economic growth of Tanzania. The theory says that, an increase in government expenditure of final goods is accommodated through higher imports; an increase in government wage and salaries accruals is accommodated by an expansion in domestic labor supply. In the former case, there is a corresponding deterioration in the economy, whereas, in the latter, there are no direct consequences on National Income. However, the results of this study found government expenditure to have positive significant impact to economic growth in Tanzania both in long run (Table 4.5) and short run period (Table 4.6). That is, change in a unit of government expenditure in a long run leads to improve economic growth by 62.6% and 33.4% in short run. This implies that when government expenditure in the economy increases, by the budget constraint, lump-sum taxes also increase by the same magnitude. As a consequence, domestic households observe a decrease in their after-tax labor income and demand for highly imported commodities fall.

The second economic mean is the presence of good and controlled of import restrictions on un-necessary commodities from other countries Tanzania to control the problem of import duty inflation in the economy. The findings are supported by the study of Kibet (2014) who discovered in his study that the government expenditure has positive impact to economic growth. However, Cavallo (2005) insists that, in developed countries fiscal deficit generated by an increase in government expenditure on salaries and wages has a substantially small impact on economic growth than a fiscal deficit generated by rise in government expenditure on final goods. This means, the government expenditure on final goods in developing countries has a small impact on the economic growth.

### **Money Supply and Economic Growth**

Money supply can lead to both positive and negative effect in the economy. Theoretically, the study is based on negative side of money supply influence in the economy of Tanzania. An increase in money supply has possible negative effects in a way that, it causes the value of domestic currency to decrease, making foreign goods expensive and domestic goods cheaper. Thus, important goods can increase leading to higher prices and lowering the purchasing power of individuals. Also, Mankiw (2001) argued that, an increase in money supply gives rise to the level of real balance; thus, individuals forecast their wealth to rise, causing the level of expenditure to increase relative to income and decline in economic growth. Thus from that theoretical views, in this study, the effect of money supply to economic growth was expected to be negative.

The findings of the study are equivalent to the predetermined hypothesis, that the money supply has negative impact to economic growth of Tanzania. The negative sign in money supply (M3) coefficient in the short run implies that an increase of a unity of money in circulation in Tanzania economy deteriorate the economy by 2.9%% (Table 4.6). These results mean that increase of money supply, the price of commodities will rise, by considering the adverse side of currency devaluation (Tanzania shillings) effect which is inflation will deteriorate the economy of Tanzania. On that way, the same results were provided by the study of Duasa (2007) who found that, money supply has negative impact in the economy. The significance of the money supply coefficient implies that the monetary theory in Tanzania can be used to model a good measure

of money supply to reduce the negative effect in economic growth of Tanzania.

### **Practical Implications**

This study will add to market analysts, financial expert, academicians, policy makers and national investor's officials keen of how the GDP change because of progress in inflation so they can bring great policies to hold an inflation rate valuable for production in the economy (non-harmful inflation rate). From the importance of policy makers to clear vulnerability on relationship amongst inflation and economic growth on either inflation has positive or negative relationship to economic growth, this study analyzed the effect of inflation on economic growth in Tanzania by demonstrating the level of responsiveness of progress in GDP because of progress in general price levels in Tanzania, disposition and their relationship in general and along these lines filling the current learning crevice.

### **Conclusion and Recommendations**

Therefore stationarity tests were conducted and the results showed that all variables were not stationer at level except for a government expenditure variable. Thus other variables became stationary after first differencing. Testing for co integration was conducted by using an ARDL bounds tests and the results indicated that there is a long run relationship running from inflation, money supply and government expenditure to economic growth in Tanzania economy. From the long run relationship point of view, the study goes far away to observe the presence of short run relationship by estimating an Error Correction Model (ECM). The short run results indicated that, after short run dynamics running from money supply and government expenditure to economic growth the inflation become into equilibrium with economic growth after one month each year. In

general the study found that short run results confirms the presumably expectation that there exist a negative relationship between inflation and economic activities in the long run and a positive relationship between government expenditure (GEXP), money supply (M3) and economic activities in the long run, while in the short run the result showed that there exist a positive relationship between inflation and economic growth as well as negative relationship between government expenditure, money supply and economic growth. The existing literatures have discussed more about the inflation and economic growth in Tanzania and other developing countries. Their results seem to contradict each other due to some reasons such as nature of economy and economic control theories applied to different countries. In this study, inflation has been examined by incorporating other macro-economic variables namely money supply and government expenditure basing on the researchers selection.

The study found inflation to have insignificant impact to economic growth and a correct sign in the long run model as predefined in the hypothesis while government expenditure and money supply seems to have significant impact to economic growth in Tanzania. Thus, there is a need for upcoming researchers to investigate the impact of inflation to economic growth of Tanzania by not or/ and incorporating with other macroeconomic variables rather than money supply and government expenditure because they are themselves influencing inflation to large extent in the economy. However, difficulties raised in obtaining all data for variables used in this study for year 2012, 2013 and 2014 as pre expected in this study.

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