Composition of Government Expenditure and Economic Growth in Ethiopia (1975-2011G.C)

Dr Abdu Muhammed Ali
Assistance Professor of Public Financial Management, Ethiopian Civil Service University

Abstract
The aim of this quantitative study is to analyze the compositions of public expenditure with economic growth in Ethiopia. The focuses of this paper is to examine which composition of public expenditure promoting economic growth in Ethiopia. Public expenditure data was collected from 1975-2011G.C. Regression analysis is applied to the composition of public expenditure on economic growth. The study found that the independent variables (agri, he, rtac, trind,) altogether accounted 97 % changes in economic growth. On the other hand, considering the composition of public expenditure, on agriculture, health, trade and industry are statistically significant in explaining changes in economic growth. However, expenditure on road transport and communication is statically insignificant in explaining economic growth in Ethiopia. The study recommended that the government should increase efficiency of the financial resource by scrutinizing and evaluating for spending in transport and communication to create new capacity and support existing capacities. In addition, government should strengthen three principal-agent relationship dimensions(C=M+D – A) of the organizational structure that is crucial in decreasing the opportunity for corruption in government spending. From the social change perspective, if the government put into practice the suggested solutions as inputs for future policy formulation and successful execution of public expenditure, the wellbeing of the public will be enhanced. Ethiopians will experience significant improvements in growth and development, standard of livings and increase in employment.
Keywords: *Composition of public expenditure, economic growth, co-integration, unit root test.*

1.0. Introduction

The most important purpose of development within Ethiopia is to eliminate poverty in the coming twenty years period of time. This can be accomplished by implementing broad- based development policies that would not only enhance economic growth, but would also remain to the principles of fair distribution of the benefits from such growth.[1]

Government expenditure is one of the crucial factors that find the level of economic growth of a country. However, Basudev (2012) confirmed the growth of economy depends on the size, spending capacity, Composition and effective use of public expenditure in the economic growth process. Although the quality of public expenditure matters, increasing large amount of expenditure by the government may not necessarily create a successful result in economic growth. Such expenditure should be provided with the right public expenditure management and control in order to achieve economic growth and improve the standard of living of the population (Leonardo, 2011).

Using public expenditure in escalating economic growth and enhancing the life of the population, Ethiopia sat down medium and long-term visions.[2] Currently the Ethiopian government is investing in various infrastructures like the renaissance dam, railway, building of condominiums and various roads to accelerate the growth and development of the country. Public expenditure represents one of the most important components of the fiscal policy instruments for achieving various goals of governments. One of the aims of government is economic growth. It is expected when public expenditure used for investment in capital asset at the early stages of economic growth.

Currently, it is important to study that examining the composition of government spending affects economic growth in Ethiopia. Even if there is marvelous growth in the literature on public expenditure and economic growth, there are several gaps. There is no universal agreement on which composition of the expenditure has direct effect on economic growth. Therefore, the objective of this paper is to analyze the compositions of public expenditure to the growth of the Ethiopian economy. This will provide important information for the usages of limited public financial resources. The rest of this article is structured as follows: Following section one is section two, which discusses with Literature review. Section three deals Specification and Estimation of the Model. Empirical results are discussed in section four. Finally Section five concludes and suggests policy recommendation of this article.

[1] MoFED Annual Report (2010/11) http://www.mofed.gov.et/m/Resources/MEDR-EFY2003-AnnualFinal10012012-Final.pdf
[2] ibid

2.0. Literature Review

When we see empirical studies on the relationship between the composition of public expenditure and economic growth, most results are still mixed. There is no universal agreement on which compositions of public expenditure directly promote economic growth.

The following researchers have studied the link between public expenditure on economic growth. Teshome (2006) examined the impact of public expenditure on economic growth in Ethiopia for the period 1960/61-2003/04. He applied econometric techniques of using Johanson Maximum Likelihood Estimation procedure to check the relationships of different sectors of public expenditure on the growth of real GDP. He found that only spending on human capital has long-run significant positive impact. However, productive public spending showed negative and insignificant impact on the growth of real growth domestic product; it is also clear regarding that there exist inefficiency and poor quality of public expenditure. The authors found that in the short run, all components of public spending do not have significant meaning in explaining economic growth.

Niloy et al. (2007) also examined the growth effects of public expenditure focused on disaggregated public spending for a panel of 30 developing countries between 1970s and 1980s. They found that the share of government capital expenditure in GDP is positively and significantly correlated with economic growth, but current expenditure is insignificant. In disaggregated level, government expenditure in education and total expenditures in education are the only spending that is significantly associated with growth. In support of the above, John (2012) using data from 1972 to 2008 for Kenya, investigated the effect of the components of public spending on economic growth. The author concluded that spending on education was a highly significant determinant of economic growth. However, spending on transport and communication, economic affairs, were also weakly significant to economic growth. Conversely, spending on agriculture was negatively significant on economic growth and spending on health is insignificant determinants of economic growth.

Abu and Abdullahi (2010) using data from the period 1970-to 2008 investigated the effect of government expenditure on economic growth in Nigeria. He discovered that expenditure on education, total recurrent expenditures and total capital have a negative effect on economic growth. However, rising public spending on health, transport and communication will enhance in economic growth. In addition to the above, Adewara and Oloni (2012) empirically investigated the components of government spending and economic growth in Nigeria with the period from 1960 to 2008 using the vector Autoregressive models (VAR). They concluded that government spending on agriculture, health and transport are positive and significantly related to economic growth. However, spending on education is both negative and not significantly to economic growth.

Tajudeen and Ismail (2013) studied using annual time series data from the period from 1970 to 2010 in Nigeria concerning that the impact of government spending on economic growth. They used the bounds testing Auto-Regressive Distributed Lag (ARDL) approach to analyze the long run and short run relationships between government spending and economic growth. They found that total government spending has negative impact on economic growth However; recurrent expenditure has little significant positive impact on economic growth in Nigeria.

Lotto (2011) investigated from the period 1980 to 2008 in Nigeria about the effect of sectoral spending to economic growth. The author showed that in the short-run, spending on transport and communication and health was positively related to economic growth. On the other hand, government expenditure on agriculture was negatively related to economic growth. However, the relationship between spending on education and economic growth was negative and insignificant. The impact of education, though also negative was not significant.

3.0. Specification and Estimation of The Model

Following the classification made by the IMF, two ways of dis-aggregating public spending is generally accepted. The first one is the distinction between capital expenditure and current spending. The second one is the so-called "functional classification," which distinguishes categories according to their last use such as: (agriculture, industry, health, etc.). Therefore, this model followed the functional classification of public expenditure.

The following growth model was adapted from Abu (2010) equation to test the various expenditure components in the case of Ethiopia.

$$\boxed{Rgdp = f(agri, educ, he, rtac, trind, r) \quad (1)}$$

Where: Rgdp means real gross domestic product
"agri" means expenditure on agriculture
"educ" means expenditure on education
"he" means expenditure on health
"rtac" means expenditure on road transport and communication
"trind" means expenditure on trade and industry
"r" means rainfall data as control variable

As mentioned above, the equation was converted into econometrics format and the result is indicated below:

$$Rgdp = \beta0 + \beta1agri + \beta2rtac + \beta3educ + \beta4he + \beta5trind + \beta\ 6r + u1\ (2)$$

So, the equation above equation can be transformed into to log-log model and it becomes;

$$In\ Rgdp = \beta0 + \beta1\ Inagri + \beta2\ Inrtac + \beta3\ Ineduc + \beta4\ Inhe + \beta5Intrind + \beta6Inr\ U_1\ (3)$$

β 1, β 2, β 3, β 4, β 5 and β 6 are coefficients of semi-elasticities (slopes) of agri, rtac, educ, he, trind and r respectively. While U_1 corresponds to error term, it means other variables that could have effects on further explanations for the dependent variable of Rgdp but, are not included in this model. The sign of each coefficient is dependent upon the relative contributions of the related independent variables that will be depending on the performance of the economic system under consideration.

3.1. Define the Research Variables

The dependent variable is the economic growth in real GDP. The explanatory (independent) variables are various levels and components of government expenditure. For the purpose of this study, government expenditure denotes country wide budgetary expenditure, including the federal government, regional and local governments.

The level of government expenditure and composition of government expenditure are important determinants of growth.

The variables are measured as follows:

1. Economic growth refers to the changes in real GDP.
2. Real GDP in turn is obtained by dividing GDP at current market price by the consumer price index (CPI).
3. Eagri is captured by government expenditure on agriculture divided by CPI.
4. Rtac is measured as government expenditure on the road transport and communication divided by CPI.
5. Educ Eexp is captured by government expenditure on education divided by CPI.
6. Hexp is measured as government expenditure on health divided by CPI.
7. Trind is measured as government expenditure on trade and industry divided by CPI.
8. R is measured in milliliter.
9. U refers to the error term. Prior to estimation of the growth model above, standard econometrics pre-tests and post-tests are conducted to avoid the generation of spurious regression results.[1]

3.2. Sources of Data

This paper used Ethiopian data that covered from the period 1975-2011. The data is primarily collected from The Ethiopian Ministry of Finance and Economic Development (MOFED) and the various Federal and Regional Bureaus.

4.0. Empirical Result

Using E-views program as a tool, this paper analyzed the secondary data between 1975-2011E.C. empirical results and discussions are illustrated in the following manner.

4.1. Stationarity (Unit root) Test

In the time series econometrics model, Testing for the existence of unit roots is a precondition for the study. In order to avoid the generation of spurious (nonsense) regression results, Standard econometric tests like co-integration test and stationarity (unit root) test was conducted. The study employed the Augmented Dickey Fuller (ADF) to test the order of integration of both the dependent and independent variables. The unit root test results are presented in Table 8. As it is revealed in the Table below, all dependent and independent variables are stationary at their first difference. However, error term is stationary at level.

In order to test stationarity using this method, there should be a standard way of writing the null hypothesis (H_0) and the alternative hypothesis (H_0) as follows.

H0: each time series contains a unit root
H1: each time series is stationary

[1] ibid

Table 1
Unit Root Test Results Based on ADF Test

Variable	Augmented Dickey-Fuller (ADF) Test Statistic	Level (%)	Critical Values	Order of Integration
LRGDP	-7.819037	1	-4.243644	Stationary at first differences
	(0.0000)	5	-3.540328	
		10	-3.204699	
LAGRI	-7.438114	1	-4.243644	Stationary at first differences
	(0.0000)	5	-3.544284	
		10	-3.204699	
LEDUC	-5.322539	1	-4.243644	Stationary at first differences
	(0.0006)	5	-3.544284	
		10	-3.204699	
LHE	-7.068958	1	-4.252879	Stationary at first differences
	(0.0036)	5	-3.548490	
		10	-3.207094	
LRTAC	-7.188388	1	-4.243644	Stationary at first differences
	(0.0000)	5	-3.544284	
		10	-3.204699	
LTRIND	-5.620883	1	-4.243644	Stationary at first differences
	(0.0003)	5	-3.544284	
		10	-3.204699	
LR	0.0049	1	4.243644	Stationary at first differences
	(-4.527507)	5	3.544284	
		10	3.204699	
U	-5.444853	1	-4.234972	Stationary at level
	(0.0004)	5	-3.540328	
		10	-3.202445	

Source: Computed by Using E-views

Note: 5% significance level is used for the decision of Unit root. U (Error term) is stationary at a level this implying that the variables are Co-integrated.

he Engle-Granger method requires all the variables in equation (1) to be integrated of order one, I (1) and the error term is integrated to be order of zero, I (0) for establishing a co integration relationship (Roberto and Ferda , 2009) .

4.2. Co- Integration Test

To check whether the variables are co-integrated or not, a Johansen maximum likelihood method was used to see the variables have stable long run linear relationship. In Johansen maximum likelihood method, the data used should be in the same order. Then, these data was tested by both trace statistics and Max-Eigen statistics with 5% critical value. As shown in Table 2a and 2b, both r

Table 2a

Unrestricted co-integration Rank Test (Trace)
Sample (adjusted): 1977 2011
Included observations: 35 after adjustments
Trend assumption: Linear deterministic trend
Series: : LRGDP LAGRI LRTAC LEDUC LHE LTRIND LR
Lags interval (in first differences): 1 to 1

Hypothesized No. of CE(s)	Eigen Value	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.816549	149.3174	125.6154	0.0008
At most 1	0.703403	89.96407	95.75366	0.1171
At most 2	0.423957	47.42577	69.81889	0.7446
At most 3	0.323194	28.12073	47.85613	0.8084
At most 4	0.195044	14.45777	29.79707	0.8140
At most 5	0.140854	6.863889	15.49471	0.5935
At most 6	0.043328	1.550301	3.841466	0.2131

Trace test indicates 1 co integrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Table 2b
Co integration Result: Unrestricted co-integration Rank Test (Maximum Eigen Value)

Hypothesized No. of CE(s)	Eigen value	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.816549	59.35331	46.23142	0.0012
At most 1	0.703403	42.53830	40.07757	0.0259
At most 2	0.423957	19.30505	33.87687	0.8029
At most 3	0.323194	13.66296	27.58434	0.8452
At most 4	0.195044	7.593880	21.13162	0.9268
At most 5	0.140854	5.313588	14.26460	0.7018
At most 6	0.043328	1.550301	3.841466	0.2131

Max-eigen value test indicates 1 co integrating eqn (s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Source: Computed by Using E-views

4.3. Model Estimation

After pre-estimation is conducted, the researcher estimated the model by using least square method and results are indicated in the following Table.

Table 3 Result of Least square
Dependent Variable: D(LRGDP)
Method: Least Squares
Sample: 1975 2011

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.653987	0.347422	27.78750	0.0000
DLAGRI	0.038579	0.063849	0.604219	0.5502
DLEDUC	0.382629	0.116091	3.295935	0.0025
DLHE	0.486321	0.114974	4.229833	0.0002
DLRTAC	-0.065468	0.066179	-0.989256	0.3304
DLTRIND	-0.065772	0.022631	-2.906294	0.0068
DLR	0.012193	0.023829	0.511668	0.6126

R-squared	0.978639	Mean dependent var	11.11065
Adjusted R-squared	0.974367	S.D. dependent var	0.584060
S.E. of regression	0.093510	Akaike info criterion	-1.732836
Sum squared resid	0.262324	Schwarz criterion	-1.428068
Log likelihood	39.05747	Hannan-Quinn criter.	-1.625391
F-statistic	229.0718	Durbin-Watson stat	1.918717
Prob(F-statistic)	0.000000		

Source: Computed by Using E-views

To decide, whether the above estimation result is acceptable or not, the researcher used post estimation techniques in the following ways.

Post Estimation

Normality test Using Residual

In the following figure 1, the residual test indicated that the JB value is 2.64 with a *p* value of 0.266. Therefore, the p value greater than 5% implied that H_0 should not be rejected. Therefore, the dependent variable (DLRGDP) follows the assumption of normality.

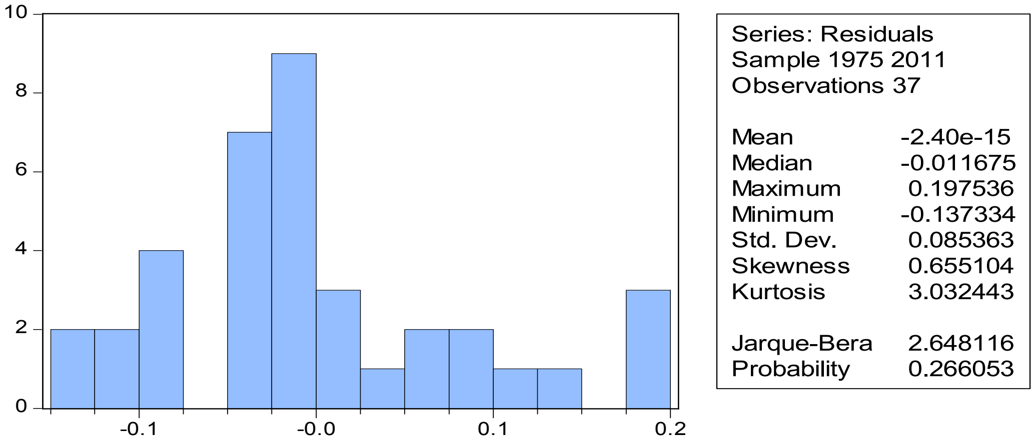

Figure 1. Normality Test Results for Residual
Source: Own Computation Using Eviews

Auto correlation (Serial Correlation)

There are different tests for checking the assumption of auto correlation. In this thesis, the researcher used Breusch-Godfrey Serial Correlation LM Test. For checking auto correlation, the standard way of writing the null and alternative hypothesis is as follows.

H_0 = There is no Auto correlation
H_1 = There is Auto correlation

E-views result for auto correlation is indicated in Table 11 below.

Table 4
Result of Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.177237	Prob. F(2,28)	0.8385
Obs*R-squared	0.462556	Prob. Chi-Square(2)	0.7935

Source: Own Computation Using E-views

The above result (Table 4) revealed that there is no auto correlation in this model. The corresponding probability of the Obs*R-squared value (0.7935) is greater than 5%. Therefore, the Obs*R-squared value greater than 5% implied that H_0 should not be rejected. Hence, the model is free from auto correlation.

Heteroskedasticity Test: Breusch-Pagan-Godfrey

For checking heteroskedasticity test, the standard way of writing the null and alternative hypothesis is as follows.

H_0 = there is no heteroskedasticity
H_1 = There is heteroskedasticity

E-views result from heteroskedasticity test result is indicted in the next Table.

Table 5
Result of Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.685598	Prob. F(6,30)	0.1589
Obs*R-squared	9.328579	Prob. Chi-Square(6)	0.1559
Scaled explained SS	6.232221	Prob. Chi-Square(6)	0.3977

Source: Own Computation Using Eviews

The above result (Table 5) revealed that then there is no heteroskedasticity problem with this model. Because, the corresponding probability of the Obs*R-squared value (0.1559) is greater than 5%. Therefore, the Obs*R-squared value greater than 5% implied that the null hypothesis should not be rejected. Hence, the model is free from heteroskedasticity.

Multicollinearity Test

Multicollinearity may exist when there is a high correlation between any two independent variables. A problem of Multicollinearity makes significant variables insignificant by increasing its standard error. When the standard error goes up, t-value will go down and hence resulted in, high *p*-value. That is the variable becomes insignificant.

Multicollinearity can be detected by using correlation analysis of only independent variables. The result of correlation analysis of the model is revealed in the following Table.

Table 6
Results of Multicollinearity Test

	DLAGRI	DLEDUC	DLHE	DLRTAC	DLTRIND	DLR
DLAGRI	1.000000	0.919938	0.882705	0.860387	0.383504	0.405159
DLEDUC	0.919938	1.000000	0.974166	0.956474	0.384202	0.516342
DLHE	0.882705	0.974166	1.000000	0.957837	0.356267	0.544308
DLRTAC	0.860387	0.956474	0.957837	1.000000	0.234842	0.504739
DLTRIND	0.383504	0.384202	0.356267	0.234842	1.000000	0.359125
DLR	0.405159	0.516342	0.544308	0.504739	0.359125	1.000000

Source: Authors Computation Using Eviews

There are two steps for detecting problems of multi colinearity. The first step is selecting the variables which have higher correlation between two variables. The second step is comparing their *p*-value and selects the variable which has high *p*-value**.** In this model, the two variables having highest correlation are between education and health (LEDUC and LHE). In comparing their *p*-value, LEDUC has high p (0.0025) value in comparing the EDUC *p* (0.0002) value. Therefore, LEDUC is dropped. And the researcher again runs the model. After dropping LEDUC, The new model is revealed in Table 6 below.

Model specification test (Ramsey RESET Test)

For checking Model specification test (Ramsey RESET Test), the standard way of writing the null and alternative hypothesis is as follows.

H_0 = the model correctly specified
H_1 = the model is not correctly specified

The following Table 7 revealed that the model is correctly specified. It is also possible to check with a *p* value of 42%. Therefore, the p value greater than 5% implied that H_0 should not be rejected. Therefore, the model is correctly specified.

Table 7
Results of Ramsey Reset Test:

F-statistic	0.509301	Prob. F (1,29)	0.4811
Log likelihood ratio	0.644158	Prob. Chi-Square (1)	0.4222

Source: Autors Computation Using Eviews.

Stability Checks

In order to check the stability of the dependent variable DLRGDP, the two marginal lines were observed. If the blue line is in between the red line, we call that the dependent variable is stable. Therefore, Figure 2 showed that the dependent variable DLRGDP is stable since the blue line is within the red line.

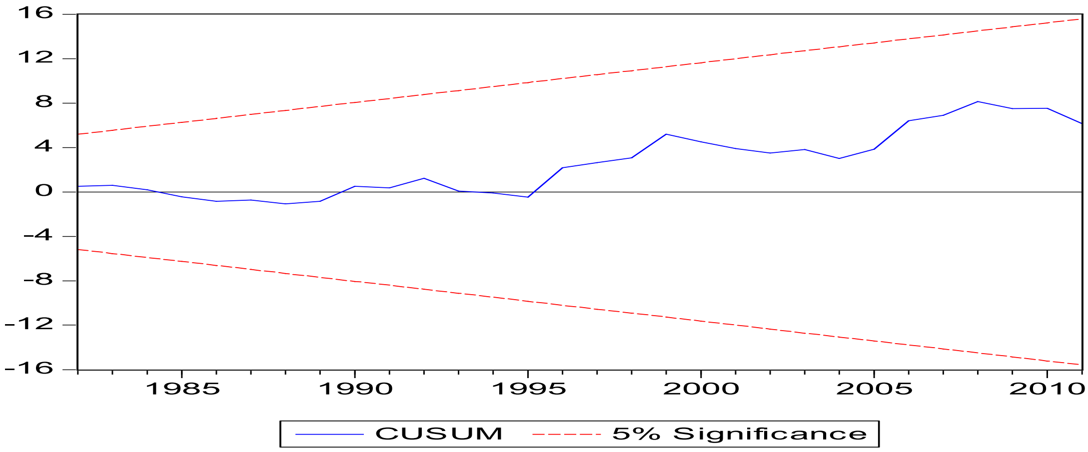

Figure 2 Stability Test Result
Source: Own Computation Using E-views

Model Estimation
After checking all diagnostic tests, the final model is estimated here and indicated in Table 15.
Table 8
Results of final model estimation
Dependent Variable: DLRGDP
Method: Least Squares
Sample: 1975 2011
Included observations: 37

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.296334	0.378925	24.53346	0.0000
DLAGRI	0.148608	0.062487	2.378210	0.0237
DLHE	0.689832	0.111352	6.195063	0.0000
DLRTAC	0.033355	0.067735	0.492435	0.6259
DLTRIND	-0.043257	0.024771	-1.746275	0.0907
DLR	0.011152	0.027357	0.407644	0.6863
U(-1)	-0.866351	0.210227	-4.121030	0.0003

R-squared	0.970904	Mean dependent var	11.11065
Adjusted R-squared	0.966211	S.D. dependent var	0.584060
S.E. of regression	0.107360	Akaike info criterion	-1.477858
Sum squared resid	0.357314	Schwarz criterion	-1.216628
Log likelihood	33.34037	Hannan-Quinn criter.	-1.385762
F-statistic	206.8884	Durbin-Watson stat	1.980434
Prob(F-statistic)	0.000000		

Source: Authors Computation Using E-views

4.4. Regression Results
As indicated in Table 8, all diagnostic tests proved that the model is acceptable and R^2 is also greater than 60%. The Durbin Watson statistic is 1.98 which is close to the usual suggested value of 2.0 which indicated that it is free from auto- correlation among the variables in the model. The ECM is also negative and significant. Therefore, at the rate of 86 percent of speed at which the dependent variable - DLRGDP - returns to equilibrium after a change in an independent variables annually. The *p*-value of F statistic indicated that Independent variables (compositions of expenditure) are jointly significant to explain the economic growth (real DLRGDP). The result of the Least Squares showed that independent variables all together accounted 97 % change in economic growth. On the other hand, considering the compositions of public expenditure on agriculture, health, trade and industry are statistically significant in explaining changes in economic growth. For example, if expenditure on agriculture increases by 1 % we expect economic growth to increase by 0.15 %. If expenditure on health increases by 1 %, we expect economic growth to increase by 0.69 %. However, expenditure on road

transport and communication is statically insignificant

5.0. Conclusion and Policy Recommendation

The objective of the study was to: Analyze composition of public expenditure that promotes economic growth in Ethiopia. Using government expenditure as a tool to boost economic growth and enhance the life of the population, Ethiopia has set down both medium and long-term plans. The growth of the economy is essential for sustainable development. Without economic growth, it will be difficult for developing country like Ethiopia to enhance the standard of living for the population. Therefore, this paper investigated the relationship between Economic growth and various compositions of Public expenditures by using co-integrated error correction modeling from the period 1975-2011G.C.

Therefore, the result indicated that independent variables all together accounted 97 % change in economic growth. On the other hand, considering the compositions of public expenditure on agriculture, health, trade and industry are statistically significant in explaining changes in economic growth. For example, if expenditure on agriculture increases by 1 % we expect economic growth to increase by 0.15 %. If expenditure on health increases by 1 %, we expect economic growth to increase by 0.69 %. However, expenditure on road transport and communication is statically insignificant**.**

Based on the above findings, this paper suggests the following recommendation. The study recommended that the government should increase efficiency of the financial resource by scrutinizing and evaluating for spending in transport and communication to create new capacity and support existing capacities. In addition, government should strengthen three principal-agent relationship dimensions(C=M+D – A) of the organizational structure that is crucial in decreasing the opportunity for corruption in government spending. From the social change perspective, if the government put into practice the suggested solutions as inputs for future policy formulation and successful execution of public expenditure, the wellbeing of the public will be enhanced. Ethiopians will experience significant improvements in growth and development, standard of livings and increase in employment.

References

Abu, N. (2010). Government expenditure and economic growth in Nigeria: a disaggregated analysis. Business and economics journal, BEJ-4.

Adesoye, B., Maku, E. and Atanda, A. (2010). Dynamic analysis of government spending and economic growth in Nigeria. Journal of management and society, 1, 27-37.

Adewara, O. and Oloni, E. (2012). Composition of public expenditure and economic growth in Nigeria. Journal of emerging trends in economics and management sciences, 34, 403-407.

Allen, S. (1999). A contemporary approach to public expenditure management: Governance, regulation, and finance division. International bank for reconstruction and development.

Amadi, C., Amadi, N., and Nyenke, C. (2013). Public spending on transport, infrastructure and economic growth in Nigeria: 1981-2010. Journal of sociological research, 4, 2.

Amassoma, D. (2011). Components of government spending and economic growth in Nigeria: An error correction modeling. Journal of economics and sustainable development, 2, 4.

Austin, I. (2006). The impact of regulation and supervision of the activities of banks in Nigeria, Unpublished doctoral dissertation, University of Jos, Nigeria.

Basudev, S. (2012). Government expenditure and economic growth in nepal a minute analysis: revenue administration training center. Basic research, Journal of business management, 13, 37-40.

Federal Democratic Republic of Ethiopia Growth and Transformation plan. (2010). MOFED, 1, 2010/11-2014/15.

Fraenkel and Wallen. (2009). How to design and evaluate research in education (7th ed.).New York.

Giovann, G. (2004). Public spending management and macroeconomic interdependence, International Monetary Fund. WP/04/102.

Gujarati. (2004). Basic econometrics (4th ed.). The McGraw−Hill Companies.

Gyimah, B. and Samaria M. (2006). Corruption, growth, and income distribution: Are there regional differences? Economics of governance 73, 245–69.

H. C. Adams. (1898).The Science of public finance; an investigation of public expenditure and public revenue. Henry Holt & Co., New York, http://www.alzheimer-europe.org/Research/Understanding-dementia-research/Types-of- research/The-four-main-approaches.

Japan Bank for International Cooperation (JBIC). (2001). Public expenditure management in developing countries: Research institute for development and finance.

John, M.and Warren, M. (2012). Does the composition of public expenditure matter to economic growth for Kenya? Journal of economics and international finance, 11, 646-652.

Keynes, J. (1936).The general theory of employment interest and money. Macmillan, London.

Leonardo, M. (2011). The quality of public expenditure and its influence on economic growth: evidences from the state of rio grande do Sul (RS). Washington D.C.

Lotto, M. A. (2011). Impact of government Sectoral expenditure on economic growth. Journal of economics and international finance, 311, 646-652.

Manh, V. L. and Terukazu, S. (2005).The effects of FDI and public expenditure on economic growth: From theoretical model to empirical evidence. Working Paper Series. Graduate school of international cooperation studies Kobe University.

Michael, H. (2001). Public sector economics for developing countries, Canada.