

Impact of Government Sectoral Expenditure on Economic Growth in Malawi, 1980-2007

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Abstract

This paper examines the impact of government sectoral expenditure on economic growth in Malawi. Using time series data from 1980 to 2007, cointegration analysis in the context of an error correction model was employed to estimate the growth effects of government expenditures in agriculture, education, health, defence, social protection and transport and communication. The short run results showed no significant relationship between government sectoral expenditure and economic growth. The long run results showed a significant positive effect on economic growth of expenditure on agriculture and defence. The expenditures on education, health, social protection and transportation and communication were negatively related to economic growth. To boost economic growth efficient management of resources allocated to all sectors should be emphasized.

Key Words: Government expenditure, economic growth, error correction model

1. Introduction

Public expenditure is the main instrument used by Governments especially in developing countries to promote economic growth which is an essential ingredient for sustainable development. Economic growth brings about a better standard of living of the people through provision of better infrastructure, health, housing, education services and improvement in agricultural productivity and food security (Loto 2012). Nearly all the sectors in the national economies of developing countries demand more budgetary allocations every year. For instance, the agricultural sector under the Maputo Declaration of 2003 requires African Governments to increase expenditure on agricultural sector to at least 10 percent of the national budgetary resources (New Partnership for Africa's Development (NEPAD), 2011). Thus, in view of the competing uses of public funds there is a need to investigate the appropriate way of allocating funds and to examine the effect of the composition of public expenditure on economic growth in most countries. In addition, a further justification for continued empirical interest in investigating the effects of government expenditure on economic growth is that previous studies have produced conflicting results.

In Malawi the government has a major task to provide public goods such as education, health, roads, communication and energy to its population of 13 million people, majority of whom (about 52 percent of the population) live below poverty line and the average GDP per capita is \$791 (World Bank 2011). Indeed the major development objective of the government of Malawi as expressed in various past and present development plans and strategies is poverty reduction and sustainable economic growth. In Malawi like other developing countries, government expenditure continues to be the main source of investment expenditure and in the current Malawi Growth Development Strategy (MGDS II), total government expenditure is expected to reach an average of 26.4 percent of GDP (Government of Malawi 2011). Despite the continued government spending on various sectors of the economy, between 1980 and 2009, Malawi's economy grew at an average annual rate of 3.4 percent (Benin *et al.* 2008). This relatively low economic growth rate implies that past government expenditure

efforts have not translated into meaningful growth and development in Malawi. Therefore in view of the issues raised, the main objective of this study is to investigate the effects of government sectoral expenditures on economic growth in Malawi. It focusses on economic growth effects of sectoral expenditures in six sectors namely agriculture, education, health, defence, social protection and transport and communication in Malawi using time series data for the period 1980-2007.

2. *Economic Growth and Government Expenditure*

There have been several studies on the role of government spending on the long term growth of national economies (Aschauer 1989; Barro 1990; Tanzi & Zee 1997). These studies found mixed results about the effects of government spending on economic growth (Fan and Rao 2003). Some authors indicate that it is positive, others believe it is negative and another group of authors find it to be non-significant. Those who have found a negative relationship between government expenditure and economic growth include Landau (1983) and Levine & Renelt (1992). In the study of 96 nations, Landau (1983) found a negative relationship between government consumption expenditure and growth of real output.

On the other hand Barro (1990) found that expenditure on investment and productive activities has a positive effect on economic growth, while government consumption spending is growth retarding. Through the use of public expenditure, government control promotes economic growth in the sense that public investment contribute to capital accumulation. Other importance of government expenditure includes the provision of those facilities that are not covered by the market economy such as health. Human capital development promotes high quality labour productivity benefits associated with economic growth, but the financial source for public expenditure through taxation has negative effects on economic growth.

Belgrave & Craigwell (1995) examined the impact on economic growth of government expenditure disaggregated by functional and economic categories in Barbados for the period 1969-1992 and employed the augmented Dickey Fuller and Engle Granger co-integration technique. The results indicated that there is a positive relationship between capital expenditure, agriculture, housing and community, road, communication and health expenditures on economic growth respectively. However, the effects of education and current expenditure are negative.

The study by Devajaran et al (1996) covering 43 developing countries over the period 1970 to 1990, found that current expenditure has positive impact on growth, while capital expenditure exerts negative impact on growth. The negative effect of capital expenditure on growth in developing countries was attributed to corruption and inefficiency in the use of public funds. Haque & Kim (2003) found that public investment in transportation has dynamic effects on economic growth of 15 developing countries. A cross country study by Sutherland *et al.* (2009) on growth effects of infrastructure, found a strong and significant positive effect of telecommunications and energy generation on economic growth. The study by Hakro (2009) based on panel regression of a sample of 21 Asian countries covering data for period of 1981 to 2005, found a positive relationship between government expenditure and GDP per head growth but insignificant in some cases. Furthermore investment, physical capital and labour force growth rate are positively related to GDP growth per head but unemployment is negatively affects GDP per head growth.

Recent studies in Africa on economic growth and public expenditure have been done mostly in Nigeria (Akpan 2005, Maku 2009, Narudeen & Usman 2010, Udoh 2011, and Loto 2011) and a few other countries including Ghana (Nketia-Amphosah 2000), and Tanzania (Kweka & Morrissey 2000). The findings from these various African studies are equally mixed. Loto (2011) applied co-integration and error correction model and showed that in the short-run, expenditure on agriculture and educations were negatively related to economic growth.

However, expenditure on health, national security, transportation, and communication were positively related to economic growth.

Udoh (2011) examined the relationship between public expenditure, private investment and agricultural sector growth in Nigeria over the period 1970-2008 using the bounds test and autoregressive distributed lag model and error correction model. He found that an increase in public expenditure has a positive influence on the growth of the agricultural output. However, foreign investment has insignificant impact in the short run on agricultural output. Narudeen and Usman (2010) found that government total recurrent and capital expenditure had insignificant growth effects and the impact of expenditure on education was negative. However, expenditure on transport and communication, and health had positive effects on growth.

Nketia-Amphonsah (2009) in Ghana showed that aggregated government expenditure retarded economic growth, but expenditures on health and infrastructure promoted economic growth while expenditure on education had no significant impact in the short run. Kweka and Morrissey (2000) in Tanzania found that increased productive expenditure (physical investment) has a negative impact on growth but consumption expenditure has a positive impact. The expenditure on human capital investment was insignificant while aid appears to have a positive impact on growth in Tanzania.

Usman et al (2011) in Nigeria using OLS regression showed that expenditure on administration, education, and transport and communication have negative impact on economic growth in the short run, while expenditure on health and other services and FDI have positive impacts on economic growth. Fan & Rao (2003) found the impacts of various types of government expenditures on economic growth in the developing world to be mixed. In Africa, government spending on agriculture and health was particularly strong in promoting economic growth. Asia's investments in agriculture, education, and defence had positive growth-promoting effects. However, all types of government spending except health were statistically insignificant. They also showed that growth in agricultural production is most crucial for poverty alleviation in rural areas. Agricultural spending, irrigation, education and roads all contributed strongly to this growth. Disaggregating total agricultural expenditures into research and non-research spending reveals that research had a much larger impact on productivity than non-research spending. There are also some studies which attempted to link government spending to agricultural growth and poverty reduction. Most of these studies found that government spending contributed to agricultural production growth and poverty reduction (Chilonda et al. 2010).

From the reviews above empirical evidence on the impacts of government expenditure on economic growth for Malawi are hard to find. This study therefore, contributes to this debate by providing further empirical evidence on the impacts of government sectoral expenditure on economic growth in Malawi.

3. Methodology and Data

Similar to Narudeen & Usman (2010), this study uses cointegration and error correction methods to analyse the relationship between government sectoral expenditure and economic growth. The framework borrows from both the Keynesian model and the endogenous model of economic growth. The Keynesian model argues that expansion of government expenditure accelerates economic growth. The endogenous growth model does not assign any important role to government in the growth process, however, Barro (1990) emphasized the importance of government policy in economic growth and that we have some expenditure that are productive and others that are not productive (Barro & Sala-i-Matin, 1992). Others argue that composition of government expenditure might exert more influence compared to the level of government expenditure on economic growth (Kneller & Gemmell, 1999). This discussion suggests that the level of government expenditure and composition of government expenditure are important determinants of economic growth. In this regard, our

model expresses economic growth as a function of government sectoral expenditures on agriculture, education, health, defence, social protection and transport and communication.

$$LGDP = \beta_0 + \beta_1LAGE + \beta_2LEDU + \beta_3LHEA + \beta_4LDEF + \beta_5LSOC + \beta_6LTRAC + U \dots\dots\dots(1)$$

Where, LGDP is the natural logarithm of real GDP, LAGE is natural logarithm of real government expenditure on agriculture; LAGE is natural logarithm of real government expenditure on agriculture. LEDU is natural logarithm of real government expenditure on education. LHEA is natural logarithm of real government expenditure on health. LDEF is natural logarithm of real government expenditure on defence. LSOC is natural logarithm of real government expenditure on social protection, and LTRAC is natural logarithm of real government expenditure on transport and communication.

The data for estimation of the equation 1 was obtained from online [Statistics of Public Expenditure for Economic Development \(SPEED\) database](#) compiled by the International Food Policy Research Institute (IFPRI). This data on Malawi consisted of annual series for the period 1980-2007 covering gross domestic product and government expenditures on agriculture, health, education, defence, social protection and transport and communication sectors. This data set was supplemented with additional data obtained from the World Bank development indicators (World Bank 2011).

Prior to estimation of the growth model in equation 1, standard econometrics tests namely stationarity test and cointegration test were undertaken in order to avoid generation of spurious regression results.

4. Empirical Results

4.1 Unit Root Test

The stationarity of the data was tested using the Augmented Dickey-Fuller (ADF) test. The results presented in Table 1 show a series to have a unit root. At levels the ADF values for LAGE, LHEA and LDEF were greater than the Mackinnon critical value (at 5%) of -3.592, implying that these variables achieved stationarity at levels. The other variables namely, LGDP, LEDU, LTRA and LSOC achieved stationarity at first difference.

Table 1: ADF Unit Root Test Results

| Variable | Levels | First Difference | Order of Integration |
|----------|--------|------------------|----------------------|
| LGDP | -3.416 | -6.448 | I(1) |
| LAGE | -4.404 | -7.992 | I(0) |
| LEDU | -3.527 | -10.224 | I(1) |
| LHEA | -5.661 | -8.486 | I(0) |
| LDEF | -5.751 | -8.961 | I(0) |
| LSOC | -2.324 | -5.016 | I(1) |
| LTRA | -2.765 | -6.367 | I(1) |

Critical values (5%) at level at level -3.592 and at first difference -3.596

2.1. 4.2 Johansen Test of Co-integration

Given the presence of the unit root in the series, Johansen test of co-integration was performed to determine whether a stable long-run relationship exists between the series at levels and at first difference (Johansen & Juselius, 1990; Johansen 1988). The results presented in Table 2 show that the Trace and Maximum Eigen values indicate an existence of at most two cointegrating equations. Thus it can be deduced that these variables have a long-run economic relationship. In other words there exists a long run relationship between GDP and public sector expenditure on agriculture, education, health, defence, social protection and transport &

communication in Malawi.

Table 2: Cointegration Rank Test Summary Results

| Johansen tests for cointegration | | | | | |
|----------------------------------|-------|-----------|-----------------|-----------------|-------------------|
| Trend: constant | | | Number of obs = | | 26 |
| Sample: 1982 - 2007 | | | Lags = | | 2 |
| maximum rank | parms | LL | eigenvalue | trace statistic | 5% critical value |
| 0 | 56 | 69.795935 | | 223.6673 | 124.24 |
| 1 | 69 | 123.72701 | 0.98421 | 115.8052 | 94.15 |
| 2 | 80 | 152.62601 | 0.89172 | 58.0072* | 68.52 |
| 3 | 89 | 166.69989 | 0.66129 | 29.8594 | 47.21 |
| 4 | 96 | 175.59253 | 0.49543 | 12.0742 | 29.68 |
| 5 | 101 | 178.76503 | 0.21654 | 5.7292 | 15.41 |
| 6 | 104 | 181.62913 | 0.19773 | 0.0010 | 3.76 |
| 7 | 105 | 181.62961 | 0.00004 | | |

2.2. 4.3 Error Correction Model

According to the Granger representation theorem, when variables are co-integrated of I(1), there must also be a Vector Error Correction Model (VECM) that describes the short-run dynamics or adjustment of the co-integrated variables towards equilibrium values. In other words the VECM separates the long and short-run parameters. With presence of a long-run relationship between GDP and the variables predicting confirmed, the long run equation was estimated using the VECM and the results are summarised in Table 3.

Table 3: Long run coefficients: Dependent variable: LGDP

| Variable | Coefficients | Standard error | t-values |
|----------|--------------|----------------|----------|
| LAGE | 0.135 | 0.015 | 8.55 |
| LEDU | -0.042 | 0.025 | -1.67 |
| LHEA | -0.415 | 0.020 | -20.35 |
| LDEF | 0.238 | 0.024 | 9.81 |
| LSOC | -0.037 | 0.002 | -14.90 |
| LTRA | -0.131 | 0.007 | -18.70 |
| Constant | -7.309 | | - |

The results in Table 3 indicate that in the long run, government expenditure on agriculture (LAGE) and defence (LDEF) have significant positive impacts on economic growth. The long run coefficient for agriculture tells that a one percent increase in agriculture expenditure will increase GDP by 0.135 percent. Similarly a one percent increase in defence expenditure will lead to a 0.238 percent increase in GDP.

The coefficients for government expenditure in health (LHEA), social protection (LSOC) and transport and communication (LTRA) have significant negative influence on economic growth. While government expenditure on education has a weakly significant (P-value =0.095) negative impact on economic growth. A one percent increase in education expenditure causes economic growth to decline by 0.04 percent. Similarly a one percent increase in health expenditure causes a 0.42 percent decline in economic growth and a one percent increase in public expenditure on transport and communication causes a 0.13 percent decrease in economic growth.

This finding of the negative effect of education expenditure on economic growth concurs with previous findings in developing countries (Landau, 1986; Devarajan *et al.*, 1996; and Narudeen *et al.*, 2010). *Apriori* government expenditures in the six sectors namely agriculture, education, health, defence, social protection and transport and communication are expected to have a positive influence on economic growth. A number of

reasons are given in the literature regarding the occurrence of a negative relationship between government sectoral expenditures and economic growth.

5. Conclusion

The main objective of this study was to examine the impact government sectoral expenditure in agriculture, education, health, defence, social protection, transport and communication, have on economic growth in Malawi. Annual time series data from 1980 to 2007 was used and tested for stationarity and a vector error correction model (VECM) was estimated.

The VECM results revealed that there were no significant relationship between government sectoral expenditure variables and economic growth in the short-run. However, the long run results indicated that government expenditure on agriculture and defence have significant positive impacts on economic growth.

Government expenditure on education, health, social protection, and transport and communication were significant but negatively related to economic growth. This implies that expenditure on education, health, social protection, and transport and communication were not contributing to economic growth. In other words, government expenditures in these sectors concentrated more on unproductive activities than productive activities. In order to boost economic growth the government should address the factors causing the negative impact on growth. A well-defined expenditure policy should be pursued and efficient management of resources in the development of education, health, social protection, and transport and communication services should be emphasized.

The positive association found between government expenditure on agriculture and economic growth, could further strengthen the call for African States under the Maputo Declaration to allocate at least 10 percent of the budgetary resources to agriculture in support of accelerated implementation of national agricultural investments formulated along the lines of the Comprehensive African Agriculture Development Programme (CAADP).

References

Akpan N.I (2005) "Government Expenditure and Economic Growth in Nigeria: A disaggregated Approach", *CBN Financial and Economic Review*, Vol. 43 No. 1

Aschauer, D. A., (1989), "Is public expenditure productive?" *Journal of Monetary Economics* 23: 177-200.

Barro, R.J. (1990). "Government Spending in a Simple Model of Endogenous Growth". *Journal of Political Economy*, 98, 5 pp. 103-125.

Barro, R. & Sala-i-Martin, X. (1992). "Public Finance in Models of Economic Growth". *Review of Economic Studies*, 59:645-661.

Belgrave, A. & Craigwell, R. (1995). "The impact of Government Expenditure on economic growth in Barbados: A Disaggregate Approach". Research Department, Central Bank of Barbados.

Benin, S., Thurlow, J., Diao, X., McCool, C. & Simtowe, F. (2008) . "Agricultural Growth and Investment Options for Poverty Reduction in Malawi". International Food Policy Research Institute (IFPRI), Washington. IFPRI Discussion Paper 00794. [Online] Available: <http://www.ifpri.org/publication/agricultural-growth-and-investment-options-poverty-reduction-malawi> (10 September 2012)

Chilonda, P., Zhikhali, P, & Musaba, E. 2010. "Agricultural Growth Trends and Outlook for Southern Africa. ReSAKSS-SA Annual Trends Report 2010". Colombo, Sri Lanka: International Food Policy Research Institute

(IFPRI) and International Water Management Institute (IWMI). [online] Available:
<http://www.resakss.org/index.php?pdf=53181>

Devajaran, S., Swaroop, V. & Heng-fu Zou (1996). "The Composition of Public Expenditure and Economic Growth". *Journal of Monetary Economics*, 37, 313-344.

Fan, S. & Rao, N. (2003). "Public Spending in Developing Countries Trends, Determination and Impact". *Environment and Production Technology Division Discussion Paper No. 99*. Washington, D.C.: International Food Policy Research Institute (IFPRI).

Government of Malawi (2011). "*Malawi Growth and Development Strategy: From Poverty to Prosperity 2011-2016*". Ministry of Finance, Lilongwe, Malawi.

Hakro, N. (2009). "Size of Government and growth Rate of Per Capita Income in selected Asian Countries Developing Economies". *International Research Journal of Finance and Economics*, Issue 28, 52-65.

Haque M.E. and D. Kim, D.H. (2003) "Public Investment in Transportation and Communication and Growth: A Dynamic Panel Approach", *The School of Economics Discussion Paper Series, 0324*, The University of Manchester.

Johansen, S. (1988). "Statistical Analysis of Cointegrating Vectors". *Journal of Economic Dynamics and Control*, Vol. 12, 231-254.

Johansen, S. & Juselius, K. (1990). "Maximum likelihood Estimation and Inference on Cointegration with Applications on the Demand for Money". *Oxford Bulletin of Economics and Statistics* 52,169-210.

Kneller, R., Bleaney, M., Gemmell, N. (1999). "Fiscal Policy and Growth: Evidence from OECD Countries". *Journal of Public Economics*, 74,171-190.

Kweka, J.P. & O. Morrissey (2000). "Government Spending and Economic Growth in Tanzania, 1965-1996". *Centre for Research in Economic Development and, International Trade (CREDIT) Research Paper No. 00/6.*, Nottingham, University of Nottingham. [Online] Available:
www.nottingham.ac.uk/credit/documents/papers/00-06.pdf (26 October 2012)

Landau, D. (1983). "Government Expenditures and Economic Growth: A Cross-Country Study". *Southern Economic Journal*. 49, 783-792.

Levine, R. & D. Renelt (1992). "A Sensitivity Analysis of Cross-Country Growth Regressions". *American Economic Review*, 82, 4, 942-963.

Loto, M.A. (2011). "Impact of Government Sectoral Expenditure on Economic Growth". *Journal of Economics and International Finance*, Vol. 3(11), 646-652.

Maku, O. E (2009) „Does Government Spur Economic Growth in Nigeria?’ MPRA Paper No.17941. [online] Available: <http://mpra.ub.uni-muenchen.de/17941/> (15 September 2012).

Narudeen, A. & Usman, A. (2010). "Government Expenditure and Economic Growth in Nigeria , 1980-2007: Disaggregated Analysis". *Business and Economics Journal*, Volume 2010: BEJ-4. [online] Available:
<http://astonjournals.com/bej> (12 August 2012)

NEPAD(New Partnership for Africa’s Development): CAADP (Comprehensive Africa Agriculture Development Programme). 2011.[online] Available: <<http://nepad-caadp.net>> (5 November, 2011).

Nketiah-Amphonsah, E. (2009). "Public spending and economic growth: evidence from Ghana (1970-2004)". *Development Southern Africa*. Vol. 26 (3), 477-497.

Sutherland, D., Égert, B., Kozluk, T.J. & Araujo, S. (2009). "Infrastructure Investment: Links to Growth and the Role of Public Policies". OECD Economics Department, Working paper 686.

- Tanzi, V., and Zee. H. (1997). “Fiscal policy and long-run growth”. *IMF Staff Papers* 44(2), 179—209.
- Udoh, E. (2011). “An Examination of Public Expenditure, Public Investment and Agricultural Sector Growth in Nigeria: Bounds Testing Approach”. *Journal of Business and Social sciences*, Vol. 2(1), 285-292.
- World Bank (2011). *World Development Indicators*. [Online] Available: <http://data.worldbank.org/indicators>. (10 September 2012).

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