INDIAN DEVELOPMENT POLICY REVIEW
Vol. 1, No. 2, 2020, 137-150

URL : www.esijournals.com

Government Spending and Capital Formation in Economic Growth of Agricultural Sector in Bihar over the Years 1980-2017

Jitendra Kumar Sinha and Anurodh Kumar Sinha

Ex. Sr. Joint Director & Head, Des Bihar, E-mail: jksinha2007@rediffmail.com
Manager, Monitoring & Evaluation, BRLPS(JEEViKA), Bihar, E-mail: anurodhsinha@gmail.com

Article History

Received : 17 July 2020
Revised : 5 September 2020
Accepted : 29 November 2020
Published : 30 December 2020

Keywords

Co- integration, Augmented Dickey Fuller, Phillips Perron, Error Correction Model

Abstract: This study explores the relationship between government expenditure on the agricultural sector and economic growth in Bihar over the period 1980-2017. In estimating the long run model, first, the time series characteristic of the data is tested using ADF and the Phillips Perron tests. Then, the Johansen co- integration test was conducted. Both The long-run and short-run estimate result shows that government spending on the agricultural sector has an insignificant effect on the per capita real GDP. The study also revealed that gross fixed capital formation has a positive and significant impact on real per capita GDP. The labor force which is proxies by population aged 15 and 59 has insignificant effect on the growth of per capita real GDP both in the long-run and short-run periods. The policy implications emanates from this study is government should reduce unproductive government consumption spending and give priory attention to redirecting to productive activities.

1. INTRODUCTION

Agriculture is the dominant sector of the many underdeveloped and developing countries' economy. Moreover, the majorities of the population of these countries lives in rural area and gain its livelihood directly or indirectly from agricultural production. Thus, agriculture is considered as the key driver for mass poverty reduction and rural development for most of the developing world (Akroyd and Smith, 2007; Jhingan, 2008; Alain and Elisabeth, 2010; World Bank, 2008). Most of the development economists in 1950's undermines the real contribution of the agricultural sector to the overall economic growth, but now many researchers acknowledge the fact that agriculture remains the source of economic growth in

developing world (IMF, 2013; and De Janvry Sadoulet., 2009). Furthermore, past studies have shown sufficient evidence that agricultural revolution is more pro-poor than industrial sector and an important pre-condition for economic growth, particularly in developing countries (Diao *et al.*, 2010, DFID, 2004). Hence, improving the agricultural sector in developing countries must be a top priority and competent government policy instruments must be in place to drive cost-effective public spending to this sector (Apata *et al.*, 2016).

In fact, the government's economic development strategy in India calls for agriculture development and industrialization in the various Five-Year Plans ; promoting economic transformation in least industrialized states will depend largely on stimulating the agricultural sector. The intention of this strategy is improving the productivity of peasant agriculture by initially improving existing crop husbandry practices and techniques, developing irrigation and provision of fertilizers and agro-chemicals and increasing farm sizes and making more suitable for mechanization and hence to attain fast and broad-based development.

Bihar is one of the Indian state lying consistently at the lower rung of industrial development . Thus, Bihar's public expenditure policy is at the heart of the policy measures intended to translate the strategy of agriculture development and industrialization into reality and gives subjective distinction to pro-poor and growth-enhancing sectors in resource allocation. This high concern of the government has been reflected in the past consecutive year's economic performance of the state. Per capita GDP in Bihar has been growing at about six percent on average per annum in real terms since the last 18 years despite challenged by the natural calamities of flood and drought. Bihar's level of government spending as measured by absolute value and as a percentage of gross domestic products (GDP) have experienced an upward trend since 1981. In addition, in the year 2017, it reached the level of about seven times as much as the spending during 1982.

However few empirical studies on public expenditure have focused on the impact of government spending on economic growth. In general, these studies are regarded as in two broad categories. The first set of papers explores how the size of overall public expenditure or public investment affects growth or rural welfare. The second set of papers seeks to trace spending in one economic sector to outcome in that sector, or broader welfare measure. Much of the literature tries to explore the decline in national poverty has focused on agricultural growth and food price policies and have not given special consideration to spending on the agricultural sector However, little attention has been given to the role of government

spending on the agricultural sector in improving the per capita GDP of the Bihar's economy.

2. LITERATURE REVIEW

Peter and Lyndon (2015) investigated the effect of agriculture spending on economic growth in Nigeria over a period from 1977 to 2010 with a particular focus on sectional expenditure analysis. The study used ex-post facto research design and employs some econometric techniques such as Augmented Dickey-Fuller (ADF) and Phillips Perron (PP) unit root tests, as well as Johansen Co integration and followed by Error Correction Model (ECM) tests. The results revealed that real GDP was particularly influenced by changes in agriculture expenditure, inflation rate, interest rate, and exchange rate, these variables as they stand contributes or promotes economic growth in Nigeria.

Fan and Rao (2003) examined the impact of different types of government spending on overall GDP growth across 43 developing countries during the period from 1980 to 1998 using the OLS method and found mixed result. In Africa, public spending on agriculture and health was particularly strong on promoting economic growth. Among all types of government expenditures: agriculture, education, and defense contributed positively to economic growth in Asia. In Latin America, health expenditure had a positive growth-promoting effect. Structural adjustment programs had a positive growth-promoting effect in Asia and Latin America, but not in Africa. In fact, structural adjustment programs hurt economic development in Africa.

Cletus and Sunday (2018) also carried out a study on government expenditure on agriculture and economic growth in Nigeria over the period from 1985 to 2015 by employing multiple regression analysis and Johansen co-integration test. The multiple regression results of the study revealed that there exists a positive and significant relationship between government expenditure on agriculture and economic growth in Nigeria. The Johansen co integration test result shows that the trace test statistics and the max- eigenvalue test indicates co-integrating equations respectively at 5% level, on the conclusion, there exists a long-run relationship among the variables.

Abdu and Melesse (2014) analyzed the relationship between real gross domestic product and various composition of public expenditure like agriculture, education, health, transport and communication, urban development and housing, total capital expenditure and total recurrent expenditure in Ethiopia using a Co-integration error correction model. The results indicated that the various types of government spending had a different impact on economic growth. Expenditure on health and total capital

expenditure are both positive and statistically significant in explaining the growth of the Ethiopian economy. However, Expenditure on agriculture, education, health, transport and communication, urban development and housing, and total recurrent expenditure are statistically insignificant. However, the main weakness of the study is the failure to address the problem of multicollinearity. Since each sector expenditure is the composition of recurrent and capital expenditure, it may happen that two or more variables giving rise to the same piece of information are included, that is, they may have redundant information or unnecessarily included related variables. The value of R^2 is good, meaning independent variables explain the variation in real GDP. Also, the F-statistic is significant at the 1% level of significance. Thus, the linear regression model is adequate. However, few of the estimated regression coefficients are insignificant at the conventional levels of significance.

Another study was undertaken by Chandio *et al.*, (2016) also investigated the impact of government expenditure on the agricultural sector and economic growth in Pakistan over the period 1983-2011 with time series data by taking on unit root test, Johansen Co-integration test and Ordinary Least Square (OLS) technique as analytical tools to analyse the data. They found that there exists a long-run relationship among government expenditure on agriculture, agricultural output and economic growth in Pakistan. On the other hand, the empirical results of the regression analysis revealed that agricultural output, government expenditure have a significant influence on the economic growth of Pakistan. Moreover , the agriculture sector is still confronting some challenges like inadequate funding, underdeveloped infrastructure, poor agriculture marketing, and a shortage of irrigation under the Pakistan context.

Apata *et al.*, (2016) made a comparative analysis of Nigerian and Malaysian to explore public spending and agricultural growth over the period 1970-2010 to answer two precise questions: 1. a policy setting under which public spending contributes to agricultural growth? and 2 . public spending mechanisms that has a clearer and longer-lasting influence on agricultural growth?

By using fixed effects model they found that government expenditures as a percentage of GDP in Nigeria witnessed massive public funding in agriculture in the 1960s-1980s but the decline in 1990s-2010, while Malaysian experienced consistency, both in public funding in agriculture and growth. Malaysia has the better management system in terms of the components of growth than Nigeria. They also showed that Malaysia reflects a clear predominance of productive spending, which is sustained through the decades of analysis, while Nigeria predominance of unproductive spending.

3. RESEARCH DESIGN AND DATA

In order to examine the relationship between government spending on the agricultural sector and per capita real GDP in the Bihar's context, this study employed annual time-series data for the period 1980 to 2017. The variables under consideration are per capita GDP, government expenditure on the agricultural sector, gross fixed capital formation, and labor force.

The production function takes the form:

$$Y_t = F(K_t, A_t L_t) \tag{1}$$

The most commonly used form of the Solow growth model with a constant return to scale is Cobb-Douglas production function (Charles, 1998) and it is the good first approximation to the actual production function (Romer, 2006). Therefore the production function is given by

$$Y = K^{\alpha}(AL)^{1-\alpha}, \ 0 < \alpha < 1 \tag{2}$$

The standard aggregate production function can be modified to include the total government expenditure on the agricultural sector (GEA) and economic growth proxies by per capita real GDP). Hence the production function is rewritten as:

$$PCRGDP_t = f(GEA_t, GFKF_t, LF_t) \tag{3}$$

Where : $PCRGDP_t$ is per capita real Gross Domestic Product.

$GFKF_t$ is Gross fixed capital formation at period t.

GEA_t is Government Expenditure on Agricultural sector.

LF_t is Labor force.

Since a typical neoclassical growth model assumes Cobb-Douglas production function with exponential form

$$PCRGDP_t = GEA_t^{\beta_1} GFKF_t^{\beta_2} LF_t^{\beta_3} \tag{4}$$

The equation (4) is transformed into to log model in order to make equation it linear and rewritten as;

$$PCRGDP_t = \alpha + \beta_1 lnGEA_t + \beta_2 lnGFKF_t + \beta_3 lnLF_t + \mu_t \tag{5}$$

Where *ln* refers the natural logarithm of the variables, α implies intercept parameter, β_1, $\beta 2$... the elasticity's of the respective variables and μ_t entails white noise error term which is independent of all other explanatory variable and indicates the influence of all other factors which are not included in the model.

Data on Gross Domestic Product; Government Expenditure on Agriculture sector; and Labour Force were sourced from various concerned State government Departments. However, series worked out by (Sinha, J. K. & A. K. Sinha, 2020) for Gross Fixed Capital Formation for the period1980-2017 were utilized in this study.

4. EMPIRICAL RESULTS

The average per capita real GDP (at 2004-05 prices) of Bihar from 1980 to 2017 was Rs 7763.13 and the standard deviation was approximately 3110.9 . This value oscillates between Rs 5757 as a minimum and Rs 16928 as a maximum value. The mean of government expenditure on agricultural was Rs.46465.1 lakh and varies from Rs 23852.9 to Rs 59461.2 lakh with a standard deviation of 1523.0 lakh. With regard to gross fixed capital formation, the government spends Rs 32312.3 lakh on average on the considered years and the standard deviation was 173407.8. This spending lies in the range of Rs 67881.5 to 16066.82 lakh. The mean value of the labor force is about 34.8 million people with the standard deviation was 11.7 people. This group of people ranged between about 28.9 as a minimum and approximately 43.6 million as a maximum number of people. Table1 reports the descriptive statistics of these variables.

Table 1: Descriptive statistics in real terms (1982-2017)

	PCRGDP (Rs)	*GEA (Rs Lakh)*	*GFKF (Rs Lakh)*	*EL (million)*
Mean	7763.13	46465.1	123122.3	34.8
Median	6340.75	40095.8	44470.8	33.0
Maximum	16928.36	59461.2	67881.5	43.6
Minimum	5757.61	23852.9	16066.8	28.9
Std. Dev.	3110.90	1523.3	173407.8	11.7

Source: Computation using E Views version 9

ADF and the PP test statistics for the first difference for all variables were analyzed and were found to be less than the critical values at 1%, 5%, and 10% significance level. This tells that the first-differenced series are stationary, meaning that both series are integrated of order one. Table 2 and 3 show the result.

Table 2: Augmented Dickey-Fuller Unit root test results at a Level and First difference

Variables	*At Levels*		*First Difference*	
	t-Statistics	*Critical values*	*t-Statistics*	*Critical values*
lnPCRGDP	-0.683672	1% -4.243644	-5.448571**	1% -4.252879
	(0.9666)	5% -3.544284	(0.0005)	5% -3.548490
		10% -3.204699		10% -3.207094
lnGEA	-1.425254	1% -4.243644	-6.098055*	1% -4.252879
	(0.8356)	5% -3.544284	(0.0001)	5% -3.548490
		10%-3.20469		10%-3.207094
lnLF	-1.821101	1% -4.252879	-3.810028**	1% -4.309824
	(0.6723)	5% -3.548490	(0.0305)	5% -3.574244
		10%-3.207094		10%-3.221728
lnGFKF	-1.286261	1% -4.243644	-7.253547*	1% -4.252879
	(0.8749)	5% -3.544284	(0.0000)	5% -3.548490
		10%-3.20469		10%-3.207094

Source: Computation using E Views version 9

Note: * and ** indicates the level of significance at 1 and 5%, respectively.

Table 3: Phillips-Perron Unit root test results at a Level and First difference

Variables	*At Levels*		*First Difference*	
	t-Statistics	*Critical values*	*t-Statistics*	*Critical values*
lnPCRGDP	-0.523788	1% -4.243644	-6.109656*	1% -4.252879
	(0.9775)	5%-3.544284	(0.0001)	5% -3.548490
		10% -3.20469		10% -3.207094
lnGEA	-1.399517	1% -4.243644	-6.164276*	1% -4.252879
	(0.8436)	5% -3.544284	(0.0001)	5% -3.548490
		10%-3.204699		10%-3.207094
lnLF	-1.821101	1%-4.252879	-3.810028**	1% -4.309824
	(0.6723)	5% -3.548490	(0.0305)	5%-3.574244
		10% -3.207094		10%-3.221728
lnGFKF	-1.116847	1% -4.243644	-9.116611*	1% -4.252879
	(0.9116)	5% -3.544284	(0.0000)	5% -3.548490
		10% -3.204699		10% -3.207094

Source: Computation using E Views version 9

Note: * and ** indicates the level of significance at 1 and 5%, respectively.

Table 3: Phillips-Perron Unit root test results at a Level and First difference

Variables	*At Levels*		*First Difference*	
	t-Statistics	*Critical values*	*t-Statistics*	*Critical values*
lnPCRGDP	-0.523788	1% -4.243644	-6.109656*	1% -4.252879
	(0.9775)	5%-3.544284	(0.0001)	5% -3.548490
		10% -3.20469		10% -3.207094
lnGEA	-1.399517	1% -4.243644	-6.164276*	1% -4.252879
	(0.8436)	5% -3.544284	(0.0001)	5% -3.548490
		10%-3.204699		10%-3.207094
	-1.321981	1% -4.243644	-5.048878**	1% -4.252879
lnLF	-1.821101	1%-4.252879	-3.810028**	1% -4.309824
	(0.6723)	5% -3.548490	(0.0305)	5%-3.574244
		10% -3.207094		10%-3.221728
lnGFKF	-1.116847	1% -4.243644	-9.116611*	1% -4.252879
	(0.9116)	5% -3.544284	(0.0000)	5% -3.548490
		10% -3.204699		10% -3.207094

Source: Computation using E Views version 9

Note: * and ** indicates the level of significance at 1 and 5%, respectively.

Results of Co- integration analysis using the Johansen maximum likelihood procedure are summarized in Table - 4. The existence of a co integration vector is pointed out by a trace test and max- Eigen value since the t-test value exceeds the critical value at 5% level of significance. The trace statistic value in the table below implies that we can reject the null hypothesis of no cointegration vector at the 5 percent significant level. The maximum Eigenvalue test makes the confirmation of this result .The trace statistics and maximum eigenvalue explain two different cointegrating vectors at the 5% critical value in the system. Infrequently, if the trace and the maximum eigenvalue test statistics yield an inconsistent result, the trace statistics is more robust than the maximum eigenvalue statistics in testing for co-integration (Luintel and Khan, 1999). Therefore, there are two cointegrating equations exist in the model having a meaningful long run or equilibrium relationship between the variables under consideration; consequentially, this necessitates the use of restricted VAR i.e. Vector Error Correction Model.

Table 5 below shows that Gross fixed capital formation has a positive and significant impact on per capita real GDP. It implies that 1 gross percent increase in real gross fixed capital formation leads to around a 0.22 percent increase in real GDP, all other things remains constant. This is in line with the findings of Ewubare

Table 4: Results of Johansen Co integration Test

Null Hypothesis	*Alternative Hypothesis*	*Tests*	
		Trace Statistics	*5% Critical value*
r=0	r=1	84.29434*	69.81889
r=1	r=2	49.41249*	47.85613
		Max- Eigen value (λMax) Statistics	5% Critical value
r=0	r=1	34.88185*	33.87687

Source: Computation using E Views version 9

* Rejection of the null hypothesis at 5 % critical value

and Eyitope (2015) in Nigeria; Dritsakis (2006); Yasin (2000) in Sub-Saharan Africa; and Alexiou (2009) in South Eastern Europe who concluded that the existence of a long-run positive relationship between gross fixed capital formation and per capita real GDP. This result is also supported by economic theories which say the higher level of capital accumulation will be associated with higher per capita output (Charles, 1998). On the other hand, the main explanatory variable; government expenditure on the agricultural sector has an insignificant effect on the per capita real GDP, which did not conform to the a priori expectation of a positive linkage between agricultural expenditure and economic growth. This hints at that the real government consumption expenditure on the agricultural sector (mostly on wages and salaries for the development agents and recurrent expenditure in the sector) is very dominant. In such a circumstance, the spending on the sector may not help the growth of the per capita GDP.

Another result of the estimation of the long-run model is the insignificant effect of the labor force, which is proxied by population aged between 15 and 59, on

Table 5 : Long run estimate

Co-integration Equation(s):		*Log likelihood*	*288.5532*
Normalized co-integrating coefficients (standard error in parentheses)			
LNPCRGDP	*LNGEA*	*LNGFKF*	*LNEL*
1.000000	-0.248766	-0.223766	1.537385
	(0.03806)	(0.03844)	(0.20170)

Source: Computation using E Views version 9

the growth of per capita RGDP. This indicates that while the Bihar economy comprises pertinent labor for the production of goods and services under this specified period, most of them are unskilled labors which in turn depend on vagaries of nature (availability of rainfall). Thus, its productivity is not as much as expected. This result is in line with Lewis (1954) two sector development model, the marginal productivity of surplus labor in the agricultural sector has a minor effect on the long run growth pattern.

Short-run relationship between nonintegrated variables are shown in Table 6 . Therefore, the table below shows that the model is a good fit to the data by the F test (p-value = 0.000216 < 1%). Meaning that, the explanatory variables as a group are significantly able to explain the variability in the dependent variable, which is indicated by the F-statistic. Likewise, the Error Correction Model (ECM) is not a spurious regression or model as the computed values of R^2 (0.546438) is lower than Durbin Watson Statistics (1.474698) which indicates that there is no evidence of first-order serial correlation. Similar to the long-run the short run estimate indicates that government expenditure on the agricultural sector has an insignificant effect on the per capita real GDP. Per capita real GDP increases by Rs 0.24 in the short run for a unit increase in Gross Fixed Capital Formation (GFCF). Thus GFCF has a substantial effect on the per capita real GDP. The table also shows that the estimated error correction term is significant at 1 percent level and carries a significant expected sign. The negative sign of the error correction term suggests that any shock in the system will return back to its long-run path. The speed of adjustment to restore long-run equilibrium is 33% percent per year. Meaning that, 33 percent of the deviation of the per capita real GDP from its long-run equilibrium level is corrected each year. This speed of adjustment suggesting that, it will take almost three years (i.e., 1/0.33) to completely recover from a single shock and restore long-run equilibrium.

Table 6: Error Correction Model with ΔlnPCRGDP as a dependent variable

Variables	*Coefficients*	*Standard Errors*	*T-statistics*	*Probabilities*
C	0.007041	0.110514	0.063713	0.9496
D(LNEL)	-0.146930	3.446062	-0.042637	0.9663
D(LNGEA)	0.003682	0.039308	0.093658	0.9260
D(LNGFKF)	0.242708	0.046321	5.239654	0.0000*
ECT(-1)	-0.332325	0.132199	-2.513827	0.0177**

R-squared 0.546438, F-statistic 6.987676, Prob (F-statistic) 0.000216, Durbin-Watson stat 1.474698.

Source: Computation using E Views version 9

Furthermore, the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUMQ) applied to analyze the stability of the long-run coefficients together with the short-run dynamics. The results clearly indicated the absence of any instability of the coefficients during the investigation period because the plots of the two statistics in figure (1) below are confined within the 5% critical bounds pertaining to the parameter stability.

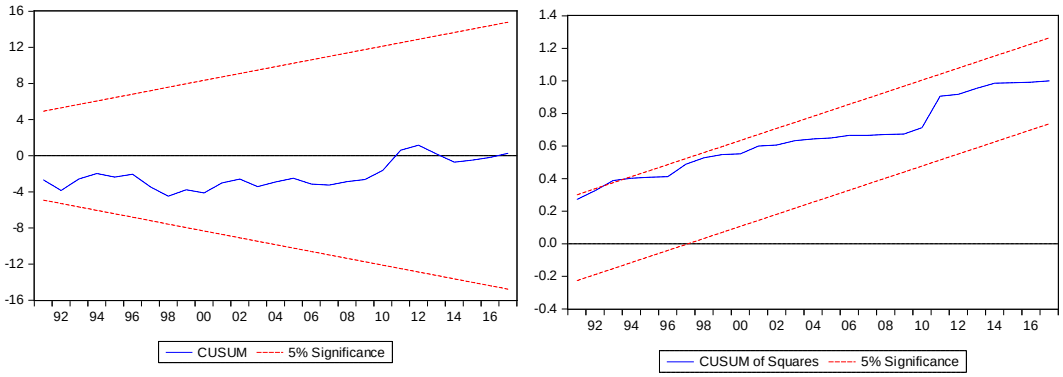

Figure 1: Plots of CUSUM and CUSUMQ statistics

5. CONCLUSION AND POLICY IMPLICATIONS

This study investigates the relationship between government expenditure on the agricultural sector and economic growth in Bihar through the usual neoclassical production function and specifying the empirical model by incorporating additional exogenous variables, which affect per capita real GDP, such as gross government spending on the agricultural sector .

ADF and PP unit root tests result show that the time series variables incorporated in this study display consistent trend over the period, and they accept the null hypothesis of non-stationary in levels. However, the null hypothesis at first difference is rejected hence all the variables become stationary. The result indicates that all the variables are nonintegrated. It means that there is a valid long-run relationship between public expenditure on the agricultural sector and real per capita GDP in Bihar.

The long-run estimate result shows that government spending on the agricultural sector has an insignificant effect on the per capita real GDP. This unexpected result suggests that the real government consumption expenditure on the agricultural sector (mostly on wages and salaries for the development agents and recurrent expenditure in the sector) is very dominant. The long-run analysis also revealed that gross fixed capital formation has a positive and significant impact on real per capita GDP. This

is related to the neoclassical growth theory which argues that capital formation is the prominent determinant for those countries far away from their steady state.

The short-run estimates, on the other hand, the short-run dynamics of the error correction model (ECM) is a good fit to the data by the F test. Meaning that, the explanatory variables as a group are significantly able to explain the variability in the dependent variable. Likewise the long-run, the main driving force behind short run per capita real GDP is gross fixed capital formation. Here also government spending on the agricultural sector is statistically insignificant. The short-run dynamics of the error correction model (ECM) result show that the estimated error correction term is significant at 1 percent level and carries a significant expected sign. It indicates that for any shock occurring in the economy, the per capita real GDP will converge to its long-run equilibrium.

This study revealed that government spending on the agricultural sector has an insignificant effect both in the-long run and short-run periods. While agriculture is the dominant sector and the majority of rural society engaged in this sector, hence it needs it is important to reduce unproductive government consumption spending habit. As such, the government should give attention to redirecting to productive activities. This will stimulate activities in the economic sectors and, perhaps, converse the insignificant effect of on economic growth.

Economic theory as well as empirical experience confirm that the significant differences in the level of economic development and rates of economic growth among countries or in the same countries over time are, to a great extent, interrelated with the differences that exist in the level and composition of the capital stock (Saleh, 1997). The gross fixed capital formation will impact positively and significantly on per capita real GDP in Bihar during the period under review as well. This result seems to imply that the government should have to build-up capital stock by the accumulation of capital formation regularly done in order to improve the per capita real GDP of the country. The labor force which is proxies by population aged between 15 and 59 has insignificant effect on the growth of per capita real GDP. Hence, improving the productivity of the labor force through technical and vocational trainings or else via adult education should have to be the prominent task for the concerned bodies.

Reference

Abdu Muhammed and MelesseAsfaw. (2014). Government Spending for Economic Growth in Ethiopia. *Journal of Economics and Sustainable Development*. Vol. 5, No. 9.

Akroyd, S. and Smith, L. (2007). Review of public spending to agriculture. Main study and Country Case-Studies, A joint DFID/World Bank study.

Alain De, J. and Elisabeth S. (2010). Agricultural Growth and Poverty Reduction: Additional Evidence. *The World Bank Research Observer*, Vol. 25, No. 1 Oxford University Press.

Alexiou, C. (2009). Government spending and economic growth: Econometric evidence from the South Eastern Europe (SEE). *Journal of Economic and Social Research,* 11(1), p.1.

Apata, T.G., Sanusi, R.A., Obaisi, A. and Ajani, O. (2016). September. Exploration of public spending and agricultural growth.Comparative analysis of Nigerian and Malaysian agricultural growth (1970-2010). In 2016 AAAE Fifth International Conference, September 23-26, 2016, Addis Ababa, Ethiopia (No. 246922).African Association of Agricultural Economists (AAAE).

Chandio, A.A., Jiang, Y., Rehman, A. and Jingdong, L. (2016). Impact of government expenditure on agricultural sector and economic growth in Pakistan.*International Journal of Advanced Bio technology.*Vol.7, pp.1046-1053.

Charles Jones. (1998). *Introduction to economic growth* 2nd edn. Norton and Company, Inc.

Cletus UsmanIdoko and Sunday Mary Jatto. (2018). Government Expenditure on Agriculture and Economic Growth in Nigeria (1985-2015). *International Journal of Academic Research and Reflection*. Vol. 6, No. 4.

De Janvry, A. and Sadoulet, E. (2009). Agricultural growth and poverty reduction: Additional evidence. The World Bank Research Observer, 25(1), pp.1-20.

DFID. (2004). Agriculture, Growth and Poverty Reduction.

Diao, X., Taffesse, A.S., Yu, B. and Pratt, A.N. (2010). November. Economic importance of agriculture for sustainable development and poverty reduction: The case study of Ethiopia. In Global forum on agriculture (pp. 29-30).

Dritsakis, N., Varelas, E. and Adamopoulos, A. (2006). The main determinants of economic growth: An empirical investigation with Granger causality analysis for Greece. *European Research Studies Journal*, *9*(3-4), pp.47-58.

Ewubare, D.B. and Eyitope, J.A. (2015). The effects of public expenditure on agricultural production output in Nigeria. *Journal of of Research in Humanity and Social Science*, 11(3), pp.07-23.

Fan, S., and Rao, N. (2003). Public Spending in Developing Countries: Trends, Determination and Impact. EPTD Discussion Paper No. 99. IFPRI

IMF. (2013). World Economic and financial surveys: regional economic outlook, SubSaharan Africa. New York.

Jhingan, M.L. (2008). *The Economics of Development and Planning.39th ed.* VRINDA Publications P.LTD, Delhi.

Lewis, W. Arthur. (1954). Economic development with unlimited supplies of labor. *The Manchester School of Economics and Social Studies, 22(2), 139–191.*

Luintel, K.B. and Khan M. (1999). A quantitative reassessment of the finance growth nexus: evidence from a multivariate VAR. *Journal of Development Economics.* 60 (2): 381-405

Murthy, N.R. (1993). Further evidence of Wagner's law for Mexico: An application of co-integration analysis. *Journal of Public finance.*48 (1), 92 -96.

Peter E. Ayunkul and Lyndon M. Etale. (2015). Effect of Agriculture Spending on Economic Growth in Nigeria: Empirical Evidence. *Research Journal of Finance and Accounting*. Vol.6, No. 2.

Romer D. (2006). *Advanced Macro-Economics*. 3rded. McGraw-Hill Irwin: New York.

Saleh, K. (1997). March. The measurement of gross domestic fixed capital formation in Indonesia. In document présenté à l'occasion de la conférence de l'OCDEsur le stock de capital qui s' esttenue à Canberra du.Vol. 10.

Sinha, J. K. and Sinha A.K. (2020). Trend and Growth of Capital Stock in Bihar During 1980-2017, *Journal of Humanities, Arts and Social Science,* 2020, 4(1), 57-66.

Valdés Alberto, and William Foster. (2007). Making the Labor Market a Way out of Rural Poverty. Rural and Agricultural Labor Markets in Latin America and the Caribbean. Background paper for the World Development Report 2008, The World Bank.

World Bank. (2008). The Growth Report: Strategies for Sustained Growth and Inclusive Development, Washington D.C., Commission on Growth and Development, World Bank.

Yasin, M. (2000). Public Spending and Economic Growth: Empirical Investigation of Sub-Saharan Africa. *Southwestern Economic Review*, 4(1), 59–68.