

Impact of Government Expenditure on the Economic Growth of India

Jovi Varghese M.S.

Student, MBA (Finance Management),
Department of Management Studies,
CHRIST (Deemed to be University),
Bengaluru - 560029.

Abstract: The study aims at analysing the impact of government/ public expenditure on the economic growth of the country. The study considers three macroeconomic indicators for representing the economic growth of India namely GDP, GNI and NNI. The data used in the study is secondary data obtained from websites of the government of India and nationally recognized statistical organizations. The budget data collected has been classified under six heads/sectors based on their varied functions. The analysis has been carried out using Simple Linear Regression with the help of the SPSS software. The results from the analysis indicates that there exists a significant relationship between the total and sectoral government expenditures and each of the macroeconomic indicators. Based on the findings, the study concludes that public expenditure has a pronounced effect on the economic growth of the country.

Keywords: GDP, GNI, NNI, government expenditure, economic growth

1. INTRODUCTION

Public expenditure is an area that is considered by many to have a profound effect on economic progress. Public investment in basic infrastructure is a vital precondition for the smooth functioning of the economy. Expenditure on education and health facilities has also shown to improve human capital formation. However, numerous economists are of the opinion that public expenditure is an area in which grossly unproductive white elephants may be found. The dependency of public expenditure or government spending on the economic progress of a country has been a long-debated topic among economists. Several economists argue that public expenditure has no or terribly restricted influence over the economic progress within the country whereas several others are of the opinion that a rise in public expenditure, will lead to an increase in the investment, employment and an overall economic growth of the country.

The mostly widely prevalent theories in studying the relationship between public expenditure and economic growth are the Keynesian Hypothesis and Wagner's Law. The link between public expenditure and economic progress may be studied either using Wagner's Law, that states that a country's income is transformed into public expenditure or the Keynesian theory, that states the national income is generated by utilizing public expenditure.

Wagner's Law is a widely accepted theory with regard to this dialogue. Wagner's Law considers government expenditure as an element that's driven by economic progress. In other words, in consistence with Wagner's Law, the relation runs from the economic progress to government expenditure which implies that economic progress ought to be treated as a vital variable whereas public expenditure ought to be allotted a passive role. However, if the deficit is out of management it will create an issue for the economy. The supporters of the classical theories of public expenditure opine that inflated governmental activities retard the economic performance of an economic system, and that the government should focus largely on providing domestic and foreign security. However, during the Great Depression, that began in early 1929 and rapidly resulted in loss of employment, the balance projected by classical theories began to lose its significance and market factors were not able to re-establish economic balance. Hence, classical economic theories were proven to be insufficient to explain the events surrounding the economic downfall and new economic theories were adopted.

The newly established theory, the emergence of which is attributed to the collapse of the classical theories and its subsequent impact on public expenditures from the 1930s deviated totally from the classical perceptions. The economist John Maynard Keynes detailed his thoughts on the great Depression and offered new solutions in "The General Theory of Employment, Interest, and Money". Keynes declared in the 1930s that government disbursement boosts growth by the virtue of purchasing power of the economy. Keynes also believed in the ability of the government to boost the health of an economy by borrowing monetary resources. The government can borrow from the private sector and pay back an equal amount through various disbursal programs. This mechanism does not always require the government expenditure to be large. For the purpose of this study, the government expenditure has been classified into different sectors namely the education sector, health sector, defence sector, science & technology sector, operational expenditure and developmental sector. The indicators of economic growth are Gross Domestic Product (GDP), Gross National Income (GNI) and Net National Income (NNI), which are all widely accepted economic growth indicators.

2. LITERATURE REVIEW

(Fouladi, 2010) attempts at studying the effect of government expenditure on GDP and employment with respect to the Iranian economy. The paper has divided expenditure into two categories, consumption and investment expenditure and has further classified expenditure into five sectors namely, agricultural, gas and oil, construction, industry and mineral and service. A computer generated model (CGE) model approach has been used for analysis. It is assumed that each sector maximizes its own profit subject to the neoclassical production function. From the results, they concluded that despite certain advantages, the increasing government consumption expenditure has caused a reduction in production, employment and investment. (Wu, Tang, & S. Lin, 2010) have aimed at examining the causal relationship between government expenditure and economic growth by conducting the panel Granger causality test by utilizing data set from 182 countries that cover the period from 1950 to 2004. The results strongly support both Wagner's law and the hypothesis that government spending is helpful to economic growth regardless of how we measure the government size and economic growth. The results also confirm the bi-directional causality between government activities and economic growth for the different subsamples. (Nworji, Okwu, Obiwuru, & Nworji, 2012) dwells completely on the expenditure aspect of public finance and seeks to look at the connection between government expenditure and economic progress in Nigeria for the time span from 1970 to 2009. The independent variables chosen for the study include capital and recurrent government expenditures and the dependent variable is GDP, an indicator for economic growth. Ordinary Least Squared regression model has been used as an analysis tool. The results indicate there exists a negative relation between government expenditure and economic growth of Nigeria and the study also recommends strategies for better allocation of resources. (Yilgör, Ertugrul, & Celepcioğlu, 2012) aims at examining the relationship between public expenditure and economic growth in the case of Turkey. The current investment and transfer charges have been considered as the independent variables in the study with GDP, an economic indicator at constant prices as the dependent variable. The Augmented Dicky Fuller and the VAR model has been used for analysis and interpretation in the study. The results indicate a one-way causality between current, transfer and total public expenditures and the economic growth of Turkey indicating a significant relationship between the two. (SRINIVASAN, 2013) aims at studying the relationship between public expenditure and economic growth in India. The variables used for the study are public expenditure and GDP as an indicator for economic growth. The tools employed in this study are the Johansen's co-integration approach and Vector Error Correction Model along with Augmented Dicky Fuller to test the stationarity. The results display a one-way causality from economic growth to public expenditure, supporting Wagner's law and establishes a long term relationship between public expenditure and economic growth in India. (Gangal & Gupta, 2013) aims at analysing the impact of public expenditure on economic growth of India from 1998 to 2012 with the objective of ultimately proving that public expenditure and economic growth of India are independent of each other. The indicators chosen for measuring the economic growth in this scenario are total public expenditure (TPE) and Gross Domestic Product (GDP). From a series of Impulse Response Function (IRF) results, it is observed that there is a positive relationship between GDP and TPE. The granger causality test also indicates that public expenditure will boost the economic growth. (Srivastava, 2015) aims at analysing the impact of education expenditure on the economic growth of the northern states of India. The variables under study include the number of primary teachers in employment (since their salaries accounts for some of the GDP), the funds allocated for various school activities and the dependent variable is the GDP. The study has been conducted for a time span of three years from 2008 -2011 and the co-integration model and the error correction models have been used for analysis. The results indicate that there is a varying effect of the education sector expenditure on the economic growth of the northern states. (Mohapatra & Giri, 2016) aims at analysing the effect of the various components of public expenditures on the economic growth of India during in a period ranging from 1980 to 2013. The Autoregressive Distributed Lag model has been used to test the long term relationship between the considered variables and Vector Error Correction Model and has been to check the direction of causality. The findings prove that public expenditure has a significant influence on the economic growth of the country whereas the effect of non-developmental expenditure and revenue expenditure turns is shown to be insignificant. The study also reveals that there is a unidirectional causality running from developmental expenditure to the economic growth of India. (Maurya & Pratap Singh, 2017) aims at empirically examining the effect that public expenditure has on the economic growth of India for the period from 1981 to 2012. The dependent variable used in the study is GDP as an indicator for economic growth and the independent variables include total central government expenditure as a proxy for public expenditure and wholesale price index as an indicator for inflation. The study employs Fully Modified Ordinary Least Square, Dynamic Ordinary Least Square and Two-stage Least Squares regression method as tools for examining the short and long term relationships among economic growth, public expenditure, and inflation. The first finding supports the Keynesian theory by proving that an increase in public expenditure leads to an increase in economic growth in the long run. The second finding, on the other hand, indicates that in the short run, the economic growth causes a rise in the public expenditure which creates an inflationary pressure in the economy.

3. RESEARCH METHODOLOGY

As mentioned in the introduction the government expenditure has been classified under different heads namely the education sector, health sector, defence sector, science & technology sector, operational expenditure and developmental sector. Also Gross Domestic Product (GDP), Gross National Income (GNI) and Net National Income (NNI) are chosen as the indicators of economic growth in the country. The independent variables chosen for this study are the total government expenditure and the six sectoral government expenditures and the macro-economic indicators namely GDP, GNI and NNI are the dependent variables. The data for the study was extracted from government websites such as the Ministry of Finance and the Department of Expenditure. It can be classified as time series data and is collected from yearly budgetary estimates over a period of ten years. The data extracted gives the yearly budgetary estimates of 80 departments and ministries of the Government of India which are further classified into six sectors for the ease of the study.

The main objectives of this study are listed below,

- 1) To establish a relationship between total public expenditure and economic growth of India.
- 2) To establish a relationship between sectoral public expenditure and economic growth of India.

Based on each of the objectives established and the study of the literature which, a majority of which has proven the existence of a relationship between public expenditure and economic growth, the following hypotheses have been formulated,

H₀₁ – There exists no significant relationship between total public expenditure and the economic growth of India.

H₀₂ – There exists a relationship between total public expenditure and the economic growth of India.

H₀₃ - There exists no significant relationship between sectoral public expenditure and the economic growth of India.

H₀₄ - There exists a relationship between sectoral public expenditure and the economic growth of India.

The first objective of the study involves the analysis of the effect of the total public expenditure on the economic growth of the country, using the macro-economic indicators GDP, GNI and NNI. The analysis was carried out using the SPSS software by employing simple linear regression to determine the dependency of the total public expenditure on each of the macro-economic indicators. The second objective of the study involves the analysis of the effect of sectoral public expenditure on the economic growth of the country, using the macro-economic indicators GDP, GNI and NNI. The analysis was carried out using the SPSS software by employing simple linear regression to determine the dependency of each sectoral expenditure on each of the macro-economic indicators.

4. ANALYSIS AND INTERPRETATION

- 1) To establish a relationship between total public expenditure and economic growth indicators.

Economic Indicator	Model	Normality		Correlation	Durbin Watson	Adjusted R Square	B	t	Sig.
		F-Stat	Sig.						
GDP	(Constant)	.122	.200	.954	1.839	.899	1066201.383	1.066	.317
	Total Expenditure						7.643	8.992	.000
GNI	(Constant)	.122	.200	.954	1.830	.899	1090045.931	1.106	.301
	Total Expenditure						7.529	8.985	.000
NNI	(Constant)	.121	.200	.953	1.827	.898	971094.832	1.096	.305
	Total Expenditure						6.727	8.934	.000

In this case, the dependent variables are GDP, GNI and NNI and the independent variable is the total expenditure. Since the significance value is greater than 0.05 (**p-value > 0.05**), null hypothesis can't be rejected. Thus it can be concluded that all the dependent variables data are normal. It can be observed that GDP, GNI and NNI are positively correlated with the total expenditures at **95.4%, 95.4% and 95.3%** respectively and hence it can be confirmed that there is no multi collinearity present in the data. From the above table it can be observed that the Durbin Watson values are **1.839, 1.830 and 1.827** respectively which is approximately equal to 2. Hence it can be inferred that there is no autocorrelation present in the data. It can also be observed that the Adjusted R squared values are **0.899, 0.899 and 0.898** respectively, which implies that **90%** of the variation in GDP, GNI and NNI can be explained by the change in total expenditure. From the regression results it can be observed that the significance value of total expenditure is less than 0.05 (**p-value < 0.05**) and hence it can be concluded that there exists a significant relationship between GDP, GNI and NNI and total expenditure.

2) To establish a relationship between sectoral public expenditure and economic growth of India.

a) Health, Education & Defence Sector Expenditures

Sectoral Expenditures	Economic Indicator	Normality		Sig.
		F-Statistic	Sig.	
Health	GDP	.122	.200	.164
	GNI	.122	.200	.165
	NNI	.121	.200	.164
Education	GDP	.122	.200	.745
	GNI	.122	.200	.750
	NNI	.121	.200	.751
Defence	GDP	.122	.200	.105
	GNI	.122	.200	.106
	NNI	.121	.200	.106

In this case, the dependent variables are GDP, GNI and NNI and the independent variables are health, education and defence sector expenditures. Since the significance values are greater than 0.05 (**p-value > 0.05**), null hypothesis can't be rejected. Thus it can be concluded that all the dependent variables data are normal. From the regression results it can be observed that the significance value of sectoral expenditures is greater than 0.05 (**p-value > 0.05**) and hence it can be concluded that there is no significant relationship between GDP, GNI and NNI and the health, education and defence sector expenditure.

b) Science & Technology Sector Expenditure

Economic Indicator	Model	Normality		Correlation	Durbin Watson	Adjusted R Square	B	t	Sig.
		F-Stat	Sig.						
GDP	(Constant)	.122	.200	.929	2.277	.845	2607229.123	1.481	.177
	S&T Sector Expenditure						440.071	7.072	.000
GNI	(Constant)	.122	.200	.928	2.269	.844	2525529.630	1.453	.184
	S&T Sector Expenditure						433.415	7.055	.000
NNI	(Constant)	.121	.200	.928	2.266	.845	2266367.708	1.460	.182
	S&T Sector Expenditure						387.482	7.063	.000

In this case, the dependent variables are GDP, GNI and NNI and the independent variable is the science & technology sector expenditure. Since the significance value is greater than 0.05 (**p-value > 0.05**), null hypothesis can't be rejected. Thus it can be concluded that all the dependent variables data are normal. It can be observed that GDP, GNI and NNI are positively correlated with the science & technology sector expenditure at **92.9%, 92.9% and 92.8%** respectively and hence it can be confirmed that there is no multi collinearity present in the data. From the above table it can be observed that the Durbin Watson values are **2.277, 2.269 and 2.266** respectively which is greater than to 2. Hence it can be inferred that there is no autocorrelation present in the data. It can also be observed that the Adjusted R squared values are **0.845, 0.844 and 0.845** respectively, which implies that **85%** of the variation in GDP, GNI and NNI can be explained by the change in science & technology sector expenditure. From the regression results it can be observed that the significance value of science & technology sector expenditure is less than 0.05 (**p-value < 0.05**) and hence it can be concluded that there exists a significant relationship between GDP, GNI and NNI and science & technology sector expenditure.

c) Operational Expenditure

Economic Indicator	Model	Normality		Correlation	Durbin Watson	Adjusted R Square	B	t	Sig.
		F-Stat	Sig.						
GDP	(Constant)	.122	.200	.673	1.896	.385	6231990.440	4.055	.004
	Operational Expenditure						10.799	2.576	.033
GNI	(Constant)	.122	.200	.673	1.892	.385	6179964.796	4.080	.004
	Operational Expenditure						10.635	2.575	.033
NNI	(Constant)	.121	.200	.673	1.891	.385	5517404.174	4.075	.004
	Operational Expenditure						9.505	2.574	.033

In this case, the dependent variables are GDP, GNI and NNI and the independent variable is operational expenditure. Since the significance value is greater than 0.05 (**p-value > 0.05**), null hypothesis can't be rejected. Thus it can be concluded that all the dependent variables data are normal. It can be observed that GDP, GNI and NNI are positively correlated with the operational expenditure at **67.3%** and hence it can be confirmed that there is no multi collinearity present in the data. From the above table it can be observed that the Durbin Watson values are **1.896, 1.892 and 1.891** respectively which is approximately equal to 2. Hence it can be inferred that there is no autocorrelation present in the data. It can also be observed that all the Adjusted R squared values are **0.385**, which implies that **39%** of the variation in GDP, GNI and NNI can be explained by the change in operational expenditure. From the regression results it can be observed that the significance value of operational expenditure is less than 0.05 (**p-value < 0.05**) and hence it can be concluded that there exists a significant relationship between GDP, GNI and NNI and operational expenditure.

d) Developmental Expenditure

Economic Indicator	Model	Normality		Correlation	Durbin Watson	Adjusted R Square	B	t	Sig.
		F-Stat	Sig.						
GDP	(Constant)	.122	.200	.824	1.822	.640	3569202.336	2.256	.054
	Developmental Expenditure						11.509	4.121	.003
GNI	(Constant)	.122	.200	.825	1.826	.641	3552477.983	2.282	.052
	Developmental Expenditure						11.344	4.128	.003
NNI	(Constant)	.121	.200	.824	1.825	.640	3171679.727	2.276	.052
	Developmental Expenditure						10.134	4.119	.003

In this case, the dependent variables are GDP, GNI and NNI and the independent variable is developmental expenditure. Since the significance value is greater than 0.05 (**p-value > 0.05**), null hypothesis can't be rejected. Thus it can be concluded that all the dependent variables data are normal. It can be observed that GDP, GNI and NNI are positively correlated with the developmental expenditure at **82.4%, 82.5% and 82.4%** respectively and hence it can be confirmed that there is no multi collinearity present in the data. From the above table it can be observed that the Durbin Watson values are **1.822, 1.826 and 1.825** respectively which is approximately equal to 2. Hence it can be inferred that there is no autocorrelation present in the data. It can also be observed that the Adjusted R squared values are **0.640, 0.641 and 0.640** respectively, which implies that **64%** of the variation in GDP, GNI and NNI can be explained by the change in developmental expenditure. From the regression results it can be observed that the significance value of developmental expenditure is less than 0.05 (**p-value < 0.05**) and hence it can be concluded that there exists a significant relationship between GDP, GNI and NNI and developmental expenditure.

5. CONCLUSIONS AND FINDINGS

From the results of the analysis, it is evident that approximately 90% of the variation in each of the economic growth indicators i.e. GDP, GNI and NNI can be explained by the change in the total public expenditure and that there exists a significant relationship between the total public expenditure and each of the economic growth indicators. Also, the analysis results of the science & technology sector, operational expenditure and developmental expenditure also indicate a significant influence of these sectors on the macro-economic growth indicators. Therefore, it is safe to conclude that a major portion of government/public expenditure contributes significantly to the economic growth of the country. Using similar budget data, researchers have the opportunity of exploring the impact of various segments of public expenditure such as state government expenditure, expenditure by municipal corporations on multiple other indicators of economic growth and factors that influence the health of an economy such as inflation, employment rates, purchasing power parity, human development index and so on for a longer period of time.

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