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INDIA'S GOVERNMENT SPENDING COMPOSITION AND ECONOMIC GROWTH

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Abstract

Government spending is an integral phenomena in every economy. It affects the aggregate demand, level of economic activity and resource allocation. Though the required size of government expenditure for economic progress is an issue of debate on account of different and contradicting results of empirical studies, the necessity of government spending itself can't be denied. The variation in direction and size of growth effects of public spending across studies can be attributed to the fact that it affects growth through multiple channels. It can improve human capital and infrastructure, which have positive externalities for the economy or it can harm the economic growth by promoting the corruption and large, inefficient bureaucracies (Parekh 2008). In any case, for smooth functioning of market economy, a certain amount of government expenditure is inevitable as government enforces property rights necessary for markets to function. However, what this optimal size should be, is the issue of debate. Empirically, it differs with the country, level of development and of course, the efficiency of increased government spending.

Some researchers believe that private spending has larger growth impacts than public spending, but they have their own counterparts, who believe in opposite scenario. Vedder and Gallaway (1998) argued that the law of diminishing returns set in with the increase in government expenditure and beyond a certain point, increased government spending may result in negative economic growth (Patricia and Izuchukwu 2010). Somewhat similar view was expressed by Barro (1998). Even in case of India, studies conducted by different researchers have reached to diverse conclusions. This diversity of results is not only confined to level of significance of spending on economic growth, but extends to the direction of relation itself.

This paper contributes to the existing literature in understanding the role that government plays in the growth of the economy. However, rather than focusing on the normative question of ideal size of government spending, we will attempt to determine the role of various components of public outlay.

Rest of the paper is organized as follows. Section 2 gives a brief overview of both theoretical and empirical literature on the issue in hand. Section 3 discusses about the data and methodology used for the current study. The results of the study are presented in section 4. the summary and conclusions are given in section 5.

Introduction

Government spending is an integral phenomena in every economy. It affects the aggregate demand, level of economic activity and resource allocation. Though the required size of government expenditure for economic progress is an issue of debate on account of different and contradicting results of empirical studies, the necessity of government spending itself can't be denied. The variation in direction and size of growth effects of public spending across studies can be attributed to the fact that it affects growth through multiple channels. It can improve human capital and infrastructure, which have positive externalities for the economy or it can harm the economic growth by promoting the corruption and large, inefficient bureaucracies (Parekh 2008). In any case, for smooth functioning of market economy, a certain amount of government expenditure is inevitable as government enforces property rights necessary for markets to function. However, what this optimal size should be, is the issue of debate. Empirically, it differs with the country, level of development and of course, the efficiency of increased government spending.

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Literature review

This section can be classified into two categories. The first roughly deals with the evolution of various theories on the relationship between public expenditure and economic growth. The second part reviews some of the empirical studies conducted for different countries using time series as well as panel data.

British economist J. M. Keynes, was among initial proponents of active government in the economy during the 'Great Depression' of 1930s, when he rejected the laissez-faire approach of classical economists. He believed government spending necessary to stimulate aggregate demand, employment and consequently growth in the economy. On the other hand, conservative thinking refutes Keynesian beliefs and states that government spending cannot increase economic activities as it comes at the expense of private spending (Reuss 2009). Additional government funds come either from higher taxes or borrowing from market. Higher taxes would leave people with less means to spend whereas, borrowings from market would drive the market rate of interest higher, crowding out private investment and offsetting the stimulating impacts of increased public spending.

Neoclassical exogenous growth models developed during decades between 1950s and 1970s were of the view that government policies can at best be neutral to economic growth in the long run. This belief started taking backseat with the emergence of endogenous growth theories in 1980s. The breakthrough in this field of study was the Barro model of 1990 (see Minea 2008). Barro discovered the positive correlation between public spending and long term economic growth in case of productive public spending such as spending on infrastructure. Expenditure on infrastructure such as road, power etc. reduces production costs, increases private sector investment and profitability of firms, thus ensuring economic growth (Barro 1990, Barro and Sali-i-Martin 1992, Roux 1994, Okojie1995, Morrison and Schwartz 1996, Patricia and Izuchukwu 2010). Carboni and Medda (2011) developed a neoclassical model to

determine the optimum level of size of government expenditure that can maximize the growth rate and per capita income in the long run. The study found that the composition of government expenditure on the basis of the relative elasticity of projects affects the growth rate in short and medium term. Likewise, reallocation of resources between public and private capital on the basis of their relative elasticity's can be favorable for growth.

Barro's work has spawned a number of empirical research during last three decades to learn the nature of relationship between government expenditure and economic growth. Findings of these studies are often diverse and even conflicting. One of the important reasons for these inconsistencies pertains to method of estimation used for different studies. A comprehensive classification of research works depending upon their conclusions regarding the nature of correlation between government spending and economic growth is presented by Minea (see Minea 2008).

Loizides and Vamvoucas (2005), in a study using annual data on Greece, UK and Ireland found a positive link between size of government spending and economic growth. Many researchers however, found that not only the size but composition of the government spending also matters. Jain and Kumar (2013) using structural vector auto regression on Indian data found capital expenditure of government to be more growth inducing than revenue expenditure. However, since major share of public spending consists of revenue expenditure, impact multiplier for overall expenditure is less than 1. Jain and Kumar (2013) and Srinivasan (2013) argue for the restructuring of public spending composition in favor of capital outlays in case of India.

Gupta et Al. (2005), in a study focusing on 39 low-income countries found that composition of public expenditure along with fiscal consolidation have positive effect on economic growth both in short and long-run. Especially, curbing current expenditure is more growth inducing. Countries having larger share of expenditure on wages and transfers are likely to have lower growth, while countries spending larger share on non-wage goods and capital tend to have higher growth. The study also reveals that fiscal consolidation achieved through reduction in domestic borrowing has positive impact on economic growth. Gregoriou and Ghosh (2009), in a study of 15 developing nations found that large government expenditure strongly affects economic growth, though it varies from country to country. In some countries current expenditure of government induces growth, while in some other, it has only negligible effect.

Using Cobb-Douglas production function in a model hypothesizing government expenditure influencing growth and output through two channels total factor productivity and level of output - Parekh (2008) found that government spending lowers per capita GDP. The model assumes that total factor productivity is the function of government spending and time. The sample data for the study was time series data on Indian economy between 1961 and 2002. Increase in outlay on health and agriculture, according to the study, decreases the output, while that on education and infrastructure improves output. Likewise, it found size of government spending and per capita industrial output (except construction industry) to be inversely related. Though research and defense spending do not affect per capita output, the increase in research spending has significant effect on per capita output in agriculture and construction industry, while that on defense has significant positive effect on mining output.

Data and methodology

This section briefly describes the sources of data and methodology used to derive the empirical results. The data on defense expenditure of government of India and outlay on interest payments and subsidies is taken from Handbook of Statistics 2013-14, published by RBI. The data on public expenditure on education in India is taken from World Bank. It includes total outlay on education by both central and state governments. The data on government spending on health in India is taken from World Health Organization.

The present study applies linear regression analysis to explore the effect of various components of government expenditure on GDP. The time series data on GDP, expenditure on Education, health, defense and interest payments and subsidies is utilized for the period between 1990-91 and 2013-14. GDP is taken as dependent variable and has been regressed upon other variables. All the variables are converted into log form so that coefficients can directly be interpreted as elasticities. Time series data on macroeconomic variable is often non-stationary and may result in spurious correlation. It was true here as well, which was evident from extremely high r^2 when regression was run using data in level form. Thus, first difference of all variables was taken to get stationary series. Then, Ordinary least square estimation is used to estimate the regression coefficients. The estimated linear regression is as follows:

$$Log(gdp) = \alpha + \beta_1 edu + \beta_2 hea + \beta_3 def + \beta_4 intsub + u_i$$

Where, gdp is gross domestic product, edu is government expenditure on education, hea denotes government spending on health def stands for government expenditure on defense and intsub denotes government spending on interest payments and subsidies.

Empirical estimation and results

Regressing GDP on edu, hea, def and intsub show that only two variables have significant impact on the gdp, all other variables are found to be statistically insignificant. The results show that expenditure on education and health both have positive impact on gdp. The regression coefficient of education expenditure is estimated to be 0.17. It means 1% increase in education expenditure increases aggregate GDP by 0.17%. Similarly, the coefficient of health expenditure is estimated to be 0.22, meaning increasing expenditure on health by 1% gives 0.22% rise in GDP. The results shows that defense and expenditure on interest payments and subsidies have no significant impact on GDP, which is not a surprise. It can be safely interpreted from this result that subsidies need to be rationalized so that additional resources will be free for investment in growth enhancing sectors. The adjusted $r^{2,}$ which measures goodness of fit is 0.34.

These results are consistent with the theory that productive government spending can lead to growth in output. Intuitively, education enhances skills of individuals and not only improves potential of the individual but has a positive impact on overall economy. Similarly, public expenditure on health is growth enhancing because, in the country like India, where, a large share of population is below poverty line, health is often a neglected area. Thus, as evident from above result, health expenditure seems to affect GDP even more than education.

Summary and conclusion

This paper explored the how government spending on education, health, defense and interest payments and subsidies affect the GDP of India. Using ordinal least square estimator on the data on Indian economy for the period from 1990-91 to 2013-14, it is found that expenditure on education and health significantly and positively affect GDP, while expenditure on defense and interest payments and subsidies do not have any effect on GDP.

Arpaia and Turrini (2008) point out method of estimation to be a significant factor affecting the result of the study. Though the results of the present study are consistent with the literature, technically more sound method of modeling the problem is desirable. For instance, inclusion of other components of government spending as additional variables or considering the lag effects of independent variables might explain movement in GDP in a more sophisticated manner.

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