



Special article

Determinants of National Gross Domestic Product among Disaggregated Development Expenditure Schemes: An Experience of Indian Economy during 1990-91 to 2004-05

S. A. Saiyed¹

1 Introduction

Public expenditure is considered by the economists as an indicator that shows the course of economic development as well as the administrative skill of the government in a country or a governing body. The relationship between economic development and the volume of public expenditure has been the subject matter of a lively debate among the economic writers in India as well as abroad. There are different opinions with regard to the practicability and desirability of achieving economic development with the help of the increasing volume of public expenditure. As a matter of fact, public expenditure has grown abnormally in India and abroad; but the study of public expenditure, unfortunately, has not received much attention and suffered from an alarming neglect. Public expenditure is an important instrument of economic development and also of the administrative capacity of the Government. There has been lively debate among economic thinkers and writers in India as well as World as a whole about the direct relationship between volume of public expenditure and level of economic development. Public expenditure of India has grown up mainly on the British pattern. Naturally, Indian

¹ Dr. S. A. Saiyed The Head, Department of Business Economics, Faculty of Commerce, The M. S. University of Baroda, Vadodara-390002, Gujarat State (India) E-mail: saiyedali786@yahoo.com, dr_sasaiyed@rediffmail.com,

financial administration /public expenditure are a direct off-shoot of the British model. Soon after the attainment of independence on the 15th of August 1947, although a new chapter began in the history of Indian public Finance, the system of the British model and the colonial stage of development such as the power and prestige of red tapism, the existence of a strong Central Government, etc are still visible in the sphere of fiscal atmosphere of the Indian government. Therefore, Indian public Finance / expenditure is a direct outcome of the British fiscal model.

Planning Commission Government of India (1951-56) envisaged that Indian economy generally suffers from the problem of inequalities in the distribution of income and wealth distribution that warrants immediate remedy. Growth with justice demands that fruits of economic development should be evenly distributed. Greater production and better distribution have been rightly accepted as the main objectives of planning in India. The Indian Constitution (1959), envisage there should be establishment of egalitarian society, a true democratic society in real sense. Where all have equal opportunities, equal rights, equal status, equal income and there must not be concentration of economic power in few hands.

Till recently in India, the specialists in the field of public finance were confined to the study of effects of budgeting trends, and the development of normative theories focusing at explaining how the behaviors of revenue and expenditure are determined. It is true that Macro studies (All-India) are essential but it is more true to study the economic changes of the country on Micro level so as to remove the problem of regional disparities in the economy. Therefore, there is need of the present paper to determine relationship between national gross domestic product and development expenditure in India during the years of 1990 to 2004

2 Theoretical Foundation

Public Expenditure determines the welfare and standard of living of the people. Higher Government Expenditure increases public utilities. There is no uniform theory of public expenditure effects. Different Economist have different feelings about study of public expenditure. We have discussed some major theories of public expenditure as follows. Mercantilists gave an important idea on fiscal principles which were that people should “be taxed according to the benefits they received from the state. Since the state had to protect the nation, the expenditure required for the same was only to come from taxation.

The classical approach to the subject of public expenditure was based on the assumption that government is merely an agent for the people and has to spend the people's money directly and sparingly. This approach was based on assumption of non-interference by the Government and therefore there was no need for theory of public expenditure.

Wagner's law (1883) and the Keynesian (1936) theory present two opposite perceptions in terms of the relationship between public expenditure and growth in community output. While according to Wagner's approach causality runs from growth in community output to public expenditure, the Keynesian approach assumes that causality output to public expenditure, growth in community output in times of recessions.

Thus, the principal objective of public expenditure in the economic development of underdeveloped economies is to expand productive capacity by raising the level of real capital as compared to its role in developed countries where it has to expand both productive capacity as well as the level of monetary demand. Thus, modern theory of public expenditure makes it clear that no economy can go ahead in the race of economic development, without accepting the importance of the role of public expenditure in the economy. In conclusion, one may say that there is only one principle of public expenditure, which states that the State should incur its expenditure in such a manner as to achieve maximum benefit for the whole economy.

In conclusion, one may say that there is only one principle of public expenditure, which states that the State should incur its expenditure in such a manner as to achieve maximum benefit for the whole economy.

3 Objectives of the Study

The prime objective of this paper is to empirically determine the relationship of national gross domestic product among various development expenditure schemes / categories in India during the period of our study associated with infrastructural development such as, increase in energy and rural development, increase in the level of education and also improving in the health of the people and also towards development of agricultural sector, industrial sector and service sector in the Indian economy.

4 Hypotheses of the Study

The present paper aims at determining empirical relationship of various development expenditure and economic development/ National Gross Domestic Product of which may have the following important hypotheses:

- (1) Development Expenditure has promoted and accelerated the growth of productive investment in the economy and subsequently increased economic development / National Gross Domestic Product in India.
- (2) Development Expenditure has determined growth and development of Agriculture, Industry and Other Service sectors', infrastructure, transportation, energy/ electrification, irrigation flood and control, banking and insurance which have increased Gross Domestic Product in India.
- (3) Development Expenditure has raised the level of education, health, and rural development which leads to economic development or Gross Domestic Product in India.

5 Methodology of Analysis

In this paper, empirical analysis is undertaken with a view to establish cross - sectional relationship between gross domestic product and various development expenditure schemes in India for the study year 1990-91 to 2004-05. This has been carried out with the help of year-wise secondary data. For this purpose, the statistical regression models analysis have been adopted. This paper has been designed so as to examine the hypotheses as mentioned earlier in this study.

Here, statistical regression was employed as a tool for the analysis of relationship between the variables which we are predominantly concerned with. The dependent variables in this model is the year-wise total number of Gross Domestic Product (in Rs. Crores) over fourteen years in India. On the other hand, the independent variables are the year-wise number of Public Expenditures on Agriculture and Allied Activities, Rural Development, Irrigation and Flood Control Energy, Industries and Minerals Transport, Education, Health Including Medical and Others Services are taken into account. These variables are nine in number.

In this paper, we have estimated a Multivariate model and fitted double natural logarithmic (log) equations for disaggregated economic development expenditure schemes categories below with the corresponding statistical values of students t-statistics, R^2 , R^2 , F-value, D-W Statistics and the regression coefficients.

6. Sources of Data

The sources of data are exclusively built on secondary survey. The required statistical information (secondary data) would be collected from various sources, and has been used for analysis purpose, and those are from the following sources:

- (1) Reserve Bank of India (RBI), Annual Reports.
- (2) Economic and Financial statistics Review (Reserve Bank of India)
- (3) Indian Economic Survey (Fiscal and Real Sector), the Ministry of Finance, "Government of India" New Delhi.

And also data collected from other reliable sources.

7 Review of Literature

Many studies have been carried out in India and abroad which are of greater significance. Among a few significant studies on public expenditure and economic development, mention may be of following works:

Tapas K. Sen and Krishanu Karmakar (2000) observed that the human development sectors, overlapping substantially with the social services, are primarily in the domain of the states in terms of the constitutional assignment of functions in India. In the urgent and substantial task of raising the level of human development of their citizens, the basic challenge faced by most of the states of India is to break the vicious circle of poverty, low human development and low income. Low levels of income across the population also limit the ability of the state governments to finance human development through their own resources. This is clearly indicated by the strong association between public expenditures and Gross Domestic Products often noticed by researchers, both across states and over time.

Muhlis Bagdigen & Hakan Cetintas (2001) expounded that in most countries, data based on public expenditure as a fraction of national output show that public sector has an inevitable trend of growth in the long run (Scully, 1989). Turkey is one of these countries. Her public expenditures as a fraction of national output show that public sector has an inevitable trend of growth in the long run.

Jodylyn m. Quijano and Dante R. Garcia (2004) presents evidence using Granger causality test that there is no support of Wagnerian hypothesis in the developing country. Johansen's co-integration and vector error correcting method established a

long run relationship between government spending and economic growth. It was found that short run changes in real GDP have significant positive effects on government spending.

Manhvale and Terukazu Suruga 2004) (observed that the existing endogenous growth theory considers either the effects of FDI or public expenditures on economic growth separately. As far as we concerned, no theoretical growth model has taken into account the interaction effect of these two factors. This article examines some other potential relationships between FDI and public expenditure and proposes that more efforts should be contributed in building a theoretical model which presents the interrelationship between these factors in determining the long-term economic growth rate.

Omotor (2004) found that gross domestic product from agriculture, per-capita agricultural income; government tax revenue, total government expenditures, and the ratio of agricultural to non agricultural income have exhibited a casual relationship with the levels of public agricultural expenditures. These causality test results indicate that public agricultural expenditure levels are determined by public financial resource availability and the perceived need to accomplish the agricultural policy objectives (1) increasing agricultural output, (2) increasing the income of agricultural workers, and (3) increasing agricultural incomes relative to incomes in the rest of the economy.

Muhammad Azeem Qureshi (2009) recognized that human development (HD) and economic growth (EG) are intertwined in two-way feedback processes either leading to an upward spiral of development or a poverty trap. This concept is used to overcome one of the limitations of a previous study by Qureshi which assumes exogenous gross domestic product (GDP). With endogenous GDP formulation, the impact of public expenditure on HD and EG was examined. Results suggest that the current level of public expenditure on HD is extremely low and any further decrease will have irreversible negative impact on HD and economic indicators.

Though this is not an exhaustive survey of the literature that has gone into this area, we feel that it does provide analytical framework for enabling us to undertake the present study.

8 Results And Discussion

By fitting the double natural logarithmic (Log) relationship as mentioned earlier in this chapter to the cross -sectional data (15 x 9) matrix expenditure of disaggregated

development schemes / categories for the study years 1990-91 to 2004-05 as indicated in table-1 and having taken these schemes / categories as independent variables and year- wise total number of gross domestic product as dependent variable, we have obtained the following results.

Multivariate Model

$$\begin{aligned} \text{Model II :LogGDP} &= 2.0828 + 0.0693 \log \text{AGRAAEXP} - 0.0912 \log \text{RDEXP} \\ &\quad (2.044) \quad (5.770) \quad (-2.517)^* \\ &+ 0.0127 \log \text{IRFCEXP} + 0.0873 \text{ENEXP} + 0.0456 \log \text{INDMEXP} \\ &\quad (1.324) \quad (2.099)^* \quad (3.130)^* \\ &+ 0.0444 \log \text{TRANSEXP} - 0.0066 \log \text{EDEXP} - 0.00173 \log \text{HIFEXP} \\ &\quad (1.109) \quad (-0.171) \quad (-2.759)^* \\ &+ 0.1275 \log \text{OSSEXP} \\ &\quad (4.2167)^* \end{aligned}$$

$$R^2 = 0.999 \quad R^2 = 0.998 \quad F(1,9) = 3811.987 \quad D-W = 2.832$$

*Significance at 5% level of significance

In the above multivariate regression result, it is evident that among that among independent variables, year-wise Agriculture and Allied Activities Expenditure (AGRAAEXP), Others Services Expenditure (OSSEXP), Industries and Minerals Expenditure (INDMEXP), Energy Expenditure (ENEXP) coefficients are statistically significant and have positive influence over the determination of Gross Domestic Product (GDP) year-wise in India during the study years of 1990-91 to 2004-05. While the other variables namely year wise Health Including Medical Expenditure (HIMEXP) and Rural Development Expenditure (RDEXP) are highly significant with negative influence on the determination of Gross Domestic Product (GDP). Whereas, Education Expenditure (EDEXP) has negative sign and insignificant. Besides, Irrigation and Flood Control Expenditure (IRFCEXP) and Transport Expenditure (TRANSEXP) are insignificant with positive sign. The high values of R^2 and F-test suggest significant effect of the independent variables taken together. The R^2 value shows that the seven factors included together jointly accounts to 99 % rate on the determination of Gross Domestic Product in Gujarat State, D-W statistical value is

significant and it indicates absence of auto- correlation among residuals .And the insignificant of some of these variables, year wise indicates the existence of multi-collectivity among the independent variables.

This analysis reveals that when more independent variables are included together in the regression model they have a causal relationship in the determination of year wise rate of Gross Domestic Product in India. This result also supports our earlier hypotheses in the paper.

9 Concluding Remarks

Our multivariate model results' analysis reveal that Agriculture and Allied Activities Expenditure, Other Services Expenditure, Industries and Minerals Expenditure, Energy Expenditure, Education Expenditure, Transport Expenditure, Health Including medical Expenditure and Rural Development Expenditure in India are significant and they have positive influence on the determination of Gross Domestic Product year-wise. In this case, one could notice a variation in determining the rate of Gross Domestic Product with respect to economic development expenditure patterns in India during the study year 1990-91 to 2004-05.

In the present study, we have already determined empirically relationship of gross domestic product amongst disaggregated development expenditure categories of India. Therefore, in further research, heuristic model could be developed to determine and establish a simultaneous causal relationship of existing and future Gross Domestic Product associated with various development expenditure patterns over period of time. The model will attempt to solve the two hypotheses simultaneously as stated in this paper that Gross Domestic Product in a given Government is function of various development expenditure schemes / patterns (Keynes Model of expansion of public expenditure to economic growth) and reciprocal proposition that various development expenditure schemes / patterns is function of Gross Domestic Product is also true (Wagner's Law of Economic Growth to growth of Public E.). This would be worked out and developed with realistic assumption. Hence, the ability of the model to address practical concern to future economic development should also be considered.

10 References

- Muhammad, A.Q (2009), "Human development, public expenditure and economic growth, system dynamics approach International journal of social economics, Vol. 36, Issue : ½ PP 93 - 104, ISSN 0306-8293, Emerald Group Publishing Limited, Norway.

- Jodylyn M. Quijano and Dante R. Garcia (2004), “causality and determinants of government spending and economic growth: The Philippine Experience 1980 – 2004” *Journal of Economic and Social Research* Volume 9(1) PP43-62.
- Danglason G. Omotor (2004), “An analysis of Federal Government of Nigeria: Implications for Natural Development” Department of Economics, Delta State University, Abraka, Nigeria E-mail: yomotor@yahoo.com.
- Keynes J.M. (1936), “General Theory of Employment, Interest and Money” Macmillian, New York, U.S.A P.114.
- Manhvale and Terukaza Suruga (2004), “The Effects of FDI and Public Expenditure on Economic Growth: From Theoretical Model on empirical evidence “GSICS Working Paper Series No.2. November. Graduate School of International Cooperation Studies Kobe University.
- Wagner, A., (1883), “Increasing expansion of public and state activities”, Germany, n. p.2.
- Lekha S. Chakraborty Economist (2001) “Public Expenditure and Human Development: An empirical Investigation. Natural Institute of Public Finance and Policy, 182 Satsang Vihari Marg, Special Institutional Area (Near JNU) New Delhi 110067, India.
- Tapas K. Sen and Krishanu Karmakar (2000) “Reprioritization of Public Expenditure for Human Development” Natural Institute of Public Finance and policy New Delhi.