CHAPTER 3
PUBLIC EXPENDITURE – A THEORETICAL FRAME WORK

Introduction

To understand the concept of public expenditure in traditional sense, it is necessary to know the meaning of two words ‘Public’ and ‘Expenditure’. The word public is antonym of ‘Private’. Generally ‘Private’ concerns with an individual and it is often used in the singular sense. Its plural version is ‘public’, which signify an association of group of two or more than two people. But in practice, the word has acquired some what specialized sense. Here by public we mean the people should have some thing in common, should possess some common characteristics and have a common bond uniting them for some purpose for some time. In short, the members constituting the public should form a people. It is not necessary that the word public should suggest always and for all purposes all the people inhabiting a big territory or all the citizens of the state. The chief characteristics of a public body is that it consists of a number of people. Thus the concept of public is contrasted to the private.

The word expenditure ordinarily means expenditure of money. But in economics the expenditure of money does not exactly signify the coins and currency notes of a country. It signifies the resources of an individual or a group of persons in terms of money. In the language of layman, money is used in the narrow sense and it is identical with the currency in use. But in wider
sense, money includes anything that can perform the functions of money or can assume its role (Bhargava R.M. 1971). Thus, the word expenditure is used in its wider sense.

We get the word ‘public expenditure’ which is the subject matter of our present study by compounding the two words ‘public’ and ’expenditure’. According to the two words, public expenditure expresses pecuniary resource of a public body and the science of expenditure would study the principles underlying the acquisition and use of such resources by the public body owning it.

Based on the above concept clarity, public expenditure is defined as the expenditure of the public sector. The relationships are adequately integrated for a common pursuit. Expenditure include capital as well as current expenditure. Public expenditure involves the behaviour of the government in relation to the pattern and trend of expenditure. This is also a branch of public Finance constituting the study of the money spending activities of the state or central government. It studies how finances of the government both cash and kind are spent or how to be spent to enable the state to perform its activities according to its defined goals. The attainment of the defined goal of a society mainly depends upon the type of economic system which prevails in the country. Depending upon the prevailing system of the country, the principles laid down
by the government will also vary. In this context, let us examine the main principle of public expenditure and it is presented below:-

1. **Maximum Social Advantage**

Public expenditure should be made in such a way as to maximize social benefit. Pigou pointed out “Expenditure should be spent in all directions up to the point at which satisfaction obtained from the additional shilling spent is equal to the satisfaction caused in respect of the last shilling called upon by the government to be paid by the people by way of revenue”. For attaining maximum satisfaction to the people in the areas of public expenditure government has to distribute the various items in such a way that the marginal return from every item of expenditure is equal.

The appropriate principles of taxation have to be considered in formulating the principle of public expenditure. The principles of public expenditure can not be built up without the principles of taxation. In maximizing social advantage the values of both expenditure and tax variable are to be determined simultaneously. The maximum social advantage is determined by the optimum allocation of resources. The optimum level is reached when the marginal return is equal to the marginal cost. Hence, the optimum level of public expenditure is attained by equating the marginal social cost and marginal social benefits. The marginal social cost and marginal social benefits are determined on the basis of taxation and public expenditure
respectively. Hence, the government has to spend its expenditure on each item in such a way that its marginal social benefit should be equal to marginal social cost of taxation.

2. Test of Economic Welfare

Public expenditure should be allocated in such a way that people are benefited by the defence and other activities to maintain law and order in the country. Economic welfare is also judged by the increase in production, national income and creation of employment opportunities. There should be equitable distribution of national products. Economic stability should be preserved in the country and inflationary or deflationary situation should be avoided. The present as well as future interests should be considered while deciding the level of public expenditure.

3. Canon of Economy

The aim of public expenditure is to maximize the social benefit and hence it does not allow the government to spend reckless. Instead it emphasises economy of spending. Here, economy does not mean stinginess in spending. It only means that extravagance and waste of all types of expenditure should be avoided. To satisfy the principles of canon of economy of public expenditure, it is necessary to avoid all duplication and overlapping of expenditure by the government authorities. Besides, public expenditure should not negatively affect the savings of the society.
4. Canon of Sanctions

According to the principle of canon of sanction, the public expenditure should be sanctioned by a competent authority before its spending. Unauthorized spending bound to lead to extravagance and over spending. Besides, it also means that the amount must be spent on the purpose for which it was sanctioned. Auditing is also required to attain the principle of canon of sanction. That is a post examination of public expenditure is equally essential. This means that all the categories of public expenditure at the end of the year should be properly audited to see that the amount is not misappropriated.

5. Canon of Elasticity

One of the main principles of public expenditure is canon of elasticity. The concept of canon of elasticity refers to the possibilities of public authorities to vary the expenditure according to the prevailing circumstances. A rigid level of expenditure is a source of trouble during bad times and hence enhancement of public expenditure is necessary without any difficulty. In this context, it is worth mentioning that alteration of public expenditure in the upward direction is not difficult. But what we needed the most is in the downward direction. Elasticity of public expenditure in downward is difficult because it is a very painful process and it creates serious social discontent. Hence, it is necessary that the scale of public expenditure has to be increased gradually whenever it is required.
6. **Principles of Equitable Distribution**

   Public expenditure should be distributed in an equitable manner. All the sections should get due share in the distribution of public expenditure. Besides, the backward area and backward classes should be given priority in the allocation of public expenditure.

7. **Principle of Production**

   Principle of production of public expenditure states that expenses should not have adverse effect on production and distribution. The unproductive and wasteful expenditure should be avoided and it should enhance capital formation.

8. **Promotion of Economic Growth and Stability**

   In modern times, one of the important principles of public expenditure is that it should promote directly or indirectly economic development and economic stability. This can be attained by spending more on developmental activities and reducing public expenditure during inflation and enhancing it during depression.

9. **Principle of Balanced Budget**

   Principle of balanced budget states that the government should spend on those activities which are able to raise revenue in future. Expenditure more than the revenues of government are not desirable. There should not be surplus
or deficit which create recession and inflation respectively. This principle is much more applicable in a developed economy because surplus budget reduces the chance of inflationary pressure and deficit improve the position of a stagnant economy. However, less developed economy grows with deficit financing. So a certain level of deficit is permissible in less developed countries.

10. Positive Theory of Public Expenditure

The scope of public expenditure analysis mainly depends upon the scope of the function of state. Adam Smith confined the subject of public expenditure to defence, administration of justice and certain public works. In modern democracies, public expenditure has multiplied manifold. In the context of modern democratic political system, a summary of nature and scope of public expenditure has been given by Sahni B.S. (1972). He states that analysis of the broad spectrum of public expenditure deals with questions relating to appropriate level and composition of public expenditure and various operational aspects of public expenditure decision making.

In the above context, it is difficult to classify the theory of public expenditure due to the existing vast voluminous literature. However, a three fold division may serve to provide an overview of scope of public expenditure analysis. They are: (i) Normative aspects, (ii) Positive aspects and (iii) Applied aspects (Sahni B.S. 1972).
(i) Normative Aspects of Public Expenditure

The normative aspects of public expenditure are concerned with the study of the appropriate levels and composition of public expenditure. It determines the norm of the operations for the satisfaction of social wants. Besides, it examines the effect and consequences of public expenditure and assesses the aims and objectives of public expenditure programmes. Hence, the normative aspect of public expenditure approach is also known as welfare approach. The main debated issues in the normative approach are:-

(a) A question of social choice

(b) Market failures and concept of ‘public good’ and

(c) Normative solutions for allocation and distribution of resources which is nothing but a pure theory of public expenditure (Sahni, B.S., 1972).

The concept of public good is reviewed here on the basis of Samuelson article (Samuelson, P.A., 1954). People require public goods to lead the life in the civilized society. The service of public goods is provided to the people in such a way that they are consumed equally whether they pay or not and the principles of price mechanism, cannot hold good in this context. These services are provided to the people by the government because of failures of the market. Market failure gives rise to various degrees of intervention for the government. The benefits of production of public goods are too costly to be divided into units to which prices can be assigned. Hence, it is difficult to
exclude any one of the citizens from consuming these benefits if they refuse to pay for them.

(ii) **Positive theory of public expenditure**

Normative theory of public expenditure has not added much to the understanding of government behaviour in the real world. Hence, there is a need to shift attention from the problem relating to “what should be” to “what is?”. In doing so it is necessary to know how expenditure policies, in fact, be determined which reached to the positive theory of public expenditure.

Bird (1970) has defined the positive theory of public expenditure as “that body of economic and political analysis which attempts to understand and explain the observed pattern and level of government expenditure and the changes in those expenditure over time”. The positive theory of public expenditure deals with the formulation and empirical verification of relevant behavioural hypothesis. In this context it is worth explaining the following main two behavioural hypothesis:-

(i) Wagner hypothesis, and

(ii) Peacock Wiseman hypothesis
(i) Wagner Hypothesis

Adolf Wagner (1890) states that a cause and effect relationship existed between the growth of economy and relative growth of public sector. He states the theory as increase in per capita income and output in industrialised nations lead to increase in the size of public sector as represented by the percentage of public expenditure to gross national product. The main reasons for this tendency are social problems, expansion of traditional functions of the state, growth of population, urbanization, rise in prices and national income.

However, experts like Allen T. Peacock and Jack Wiseman (1961) have criticised Wagner's hypothesis in the following ground:-

1. Wagner’s hypothesis ignores the influence of war on government spending activities.

2. The hypothesis possess the attributes of accumulating and partially explain the important historical facts, its lack of comprehensive analytical frame work causes it to fall short in these explanations,

3. Wagner stresses a long term trend of public economic activity which tends to over look the significant “time pattern” or process of public expenditure growth. and
4. Wagner hypothesis deals with the “inter-disciplinary” phenomenon although it is not essentially interdisciplinary in its analytical framework.

In the earlier literature, the following tools are employed to verify Wagner’s Law of Public Expenditure:-

(i) Ratio income elasticity test or simple income elasticity test.

(ii) Causality test.

i) Ratio Income Elasticity Test

Proper function specification of government expenditure and national income is essential to divide income elasticity co-efficient. In this context, it is essential to note that the ratios of government expenditure to Gross National Product are no substitute for the more rigorous concept of elastic coefficient because with an increase in income there may be absolute decline in expenditure (R. Madhavachari, 1982). Secondly, when cross section empirical data is used to test the law its validity may be distorted because it is not necessarily implicit that high income states will have higher government share in total expenditure than low income state. Hence, the function specification in verifying Wagner’s law of Public expenditure should be as presented below:-

\[
\frac{G}{N} = F(\frac{Y}{N}) \quad \text{(i)}
\]
Where.

\[ G = \text{Government expenditure} \]
\[ Y = \text{National Income. and} \]
\[ N = \text{Population} \]

The linear version of equation (i) is in the form of

\[ G/N = a_0 + b Y/N + U \ldots \text{(ii)} \]

The logarithmic form of equation (i)

\[ \log (G/N) = b_0 + P \log (Y/N) + E \ldots \text{(iii)} \]

Where.

\[ G/N = \text{Per capita government expenditure}, \]
\[ Y/N = \text{Per capita income, and} \]
\[ U = \text{random error term} \]

From the equation (iii) we can derive ratio income elasticity co-efficient from the simple income elasticity co-efficient. Thus, their monotonic relation can be expressed as:-

\[ \text{Ratio Income Elasticity} = \frac{d (G/N)}{G/N} \frac{d (Y/N)}{Y/N} = \theta \ldots \text{(iv)} \]

\[ \theta = \frac{d (G/N)}{G/N} \frac{d (Y/N)}{Y/N} = 1 \]

\[ P = (\theta - 1) \]
The estimate of P can be used for an empirical test in Wagner's Law when \( (P > 0) \) public expenditure as proportion to state domestic product increases and Wagner's law is valid. If \( (P < 0) \) then the size of public expenditure is decreasing whenever there is an increase in economic activity and it reveals invalidity of Wagner's law of public expenditure.

The ratio income elasticity test is not in a position to verify Wagner's law of public expenditure since it considers gross national product as an explanatory variable. While the conventional Macro Economic theory generally assume that public expenditure is an exogenous variable and national income is an endogenous variable which is in the opposite direction of Wagner's law (Keynes, 1936). The approach of Wagner and Keynes will speak only causal relationship between government expenditure and national income. Besides, the approaches of Wagner and Keynes have different policy implications. Under Wagnerian approach public expenditure is assumed to be behavioural variable with a passive role, whereas under the Keynesian approach it is treated as an exogenous policy variable, formulated mainly to ease out short term cyclical fluctuations in aggregate expenditures in the economy. In the absence of an empirical (causality relationship) testing between the two variables, choosing between the two approaches, on the basis of mere \textit{a priori} judgements become difficult. Several authors like Ram (1986, 1987), Sayed et al (1989), Sahni and Singh (1984a, 1984b), Singh
Sahni (1986) and Bhat et al (1991) employed causality test to verify empirically the validity of controversial issues between Wagnerian and Keynesian approaches, pertaining to public expenditure and national income. The causality test employed in the earlier work are mainly three which is explained below:

(i) Granger Test

(ii) Sims test

(iii) Multiple Rank ‘F’ test.

(i) Granger Test

The Granger test of causality states that a variable X causes another variable Y if the latter can be predicted better from past values of X and Y than from past values of Y alone. If X causes Y and Y does not cause X, then X is said to be causing Y unidirectionally. If X causes Y and Y causes X, then there is said to be a feedback (bi-directional causality) between them. For an empirical verification of the Granger test, it is necessary to estimate two regression equations of the following form:-

\[ Y_t = a_0 + \sum_{j=1}^{m} a_j X_{t-j} + \sum_{j=1}^{n} d_j Y_{t-j} + U_{1t} \quad \ldots \ldots (1) \]

\[ X_t = c_0 + \sum_{j=1}^{m} b_j X_{t-j} + \sum_{j=1}^{n} c_j Y_{t-j} + U_{2t} \quad \ldots \ldots (2) \]
Where $X_t$ and $Y_t$ are two stationary time series $a_i$, $c_i$, $a_j$, $b_j$, $c_i$ and $d_j$ are coefficients. $U_{1t}$ and $U_{2t}$ are mutually uncorrelated white noise series. Under the maintained hypothesis that $X_t$ causes $Y_t$, the null hypothesis is that:

$$a_i = d_j = 0 \text{ for all } i, j \text{ may be rejected in favour of alternative hypothesis that } a_i = 0 \text{ and } d_j \neq 0, \text{ at least for some } i, j.$$  

Rejection of the null hypothesis that $a_i = 0$ and $d_j = 0$ implies that $X_t$ causes $Y_t$ if $Y_t$ does not cause $X_t$. On the other hand, acceptance of the null hypothesis would imply absence of causal relationship between $X_t$ and $Y_t$.

The Granger test is sensitive to, among other factors, choice of lag length. An ideal way to test causation is to fix an appropriate lag length at the very outset. This has been successfully done in literature using Akaike final prediction error criterion (FPE). The Akaike test identifies appropriate lag length to each of the variables in equation (1) and (2) using a two stage procedure by minimizing the final prediction error.

(ii) Sims Test

This test follows the logic that future cannot cause the past. The causation between $X_t$ and $Y_t$ may be identified by estimating the following equation:

$$Y_t = \alpha + \sum_{i = -m}^{n} a_i X_{t-i} + U_{1t} \quad \ldots \quad (3)$$
\[ X_t = \beta + \sum_{j=-n}^{n} b_j Y_{t-j} + U_t \] \quad (4)

under the maintained hypothesis that \( X_t \) causes \( Y_t \), we have

\[(i) \sum_{i=-m}^{m} a_i (i < 0) = 0 \]

\[(ii) \sum_{j=-n}^{n} b_j (j < 0) \neq 0 \]

For bidirectional causality (feedback) between the two variables, it is to be satisfied that

\[ \sum_{i=-m}^{m} a_i (i < 0) = 0 \text{ and} \]

\[ \sum_{j=-n}^{n} b_j (i < 0) = 0 \]

and the condition for independence is that

\[ \sum_{i=-m}^{m} a_i (i < 0) \neq 0 \text{ and} \]

\[ \sum_{j=-n}^{n} b_j (j < 0) \neq 0 \]

(iii) **Multiple Rank F Test**

The multiple rank F test involves the use of ranked series in the place of the actual/transformed series for testing causation between variables. Following Holmes and Hutton (1990) the causal relationship between \( X_t \) and \( Y_t \) may be examined using the following general linear regression models.
\[ g(Y_t) = \omega + \sum_{j=1}^{k_1} \beta_j g(Y_{t-1}) + \sum_{j=1}^{k_2} \gamma_j h(X_{t-1}) + e_{1t} \quad \ldots \quad (5) \]

\[ h(X_t) = \delta_0 + \sum_{i=1}^{l_1} \alpha_i h(X_{t-1}) + \sum_{i=1}^{l_2} \nu_j (Y_{t-1}) + e_{2t} \quad \ldots \quad (6) \]

Where \( g \) and \( h \) are functions of \( Y \) and \( X \). \( \beta_i, \gamma_j, \delta_0, \alpha_i, \nu_j \) are parameters and \( e_1 \) and \( e_2 \) are the white noise terms. It may be noted that equation (5) and (6) may be obtained as special cases of (1) and (2) respectively by assuming that \( g(Y_t) = Y_t, \ g(Y_{t-1}) = Y_{t-1}, \ h(X_t) = X_t \) and \( h(X_{t-1}) = X_{t-1} \), and by assuming that \( g(Y_t) = R(Y_t), \ h(X_t) = R(X_t) \) etc. Here \( R \) denote the rank transformation of equation (5) and (6) for testing causation and it will give us multiple rank F-Statistics which are based on relatively less stringent assumptions about functional relationship between the variables. Here \( X_i \) is \textit{prima facie} cause of \( Y_t \) if \( \gamma_j \neq 0 \) for some \( j \).

**(ii) Peacock-Wiseman Hypothesis**

Peacock-wiseman hypothesis stresses the time pattern of public spending trends and highlights the fact that the increase in public expenditure does not follow any smooth and continuous trend. The increase in public expenditure over time has occurred in sets of step like manner. In their own words, apart from the secular trend of public expenditure there are other aspects of development of public expenditures such as the time pattern of public
expenditure growth which seems to us equally significant. (Peacock A.T. and Wiseman G (1967)).

Peacock and Wiseman make the following assumptions about the nature of state to explain their theory:-

(i) Decision about public expenditure on different plan is political one and it can be influenced through the ballot box or by whatever media citizens can bring pressure to bear up on the government.

(ii) Political choices about the use of resources differ from choices made through the market system, and

(iii) Citizens can have ideas about desirable public expenditure which are quite different from tolerable burdens of taxation.

On the basis of the above assumptions they explained their theory which consists of three concepts. They are (i) Displacement effect, (ii) Inspection effect and (iii) Concentration effect.

The absolute and relative increase of tax spending take place during social disturbances or war. This will create a displacement effect, by which previous lower tax and expenditure levels are replaced by the new and higher budgetary levels. Here displacement effect means a discontinuity in the growth pattern which produces expenditure peak during social disturbances. After the
social disturbances are ended the newly emerged levels of "tax tolerance" make the society willing to support higher levels of public expenditure. Since the society realises that it is capable of carrying a heavier tax burden than the previous had thought possible to bear. War and other social disturbances frequently forced the people and the government to find solutions of important problems which previously had been neglected and it is known as inspection effect. The concentration effect refers to the apparent tendency for the central government activities to become an increasing proportion of total public sector economic activity when society is experiencing economic growth.

To verify the validity of Peacock and Wiseman hypothesis, the following tests are employed in the literature:

(i) Dummy variable approach,

(ii) Testing the slope of the determinants of public expenditure equation, and

(iii) Chow test

(i) Dummy Variable Approach

Under this approach, let us define the determinants of public expenditure equation as:

\[ Y = a_0 + a_1 x_1 + a_2 x_2 + \ldots + a_n x_n + U \]  \hspace{1cm} (7)

Where,

\[ Y = \text{Public Expenditure}. \]
\[ x_1, x_2, \ldots, x_n = \text{determinants of public expenditure.} \]
\[ a_0, a_1, \ldots, a_n = \text{parameters to be estimated, and} \]
\[ U = \text{random error term.} \]

Based on the year in which disturbances has been occurred, we have to introduce a dummy variable as ‘0’ for the previous year of disturbance and ‘1’ for the year after social disturbance or vice versa. Then the new determinants of public expenditure equation will be:

\[ Y = a_0 + a_1 x_1 + a_2 x_2 + \ldots + a_n x_n + b_1 D + U \ldots \quad (8) \]

In equation (8) the regression coefficient \( b_1 \) has to be tested by formulating the null hypothesis that \( b_1 = 0 \) against the alternative hypothesis that \( b_1 \neq 0 \). If computed ‘t’ value of \( b_1 \) is greater than table value at the given level of significance then we accept alternative hypothesis that \( b_1 \neq 0 \). It means that Peacock Wiseman hypothesis is valid.

However, the dummy variable approach is limited to the extent of testing the shifting of estimated determinants of public expenditure equation. It does not reveal to what extent the slope of the determinants of public expenditure equation is altered due to social disturbances or displacement effect.
(ii) Testing the Slope of the Determinants of Public Expenditure Equation

Under this approach let us define the determinants of public expenditure equation as:

\[ Y = b_0 + b_1x_1 + b_2x_2 + \ldots + b_nx_n + U \ldots \]  

(9)

Where,

\[ \begin{align*} 
Y &= \text{Public Expenditure}, \\
x_1, x_2, \ldots, x_n &= \text{determinants of public expenditure}, \\
b_0, b_1, \ldots, b_n &= \text{parameters to be estimated, and} \\
U &= \text{random error term} 
\end{align*} \]

To test the slope of the determinants of public expenditure equation, a dummy variable is to be included by defining ‘0’ for the years previous to the social disturbance and ‘1’ for the years after the social disturbances or vice versa. Then the new equation to be estimated as:

\[ Y = a_0 + b_1x_1 + b_2x_2 + \ldots + b_nx_n + c_0D + c_1 Dx_1 + c_2 Dx_2 + \ldots + c_n Dx_n + U \ldots \]  

(10)

Here, we have to formulate null hypothesis that \( c_0 = c_1 = c_2 = \ldots = c_n = 0 \) against the alternative hypothesis that

\[ c_0 \neq c_1 \neq c_2 \neq \ldots \neq c_n \neq 0. \]
If the computed value of $c_1$ coefficient is greater than table value, then we accept an alternative hypothesis which means that Peacock Wiseman hypothesis is valid.

However, one of the main limitations of this test is that this affects the degrees of freedom in which the reliability of 't' test will be questionable.

(iii) Chow Test

Under this test, let us define the determinants of public expenditure equation as:

$$Y_1 = c_0 + c_1 x_1 + c_2 x_2 + \ldots + c_n x_n + U$$  \hspace{1cm} (11)

Where,

$Y$ = Public expenditure,

$x_1, x_2, \ldots, x_n$ = Determinants of public expenditure,

$c_0, c_1, c_2, \ldots, c_n$ = Parameter to be estimated, and

$U$ = random error term.

To conduct 'Chow' test for verifying displacement effect hypothesis first we have to estimate the determinants of public expenditure equation for the pooled data. Then find out residual sum of squares of the estimated equation. Divide the sample observation into two by considering the year in which social disturbance or war has occurred as cut off point. Then estimate the
determinants of public expenditure equation for the two samples separately and find out residual sum of squares of the estimated determinants of public expenditure equation of the sub sample. Then the ‘F’ value of Chow test is computed by employing the following formula:-

\[ F = \frac{(RSS_p - (RSS_1 + RSS_2))/k}{(RSS_1 + RSS_2)/(n_1 + n_2 - 2k)} \]

Where,

\[ RSS_p = \text{residual sum of squares of the pooled regression}, \]
\[ RSS_1 = \text{residual sum of squares of the first set of regression equation}, \]
\[ RSS_2 = \text{residual sum of squares of the 2nd set of regression equation}, \]
\[ K = \text{number of parameters, and} \]
\[ n_1 \text{ and } n_2 = \text{sample size} \]

In Chow test, we formulate null hypothesis that the estimated determinants of public expenditure equation is stable against the alternative hypothesis that it is not stable. If the computed value of ‘F’ is greater than table value of ‘F’ with given level of significance, we accept alternative hypothesis that the estimated determinants of public expenditure equation is not stable. This means that Peacock Wiseman hypothesis is valid. However, Chow test is limited to the extent of requirement of continuous increasing or decreasing function.
Determinants of Public Expenditure

The earlier works pertaining to determinants of public expenditure is based on the framework of the hypothesis of Wagner (1958), and Peacock and Wiseman (1967). Adolf Wagner (1958) studied the growth of public expenditure by establishing a functional relationship between the growth of economy and the growth of public sector. He explained it as larger levels of economic growth leads to larger levels of public expenditure. Peacock and Wiseman (1967) have made an empirical study of growth of public expenditure in the United Kingdom during the period 1890-1955. They explained the growth of public expenditure in terms of displacement effect, i.e. emergencies like war, and depressions cause a larger impact on public expenditure.

The pioneering study pertaining to the determinants of public expenditure has been the one by Fabricant (1952), in the U.S.A. and ‘Triko’, three variables, cover per capita income, degree of urbanization and density of population to explain 72 per cent of the variations in expenditure difference among the states.

After the Fabricant studies a number of studies have been conducted by including larger number of explanatory variables such as Tax Revenue, unemployment rate, grants, primary sector contribution, inflation, percentage of weaker section of society etc. In the later literature, political party in power
variable has also been introduced to examine the determinants of public expenditure. The entire results were derived in the earlier literature pertaining to determinants of public expenditure are on the basis of multiple linear regression equation frame work which is presented below:-

\[ Y_i = a_0 + a_1 x_1 + \ldots + a_n x_n + U_i \]  

(12)

Where,

\[ Y_i \] = public expenditure of \( i \)th item,

\[ x_1, x_2, \ldots, x_n \] = determinants of public expenditure,

\[ a_0, a_1, \ldots, a_n \] = parameter to be estimated, and

\[ U \] = random error term.

To examine the impact of influence of political variable on public expenditure, experts used dummy variable to quantify political variable and they included as one of the determinants in the above mentioned multiple linear regression equation. Dummy variable has been introduced by quantifying ‘0’ as ruling party regime and ‘1’ as opposition party regime or vice versa. Then the determinants of public expenditure equation is presented as:-

\[ Y = b_0 + b_1X_1 + b_2X_2 + \ldots + b_nX_n + D + U \]  

(13)

Where,

\[ Y \] = government expenditure,

\[ X_1, X_2, \ldots, X_n \] = determinants of government expenditure.

\[ D \] = dummy variable representing ‘0’ as ruling party regime and ‘1’ opposition party regime.
\( b_1, b_2, \ldots, b_n, d = \) parameters to be estimated, and

\( \text{U} = \) random error term.

Here, we formulate the null hypothesis that \( d = 0 \) against the alternative hypothesis that \( d \neq 0 \). If computed value of \( d \) co-efficient is greater than its table value, we reject it and accept an alternative hypothesis that changes in the party in power is having a significant effect on government expenditure.

One of the main limitations of this method is an existence of problem of errors in measurement. Besides, researches may not be in a position to identify the rate of change of public expenditure whenever the government changes.

To overcome the above mentioned problem in quantifying political variable, a political party index is constructed. In a parliamentary form of government like India, Members of Legislature can influence policy formulation of the government or allocation of public expenditure by changing the party in power by way of shifting loyalty from one group to another group. Under two party system of government such influence is highly prominent. This will also justify in the construction of political Index in quantifying the impact of political variables on public expenditure. Hence, for the analysis of determinants of public expenditure a political party index is constructed on each year of the study as percentage of Left Democratic Front Members of Legislative Assembly to the total number of Members of the Legislative
Assembly in Kerala. This is due to the fact that in Kerala there are only two regime which are ruling the state. They are: (i) Left Democratic Front Regime and (ii) United Democratic Front Regime. Their policy thrust is on the basis of socialistic and capitalistic in nature respectively. Then, we estimated the following regression equation to examine the impact of socio-economic and political variables on public expenditure.

\[ Y = a_0 + a_1 x_1^* + a_2 x_2^* + \ldots + a_n x_n^* + b \text{ PI}^* + U \]  

(iii)

Where,

\[ Y = \text{public expenditure} \]

\[ x_1^* \ldots x_n^* = \text{Socio-economic determinants variable} \]

\[ \text{PI} = \text{Political party index}, \]

\[ a_0, a_1 \ldots a_n, b = \text{Parameters to be estimated, and} \]

\[ U = \text{random error term} \]

To examine the impact of changes in the political party in power on government expenditure, we formulated the null hypothesis that \( b = 0 \) against the alternative hypothesis that \( b \neq 0 \). If the computed value of ‘b’ coefficient is greater than its table value, we reject the null hypothesis and accept an

* The theoretical expectation between public expenditure and its determinants are explained in chapter – 6.
alternative hypothesis that changes in political party in power is having a significant impact on government expenditure

**Concluding Remarks**

The present chapter examines the theoretical background of the present study. Hence, it attempted to examine the theories of public expenditure with special reference to Wagnerian approach, Peacock Wiseman hypothesis and determinants of public expenditure hypothesis. Besides, the present chapter also explains different tools employed in the earlier literature to examine the validity of these hypothesis.

By and large, our study deals with the controversial issues between Wagnerian and Keynesian approach pertaining to the relationship between public expenditure and economic growth. Besides, the study also attempts to identify the socio-economic and political determinants of various components of public expenditure. Granger, Sims and Multiple Rank F test are employed to verify the validity of Wagnerian hypothesis. The log-linear multiple regression equation is employed to identify the socio-economic and political determinants of various components of public expenditure of Kerala.
References


69


