

## **CHAPTER 2**

### **REVIEW OF LITERATURE**

#### **2.1 Theoretical Literature**

A study of literature has identified four possible hypotheses regarding the relationship between government revenue and government expenditure.

##### **(1) Tax-and-Spend Hypotheses**

According to this hypothesis, the amount of tax revenue determines the size of government expenditure. More specifically, the view is that expenditure must follow revenue. So, unidirectional causal relationship running from government revenue to government expenditure exists. Friedman (1978), Buchanan and Wagner (1977, 1978) hold this view.

Milton Friedman (1982) suggests that cutting taxes lead to higher deficits which would force government to reduce its level of spending. It is treated as a remedy to budget deficits, as taxes have positive causal impact on expenditure. Buchanan and Wagner (1978) put forward same view in an alternative way that an increase in taxes leads to reduction of expenditures. According to the authors, in response to tax cuts, the public will perceive that cost of the goods and services provided by the government has fall which in turn increases demand for goods and services. As a result this will result in an increase in government spending due to indirect inflation taxation.

##### **(2) Spend-and-Tax Hypothesis**

This view argues that government expenditure actually Granger causes tax revenue has been proposed by Peacock and Wiseman (1961, 1979). According to this proposition, Government takes the expenditure decision first, and then imposes tax on the people. So, there exists a *unidirectional causality* running from government expenditure to government revenue. This view is based on the observations that any crisis situations or any exogenous disturbances like war, political disturbances or natural disasters increase in government spending and, therefore, people pay taxes for them. The solution suggested here for problems of budget deficits is that government spending should be reduced. This hypothesis is motivated by Peacock and Wiseman (1961) and 1979), Barro (1974-1978). Another version developed by Barro argues that government expenditures are considered as an exogeneous variable to

which revenues adjust. In this hypothesis Barro rejects the concept of fiscal illusion of taxpayers.

### **(3) Fiscal Synchronization Hypothesis**

According to this hypothesis, government expenditure and government revenue are interdependent and these are determined jointly. This implies bi-directional causal relationship between the variables concerned. According to the authors (Meltzer and Richard, 1981; Musgrave, 1966) government may change their expenditure and revenue concurrently. In this hypothesis, the citizens determine the levels of government spending and taxation by comparing the benefits of the Government with the citizen's marginal cost.

### **(4) Fiscal Neutrality**

The Fiscal Neutrality School, proposed by Baghestani and McNown (1994) holds that government expenditure and government revenue are independent. This implies that both revenue and expenditure decisions are taken in isolation.

## **2.2 Relevant Theoretical Resolutions in Macroeconomics**

Considerable empirical research works have been done in order to assess and justification of above four hypotheses. A brief survey of empirical researches is being presented below.

### **Introduction**

The relationship between government revenue and government expenditure in any country has been exciting the imagination and interest of economists for taking a deeper probe into this arena ever since the publication of Adam Smith's '*Wealth of Nations*' in 1776. Ricardo joined the fray and opined that effects of Government expenditure through taxation or through borrowing were similar unless the population suffered from any '*myopic rationality*'. His propositions are known by the term of '*Ricardian Equivalence*' in economics. Domar stressed on the burden of debt for future generations when expenditures were financed through borrowing. The implication of such analysis was that expenditure needed to be financed only through the levy of tax. Consequently, volume of expenditure gets constrained by the volume of revenue. Thus this analysis implicitly provides an inkling to '*Granger causality*' running from revenue to expenditure.

Classical economists, as a matter of fact, were in favour of minimum Government intervention in the economy. Moreover, these economists stressed upon the accumulation of 'surplus' in the economy implying that expenditure must be in parity with revenue and be lower than that of revenue earned by the Government in any year.

Keynes, on the other hand, just after the great depression of 1930s, advocated for the chauvinistic involvement of the Government in rescuing the economy from the great peril. He advocated for 'pump priming' and lavish Government expenditure. *Expansionary Fiscal Policy*, which he prescribed as a solution for *Great Depression*, involved higher expenditure together with a lower tax rate. Thus in Keynesian' solutions expenditure maintained no fixed relations with revenue implying 'Fiscal Neutrality' in the economy.

Friedman, being an outright monetarist, considers monetary policy as an effective tool for stabilization, preferable to fiscal policy. Any change in expenditure or tax revenue would lead to change in IS schedule leading to change in interest rate. A rightward shift in the IS schedule would lead to a rise in interest rate leading to 'crowding out'. Consequently, such rise in interest rate reduces the income generation power of expenditure in the economy.

However, it is theoretically established that expenditure multiplier exceeds the tax multiplier such that the balanced budget multiplier is unity. This indicates that Government may amply benefit without any harmful consequence when expenditure equals revenue. The basic resolution of the analysis is that *expenditure must be in parity with revenue*.

Mundell-Fleming model deals with the efficiency of Fiscal policy in an open economy. According to this model, fiscal policy is effective only in an economy operating under *Fixed Exchange rate system* in affecting level of income. Expansionary fiscal policy, through a rise in expenditure and or fall in tax rate, leads to a rise in income level. Such rise in income, given the tax rate, leads to higher level of revenue in following period allowing for sustained higher expenditure in the economy. This argument essentially indicates the *presence of Granger Causality from expenditure to revenue level in any economy under fixed exchange rate system*.

Fiscal policy, as the Mundel-Fleming Model shows, is ineffective under flexible exchange rate system so far as income generation is concerned. In such case, fiscal policy changes cause variations in exchange rate only and leave income level unchanged. Consequently, the tax rate being unchanged, revenue in subsequent period remains unaffected by the

expenditure incurred in the previous period. *Here, revenue is unrelated to expenditure.* Moreover, expenditure, being determined by socio-economic and political needs, remains more or less unrelated to revenue. *Thus 'Fiscal Neutrality Doctrine' seems to be operative under flexible exchange rate system.*

### **2.3 Empirical Researches**

All these findings are theoretical by nature. However, several empirical studies have been taken up since 1980 with varying conclusions regarding the relationship between expenditure and revenue levels in different countries. These studies differ in the matter of research methodologies, target countries, period of studies, frequencies of dataset etc. Some of the important studies are being reviewed below.

**Manage and Marlow (1986)** studied the direction of *causal relationship* between revenue and expenditure in USA during the period 1929-1982. They performed *Granger-Sims Causality Tests* for the purpose. They reported '*Bi-directional Grange Causality*' between revenue and expenditure. Thus they concluded that the '*Fiscal Synchronization Principle*' prevailed during the period of study in the USA.

**Anderson, Wallace and Warner (1986)** examined the revenue-expenditure relationship in the USA over the period 1946-1983. They used the '*Pair-wise Granger Causality Tests*' and found the evidence of '*Uni-directional Granger Causality*' from expenditure to revenue. So they argued that the '*Principle of Spend and Tax*' was found in the USA during this period (1946-1983).

**Rame (1988)** re-enquired into the relationship between revenue and expenditure in the USA over the period 1929-1983. However, the study was based on the estimation of an *Unrestricted Vector Auto-regression Modal*. His findings supported the existence of '*Bi-directional Granger Causality*' between revenue and expenditure in the USA over the period of Study. Consequently, this finding justified the findings of *Manage and Marlow (1986)*.

**Miller and Russck (1990)** applied '*time domain study*' on this issue for the USA over the period 1946-1987. They examined the *cointegration* between revenue and expenditure over the period and found a long-run relationship between the variables concerned. The estimated *Vector Error Correction Model (VECM)* testified for the stability of long-run relationship. They also reported *Bi-directional Granger Causality* between revenue and expenditure over

the period of study concerned. *Miller and Russck (1990)* concluded in favor of the '*Principle of Fiscal Synchronization*' in the USA during 1946-1987.

**Joulfinia and Mookerjee (1991)** studied the revenue-expenditure relationship in OECD countries during the period 1955-1986. They estimated some *Vector Autoregressive Models* to examine the nature of long-run relationship between expenditure and revenue and also to identify the nature as well as the direction of causality between the variables concerned. The authors reported '*Uni-directional Granger Causality*' from revenue to expenditure and therefore, concluded for the validity of the '*Tax and Spend Hypothesis*' in the countries concerned over the period of study (1955-1986).

**Baghestani and Mc. Nown (1994)** re-examined the revenue-expenditure relationship in the USA for the period 1955-1989 with the application of the '*Multivariate Cointegration Technique*' and the estimation of an appropriate *Vector Error Correction Model (VECM)*. They reported stable long-run relationship between revenue and expenditure, and the presence of '*Uni-directional Granger Causality*' running from revenue to expenditure over the period of study. Thus their study testified for the validity of the '*Tax and Spend Principle*' with respect to the fiscal management in the USA over the period of study.

**Naidu, Mohsin and Nishe (1995)** studied the revenue- expenditure relationship in the state of Andhra Pradesh, India, over the period 1969-1990. They applied *Granger-Sims Causality Tests* and observed '*Bi-directional Granger Causality*' between revenue and expenditure. Their finding indicate that the '*Principle of Fiscal Synchronization*', was followed in Andhra Pradesh in the matter of fiscal management.

**George Handroyiannis and Evangelia Papapethrou (1996)** studied the validity of the proposition that there was a causal link between government revenue and government expenditure for Greece over the period 1957-1993. The empirical evidences suggested that the long-run relationship between government revenue and government expenditure did exist and expenditure caused revenue in Greece over the period of study.

**Darrat (1998)** examined the revenue-expenditure nexus in Turkey. *Bivariate and Multivariate Cointegration Techniques* were used to examine if there did exist any long-run relationship between revenue and expenditure. He used the *Granger Causality Test* to examine the nature and direction of causality between revenue and expenditure. He reported

*'Uni-directional Granger Causality'* from revenue to expenditure. He, therefore, held that the *'Principle of Tax and Spend'* was pursued in Turkey over the period of study.

**Bradely T.Ewing and James E. Payne (1998)** utilized the Engel-Granger bivariate cointegration approach to test several hypotheses concerning the temporal relationship between government revenue and government expenditure relative to GDP. They showed that fiscal synchronization hypothesis did exist between government revenue and government expenditure. For Colombia, Ecuador and Guatemala they found evidence of causality from revenue to expenditure.

**Wan Kyu Park (1998)** investigated granger causality between government revenue and government expenditure in Korea over the period 1964-1992. He used both parametric and nonparametric tests in his study. He found that in the Korean data both parametric and nonparametric tests support the unidirectional causal relationship which ran from government revenue to government expenditure.

**D.M.Mithani and Goh Soo Khoon (1999)** studied empirically the effect of seasonality in examining the causal relationship between quarterly government revenue and government expenditure in Malaysia for the period 1970.1-1999.4. Evidence of seasonal cointegration of biannual frequency is found. The seasonal error correction model results indicated a unidirectional causal influence from government expenditure to government revenue supporting the spend-and-tax hypothesis in the short-run.

**Dhanasekharan (2001)** examined the revenue-expenditure relationship in Indian economy for the period 1960-1997 with the annual time series dataset. The study was based on the *cointegration technique* and *Geweke Decomposition Model*. *Granger Causality Test* testified for the *Uni-directional Causality* running from expenditure to revenue implying the validity of the *'Spend and Tax Hypothesis'* in the economy of India.

However, the estimated *'Geweke Decomposition Model'* testified for the *'Bi-directional Granger Causality'* between revenue and expenditure schedules. Consequently, the *'Principle of Fiscal Synchronization'* appeared to be operative in the matter of fiscal management in India over the period of study (1960-1997).

**Omo Aregbeyen and Taofik Mohammed Ibrahim (2012)** studied the long run relationship and dynamic interaction between government revenue and government expenditure in Nigeria for the period 1970 to 2008. By applying ARDL bound test they found

the long-run relationship between government revenue and government expenditure when government expenditure was made dependable variable. When government expenditure was made dependable variable no evidence of a long-run relationship was found. The tax-spend relationship was confirmed.

**Wong Hock Tsen and Lim Kian Ping (2005)** examined the relationship between government expenditure and government revenue in Malaysia over the period 1965-2002 and found that both government expenditure and government revenue were cointegrated. The causality test exhibited that government revenue caused government expenditure in Malaysia over the period of study.

**Khalid H.A. Al-Qudair (2005)** examined the long-run equilibrium relationship between government expenditure and government revenue in the kingdom of Saudi Arabia using co-integration method and direction of causal relationship in the short-run and long-run. He found the existence of long-run equilibrium between government expenditure and government revenue along with bidirectional causality between government revenue and government revenue in both the short-run and long-run.

**A.M. Dayang-Affizzah, Muzafar Shah Habibullah and W.N.W Azman-Sain (2006)** examined the issue of the intertemporal relationship between government revenue and government expenditure. They used annual data on government revenue and government expenditure for 16 Municipalities in Sabah over the period 1965-2003. Empirical analysis of the vector error correction model suggested that the results were at best mixed.

**Christos Kollias and Susana–Maria Paleogou (2006)** investigated the revenue and expenditure nexus in case of the 15 members of the European Union. They found a mix result. The fiscal synchronization hypothesis holds for Denmark, Greece, Ireland, Netherland, Portugal and Sweden while in case of Austria, Belgium and Germany institutional separation hypothesis did exist. Unidirectional causality from revenue to expenditure did persist for Italy and Spain and reverse causal relationship is found for Luxembourg. Buchanan –Wagner hypothesis hold good for Finland, France and U.K.

**Narayanan and Narayanan (2006)** studied the revenue-expenditure relationship in ten countries like Mauritius, El Savador, Chili, Venezuela, Haiti, Peru, South Africa, Guatemala, Uruguay and Ecuador. They employed the *Multivariate Toda and Yamamoto Tests* along with *Granger Causality Tests* in their time series studies. They reported the

validity of the '*Tax and Spend Hypothesis*' for Mauritius, El Salvador, Chili and Venezuela. However, the '*Fiscal Neutrality Principle*' was found to be operative in Peru, South Africa, Guatemala, Uruguay and Ecuador. In contrast to these findings, they reported that the '*Spend and Tax Hypothesis*' was operative in Haiti only.

**Mukhopadhyay and Maitra (2006)** studied the *causal* relationship between Government revenue and Government expenditure in India for the period 1950-2005. They applied *Cointegration Technique*, *Vector Error Correction Model (VECM)* and *Vector Autoregressive Model (VAR)* in their study. They reported the presence of '*Bi-directional Granger Causality*' between the variables concerned. Thus their study testified for the '*Fiscal Synchronization Principle*' in the economy of India over the period of study.

**Mukhopadhyaya and Maitra (2007)** examined the *causal* relationship between Government expenditure and Government revenue in Sri Lanka over the period 1950 – 2004 in a bi-variate frame work. The *Unit Root Tests* suggested that both expenditure and revenue were *non-stationary* at level but *stationary* upon first differencing. The '*Engle Granger Test*' confirmed that the variables were *cointegrated*. The VECM model was estimated for examining short-run dynamics of variables concerned. The VAR model indicated that there did exist '*Bi-directional Granger Causality*' between expenditure and revenue. Thus the estimated VAR model testified for the evidence that the '*Fiscal Synchronization Hypothesis*' was valid in Sri Lanka over the period of study (1957-2004).

**Mukhopadhyay and Maitra (2008)** examined if there did exist any long-run *causal* relationship between expenditure and revenue in the economy of Maldives over the period 1980-2006. Expenditure and revenue series were found to be CI (1, 0). The VAR model presented the evidence that the '*Fiscal Synchronization Hypothesis*' was valid in Maldives. The *Impulse Response function* indicated that revenue shocks were more important in constituting the long-run bases of both revenue and expenditure profiles. *Variance Decomposition Study* confirmed that shocks, transmitted through revenue channel, accounted for the major part of variations in both revenue and expenditure above their corresponding long-run levels.

**Mukhopadhyay and Maitra (2008)** enquired into the *causal* relation between expenditure and revenue in the economy of Pakistan over the period 1957-2006. The study involved the use of the '*Cointegration*', *Vector Error Correction Model (VECM)*, *Veector Autogressive*

*Model (VAR), Intervention Analysis* through the examination of the corresponding 'Impulse Response Functions' and 'Forecast Error Variance Decomposition'.

The authors reported that the fiscal policy in the economy of Pakistan was marked by the presence of 'Uni-directional Granger Causality' running from expenditure to revenue. Revenue, on the other hand, was found to have failed to 'Granger Cause' expenditure over the period of study. Expenditure considerations received greater importance and these constituted the profiles of expenditure and revenue. Thus the 'Principle of Spend and Tax' seemed to be operative in Pakistan over the period of study.

**Mahmut Zortuk and Nevin Uzgoren (2008)** studied the relationship between government revenue and government expenditure by applying bound test approach for the period 1981-2004. They showed a long-run relationship between government revenue and government expenditure. The results revealed that Turkey as a developing country, finances the increase in its public expenditure with new taxes.

**Yamane wold-rufael (2008)** investigated the causal relationship between government revenue and government expenditure for 13 African countries by using a modified version of the Granger causality test. He found a bidirectional causality running between government revenue and government expenditure for Mauritius ,Swaziland and Zimbabwe, no causality in any direction for Botswana, Burundi and Rwanda , unidirectional causality running from revenue to expenditure for Ethiopia, Ghana ,Kenya ,Nigeria, Mali, and Zimbabwa and a unidirectional causality running from expenditure to revenue for Burkina Faso only.

**Jaka Sriyana (2009)** studied the relationship between tax revenue and government expenditure for Indonesia over the period 1970-2007. The empirical evidences suggested the long-run equilibrium relationship between government revenue & government expenditure and causality running from tax revenue to expenditure.

**Qazi Muhammad Adnan HYE and M.Anwar Jalil (2010)** enquired into the causal relationship between government revenue and government expenditure in case of Romania over the period 1998:1 to 2008:3 by applying autoregressive distributed lag approach to cointegration, variance decomposition and rolling regression method. They reported that bidirectional causality between government expenditure and government revenue prevailed in Romania. The variance decomposition method suggested that revenue shocks dominated over the expenditure shocks in causing variation in revenue.

**Mohsen Mehrana and Mosayeb Pahlavani and Yousef-Elaysi (2011)** investigated the relationship between government revenue and government expenditure in 40 Asian countries for the period 1995-2008. They found that there did exist bidirectional causal relationship between government revenue and government expenditure in both the short-run and long-run and fiscal synchronization hypothesis was confirmed for these countries.

**Oluwole Owoye and Olugbenga A. Onafowora (2011)** studied the causal relationship between government revenue and government expenditure in 22 OECD Countries, consisting of 11 European Union (EU) member states, and 11 non-EU member states. They showed that the long-run and short-run causal patterns differ across these groups. For the long-run causal pattern, they found evidence of tax-and-spend hypothesis in the 8 of the 22 countries, but the evidence was more prevalent within the EU Countries. They also reported that fiscal synchronization hypothesis did not exist in the long-run while the short-run results showed evidence of fiscal synchronization in 5 out of 22 countries.

**Muhammed Imtaz Subhani, Syed Akif Hasan, Amber Osman and Tanzeel Rafiq (2012)** examined the nexus between government revenue and government expenditure for Pakistan for the period 1979-2010. They found a unidirectional causality between government revenue and government expenditure which ran from government revenue to government expenditure.